

Schumaker & Company



Redacted
Audit Report
for
State of New Jersey
Board of Public Utilities
Involving
Affiliated Transactions between
New Jersey American Water, American Water Works Company, Inc.
and Its Affiliates
Including a Review of
Operational and Financial Performance
of
New Jersey American Water Company
Pursuant to
N.J.S.A. 48:3-49, 48:3-55, 48:3-56, 48:3-58 & N.J.A.C. 14:4-3.7(e) and (f)
and
Comprehensive Management Audit
of
New Jersey American Water Company
Pursuant to
N.J.S.A. 48:2-16.4 & N.J.A.C. 14:3-12.1 ET SEQ
Docket No. WA18080849

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I. Executive Summary

This chapter represents a summary introduction and results of the audit of (a) an audit of the affiliated transactions between New Jersey American Water Company (NJAW), American Water Works Company, Inc. and its Affiliates, including a review of operational and financial performance of New Jersey American Water Company pursuant to N.J.S.A. 48:3-49, 48:3-55, 48:3-56, 48:3-58 & N.J.A.C. 14:4-3.7(e) and (f) and (b) comprehensive management audit of NJAW pursuant to N.J.S.A. 48:2-16.4 & N.J.A.C. 14:3-12.1 ET SEQ (Docket No. WA18080849). It includes a summary of recommendations and their priorities, plus NJAW and American Water (AW) background information and data. The remaining report chapters contain a discussion of our background & perspective; findings & conclusions; and recommendations for each discrete area of review within the scope of the audit. They include:

Phase I Chapters	
#	Chapter Name
II	Evaluation of Financial Performance
III	Regulatory Filing Process and Review of Current Case Workpapers and Spreadsheets
IV	Procurement and Purchasing
V	Affiliate Relationships
VI	Internal Controls
VII	Market Conditions
VIII	Recommendations and Review of Previous Audit
IX	Affiliate Cost Allocation Methodologies
X	Capital Allocation Among Subsidiaries
XI	Cost Recovery Mechanisms
XII	Non Rate-Related Revenues
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XIV	Executive Management and Corporate Governance
XV	Organizational Structure
XVI	Human Resources
XVII	Strategic Planning
XVIII	Systems Operations
XIX	Customer Service
XX	External Relations
XXI	Support Services, including Insurance and Claims, Legal, Facilities Management, Materials Management, Transportation, Real Estate and Land Management, Computer Systems and Services/Cyber Risk, Records Management, and Security of Infrastructure
XXII	Finance
XXIII	Cash Management
XXIV	Accounting & Property Records
XXV	Affiliate Cost Allocations and Relationships
XXVI	Company Contractor Performance
XXVII	Cyber Risk Mitigation/Cyber Security



These chapters provide the detailed facts and analyses that support, and provide context for, the recommendations we have made. The findings and recommendations contained in this audit report are the findings and recommendations of the consultant only and are not necessarily agreed to by NJAW or NJBPU.

A. Summary of Findings and Conclusions

This section summarizes our findings and conclusions by audit subject area.

Phase I – Operational & Financial Performance Review & Affiliate Transactions & Relationships

Evaluation of Financial Performance

Financial performance has generally improved over the years. From 2009 to 2018 the following types of financial statements show that NJAW has been improving:

- ◆ *Balance Sheets Summary Calendar Years 2009 to 2018* – Total Assets/Total Capitalization & Liabilities have been increasing yearly from approximately \$2,655,142,000 in 2009 to \$4,487,460,000 in 2018.
- ◆ *Statements of Income Summary Calendar Years 2009 to 2018* – Operating Revenues and Operating Expenses have generally been increasing yearly, so Operating Income has increased from approximately \$167,982,000 in 2009 to \$237,807,000 and Net Income has increased from approximately \$80,487,000 in 2009 to \$142,486,000 in 2018.
- ◆ *Statements of Cash Flow Summary Calendar Years 2009 to 2018* – Cash & Cash Equivalents at beginning of year and end of year has gone up and down over the years; however, in Cash & Cash Equivalents at the end of 2009 was \$2,866,000 and at the end of 2018 was \$4,615,000, even though 2018 was slightly down from 2017.

Dividends have been typically paid at 75% of net income to American Water Works Company. As previously shown from 2010 to 2018, dividends have been typically paid at roughly 75% of net income to American Water Works Company. While that is roughly the same as many utility organizations, it does not seem to hurt NJAW's ability to perform operations. Dividend Policy documentation shows that it has not been changed or updated since 2010, which differs from expected three-year intervals mentioned by AWWSC management.¹

NJAW has not used load research data in past rate cases. Load research studies are an activity embracing the measurement and study of the characteristics of customer loads to provide a thorough & reliable knowledge of trends, and general behavior of the load characteristics of the customers serviced by the industry. Therefore, load research allows utilities to study the ways their customers use water or wastewater, either in total or by individual end uses. However, NJAW has not used load research data in past rate cases for development of cost of service studies, rate design, or billing determinants² and it is recommended that it be investigated.

NJAW's credit ratings are reasonable. Specifically, Moody's and S&P's credit ratings for American Water and NJAW, NJAW's credit ratings are reasonable.

The Revenue Analytics group is considered weak for rate cases. Next year more rate cases are expected; however, this group is considered a little bit weak by management due to a lack of experience, especially for rate cases.³

Regulatory Filing Process and Review of Current Case Workpapers and Spreadsheets

A policy and practice does not exist for the rate case filing process. Instead, the very detailed RACI document is used to guide this process. A process overview or details of creating a RACI document to start the process, does not exist.

Extensive Agreed Upon Procedures work (focused on the September 2017 rate case) by a public accounting firm yielded a small financial impact. As shown in *Exhibit III-3 of Chapter III*, the financial impact resulting from an extensive review of the September 2017 rate case financial schedules, the supporting documentation, and NJAW books and records was minimal.

Our review of the four rate case financial schedules filed during the audit period revealed no variances. A more limited review than the Agreed Upon Procedures engagement was the Schumaker & Company review of rate case financial schedules from rate cases filed during the audit period. This was also an opportunity to review the documentation supporting the rate case financial schedules and the form of that documentation. Our review of several financial line items, selected at random from each of the rate case financial schedules, were traced back to the supporting, more detailed schedules without exception.

The rate case financial schedules supporting documentation did not have the specific totals or summarized amounts that were ultimately presented in the rate case schedules. Even though review of the rate case financial schedules supporting documentation showed that the supporting documentation did support the rate case financial schedules, it was not an easy task to make that comparison. The supporting schedules were very detailed but lacked summary amounts of that detail. The summary amounts were the amounts presented in the rate case financial schedules. Without the summary amounts in the supporting details, various amounts were added to come to the amounts that were presented in the rate case schedules. To compare the detailed supporting schedules to the rate case financial schedules, various numbers were accumulated and summed manually. When that process was performed, the link to the rate case financial schedules was found and the numbers from the supporting schedules noted to be in agreement with the rate case financial schedules. Also, without a number that shows both in the detailed schedules and the rate case supporting schedules, the task of any reviewer is more onerous.

Procurement and Purchasing

Policies and practices documentation, as illustrated in *Exhibit IV-12 in Chapter IV*, are not regularly reviewed or updated when appropriate. It includes purchasing/procurement policy and practice



documents provided by NJAW in April 2019, including the latest effective date and the scheduled next review date following the latest effective date, even though, in most cases, it does not appear to have been done by April 2019, as the effective date was not changed.⁴ Many Purchasing / Procurement policies and practices were in the process of being reviewed at the time of the audit and additional policies and practices are currently being reviewed.⁵ The Procurement Practice documentation was again published in December 2019.⁶

Schumaker & Company was not able to determine how often these documents were reviewed and changed, if necessary, even though in other audits we typically see that policy and practice documentation is generally reviewed at least every two years and modified as needed.⁷ Unfortunately it seems that most haven't been reviewed and updated recently. According to the State Procurement group, other changes are coming, as processes and procedures are being updated by the Director of the Corporate Procurement & National Categories group and his employees, because the last update was several years back.⁸ According to the Corporate Procurement group, currently policies and practices documentation is being redone, which was started roughly two (2) years ago.⁹ Recently the Procurement Policy and Practice documentation was updated (as of 4/30/2019),¹⁰ given water industry best practices, but the practice documentation was still in progress,¹¹ but updated in December 2019.¹²

The Enterprise Data Policy documentation is mentioned in two other documentations, but doesn't exist. However, when Schumaker & Company requested a copy of the documentation, we were told by the Director in the Corporate Procurement group that, to the best of our knowledge, this policy does not exist, plus it is likely that whatever information may have been included in this policy has been incorporated into other policies regarding company data.¹³

Completion and use of Supply One View application for spend data analysis is in progress but not done yet. Profit Recovery Partners (PRP) firms help American Water to buy items by doing full sweep and working side-by-side to gain savings through contractual negotiation.¹⁴ Then key suppliers are reviewed about what done, but is done informally. Now it is becoming more formally done. Supply One View (SIV) uses include spend data analysis but not performance yet.¹⁵ SIV is a single pane of glass where employees can gather information and insights about company spend, suppliers, cost models, etc. Problems AWWSC plans to solve with this application include:¹⁶

- ◆ How much do we spend on a specific category and supplier?
- ◆ What other opportunities are out there for suppliers? Diversity options?
- ◆ Currently have to go into multiple systems to analyze supplier risk
- ◆ Onboarding a supplier is a long process
- ◆ Difficult for the business and supply chain to assess supplier performance
- ◆ What should we pay for a specific item? How does the cost of that item build up from the commodity level? Where is the company's exposure?

SIV, as a spend analytics tool, takes rough account data from SAP artificial intelligence to categorize spending. It's a dynamic reporting tool involving mass amounts of data and puts into interface via WBS#, states, etc.¹⁷ However, the SIV application is still being developed, so AWWSC is still scoping

out all of the supplier insights functionality and do not have key supplier views at this time.¹⁸ Once it is fully completed, it should be positive for AWWSC's use of associated data.

The Supplier Relationship Management program expects to make changes in 2020. This group is looking next year at the Supplier Relationship Management program to make positive changes needed for segmenting American Water's suppliers and establishing more KPIs. Organizations typically use a lot of consultants for SRM programs, which are typically on time delivery, so mostly informally done, not contracted. When used, Director of State Procurement group will be involved with services and the Director of Corporate Procurement group with materials for establishing KPIs.¹⁹

Recent internal audits involving procurement and purchasing have not completed all actions. Some of the actions to address the following internal audits are still open and not completed.²⁰

- ◆ Procurement and Sourcing Processes and Compliance Audit (2016), including Multiple Affiliates²¹
- ◆ Capital Project Planning and Budgeting Governance Audit (2016), including Multiple States²²

BAM has recently been updated. In April 1, 2019 the BAM was updated again, but no separate sessions for *Service Company Budgeting and Planning* plus for *Service Company Reporting* was included.²³ Mentioned also in *Background & Perspective* section of *Chapter V – Affiliate Relationships* on page 127.

Affiliate Relationships

Minimal information and data was provided for affiliate transactions other than AWWSC to NJAW. AWWSC does not prepare affiliate transaction reports that indicate all transactions between NJAW and affiliate shown previously in the *Products and Services Provided From/To Regulated or Unregulated Affiliates* section of this chapter. According to AWWSC management, as previously discussed, most affiliate costs run through AWWSC, with the only exception being those that are extraordinary in nature, meaning if an emergency occurs, costs could come through NJAW financials from other affiliates.²⁴ However, they indicate that intra-company transactions between and among NJAW and its affiliates show in the following AWWSC accounts:²⁵

14510000 A/R Assoc Cos - Miscellaneous
14510100 A/R Assoc Cos - Reconciliation Account
14511001 A/R Assoc Cos - Service Company Bill
14511054 A/R Assoc Cos - Service Settlement Edison
14511055 A/R Assoc Cos - Service Settlement Liberty
14511056 A/R Assoc Cos - Service Settlement E'Town Services
14573000 A/R Assoc Cos - Dividend Equivalents



As previously shown in *Exhibit V-4* (OPEX) and *Exhibit V-5* (CAPEX), when NJAW was asked to provide the level and nature of affiliated transactions (actual and budget dollars) from/to NJAW's operations and affiliates during the past eight (8) years, including a breakdown by: from/affiliate; type of transaction; and time period, only charges from AWWSC to NJAW were provided. No other type of charges were provided.²⁶ Although charges come through AWWSC, NJAW can review any charges. Both Accounting and BIRS groups are involved in billing process. Spreadsheets in response equals prices of high, medium, and low numbers. For example, RC37 (monthly rate validation report for customer rate changes) is reviewed monthly by a Senior Manager Rates and Regulatory in AWWSC, but she also quarterly goes to SAP to sign that she has completely done monthly reviews.²⁷ However, according to NJAW management, it doesn't seem to relate to affiliate charges.

Pricing of direct charges and allocations in American Water are appropriately done at cost, but AWWSC allocations to NJAW are primarily based on the number of customers. All costs are moved from AWWSC to affiliates, and no costs are held at AWWSC. When AWWSC employees work on an activity that addresses only one American Water subsidiary, like NJAW, a direct charge is made using the employee time reporting system, currently called *MyTime*. However, for work that applies to multiple states, an allocation mechanism occurs.²⁸ The AWWSC costs have been compared in years 2011, 2015, and 2017 to market costs by an outside consultant, which has Baryenbruch & Company, LLC.²⁹ See *Chapter IX – Affiliate Cost Allocation Methodologies* for detail information about these studies and associated findings/conclusions and recommendations. The use of allocations is controlled by work breakdown structure (WBS) grouping in SAP. All charges allocated to states at the end of a month is based on the WBS assigned, unless direct charge.³⁰ The percentage allocation for all WBSs is determined by various factors (depending on the cost being allocated) at December for the next year allocations, although customer count is primarily used. These are not changed during a year unless a significant/material event occurs. For example, during one year three (3) divestitures led to changes in customer count that were significant enough to redo allocations three times in year. It is unusual to have it happen at all as the customer count has to change a great deal to make an impact on allocations.³¹ Two TIERS exist. TIER1 includes between regulatory and MBB companies and also cost affiliates, which has multiple factors, including revenues; property, plant, and equipment (PP&E); and employees or a combination of some of these. TIER2 includes regulatory only, which is based on customers only. Employees get training sessions for use on TIERS' WBS#s as to which WBS# to use and when.³² The allocation percentages seem to be appropriately calculated and applied to NJAW by AWWSC. The use of number of customers is based on all regulated water or wastewater customers, which counts as one (1); however, if a customer is served by both water and wastewater, it is not two (2), but an additional .05% of wastewater customers is added to the number of water customers.³³ Therefore, AWWSC no longer double counts the number of customers, which was done during the prior audit. Regarding apartment building billings, the bill can have one meter serving many tenants but still counts as only one (1) customer.³⁴ The adjustment for dual customers began in 2014.³⁵ States such as New Jersey can choose where to buy services, which does not have to be through AWWSC.³⁶

A reasonable percentage of direct charges from AWWSC to NJAW occurred from 2013 to 2018. In *Chapter V, Exhibit V-7* displays in summary the dollars and percentage of affiliate charges by direct

charges versus allocations for operations expenses.³⁷ *Exhibit V-8* displays affiliate charges by direct charges versus allocations for capital expenditures.³⁸ The percentage of direct charges seems to have increased substantially from what appeared in the prior audit report.

Internal Controls

An internal control process exists at AW Corporate and NJAW that minimizes the opportunity for irregular, illegal, and / or improper transactions. The internal control process at AW / NJAW was reviewed in detail and noted to be comprehensive with an understanding among all the control owners that was appropriate with maintaining an environment where controls exist, are used and maintained, and monitored.

SOx control audits were performed by Internal Audit from 2011 through 2015 and then outsourced to a public accounting firm Ernst and Young in 2016, who is currently performing that work. The internal control review work has been performed both internally and externally over this 8-year management audit period. The work was performed internally by a dedicated group that was eventually incorporated into the Internal Audit Department. In 2015, this work was outsourced to Ernst & Young, a big 4 accounting firm.³⁹

Planning and SOx internal controls testing memos resulting from the annual SOx internal control audit work conducted by Ernst & Young is available to AW and maintained by Internal Audit. During field work, which concluded mid-2019, it was learned in interviews that from 2011 to 2018, internal controls, specifically SOx controls, had been tested and evaluated in the earlier years by AW IA and then by Ernst & Young (EY) in the later years and through to today. Documentation of this work was requested in interviews but we were informed that IA has no records of the testing performed by IA or by EY. We were also informed that EY does not share any of the documentation created in the process of their work but communicates directly with the Audit Committee.⁴⁰ However, in the fact verification portion of the S&C engagement, the client provided annual planning memos from 2013 through 2019 documenting the SOx internal controls testing strategy for the corresponding years. These planning memos are precisely the type of document that is appropriate in this situation with sections in the planning memos specific to Materiality, Control Overview, Testing Overview, and Sampling Methodology as examples of the areas described. The planning memo is thorough and appropriate to the task. Also, provided was an example of specific control test memos for one control tested in each of the years 2013 through 2019. The company described that all SOx controls tested have similar control test memos created that document the audit work and findings of that specific control being tested. We have not verified test memos of other SOx controls, but the test memo format is standardized and could easily be applied to other SOx controls tested. This, along with the company's assertion that other SOx controls are similarly documented, leads us to believe that test memos exist for other SOx controls tested as well.⁴¹ So, with the provided 2013 through 2019 Planning Memos and the sample Internal Control SOx Testing Memos, as examples of other SOx control testing memos, appropriate documentation of the SOx internal control testing and results is and has been available to AW areas, as needed.⁴² Also refer to *Chapter XXII-3 – Finance Finding XXII-3* for similar discussion.



Market Conditions

NJAW's strategy to expand its regulated business by adding new customers in its existing service territory or by adding additional customers through the acquisition of assets of other entities, when the opportunity occurs, is sound. NJAW has included its strategy for growth in its Company's Growth Vision, as shown in *Exhibit VII-2* in *Chapter VII*.⁴³

Recommendation and Review of Previous Audit

Findings and conclusions appear in other chapters, not this one.

Affiliate Cost Allocation Methodologies

Policies and Procedures Documentation is not reviewed and updated in a timely manner. *Exhibit IX-3* of *Chapter IX* displays the dates associated with policies and procedures documentation for daily accounting standards and *Exhibit IX-4* displays the dates associated with policies and procedures documentation for time reporting. Unfortunately most haven't been reviewed and updated recently, plus the "new review date" sometimes wasn't done or it wasn't shown.⁴⁴ Purchasing and procurement documentation dates are provided in *Chapter IV – Procurement and Purchasing*, which has similar issues.

AWWSC reasonably performs services as compared to other utility service company costs, plus external vendors usage. As previously discussed, the studies performed by Baryenbruch & Company, LLC compare AWWSC costs to other utility service company costs, but it also seems to slightly provide information about external vendors usage, especially the 2017 study.⁴⁵ The results indicate that AWWSC is doing reasonable.

Capital Allocation among Subsidiaries

Based on the policies and procedures documentation and the associated practices, the development of capital projects is reasonably done.

Cost Recovery Mechanisms

The application of the Purchased Water Adjustment Clause (PWAC) and the Purchase Wastewater Adjustment Clause (PSTAC) has been appropriately handled. The Board required that all purchased water costs and purchased wastewater treatment costs be removed from base rates and recovered through the Purchased Water Adjustment Clause and the Purchased Wastewater (sewerage) Treatment Adjustment Clause, as applicable. The PWAC and PSTAC is set on an annual basis via a petition to the New Jersey Board of Public Utilities and has typically been settled via a stipulation on the part of all parties involved.⁴⁶ We obtained the calculation worksheets (Excel spreadsheets) and followed the calculations in determining both the PWAC and the PSTAC.⁴⁷ The accounting codes that contain the information needed to perform the calculations. Therefore, information from these accounts are summarized on an Excel spreadsheet to calculate any over/under collection balance for purchased water on an annual basis. NJAW forecasts the purchased water costs going forward using these numbers.⁴⁸

The PSTAC has been handled in a similar manner where separate accounts have been created in the accounting systems to handle both the revenue and expenses side of those costs.⁴⁹

The application of the *Distribution System Improvement Charge* (DSIC) has been appropriately handled. DSIC is a mechanism whereby the utility can begin to recover its capital costs and depreciation expense earning a return on certain capital projects once they have been placed in service in between base rate cases. It essentially serves as an interim measure to reduce regulatory lag prior to the next rate case where new base rates are determined. We reviewed the foundational filings (after the DSIC rate was set to \$0), and a list of projects submitted to form the basis for the new DSIC rate in subsequent filings.⁵⁰ We also reviewed the subsequent filings, or semi-annual filings, where the DSIC level of revenues based on the cumulative capital expenditures is established for an annual period.⁵¹ The accounting codes that are involved in the calculation of DSIC are shown in *Exhibit IX-2*. Within the DSIC period, the eligible DSIC additions to the respective Utility Plant in Service accounts are the basis for calculating the DSIC rate every six months until the DSIC cap amount is reached.⁵²

Non-Rate Related Revenues

Non-Rate Related Revenues are recorded properly. We examined all gains and revenues, excluding those derived from utility rates, which NJAW has recorded since its last rate case. Through review of summary schedules and interviews with accounting personnel, we determined that non-rate related revenues were classified properly and when a recording error was found, it was treated appropriately.

Non-Rate Related Revenues are comprised mostly of gains on plant sales, utility and non-utility, and miscellaneous job revenues. Of the \$4.5 million in non-rate revenues, \$3.4 million comes from gains on plant sales (excludes disposals) and \$1.1 million from miscellaneous job revenues (excludes an offset of \$3,245 of miscellaneous and jobbing expenses). Miscellaneous job revenues are fees received from Homeowner Services for billing protection programs on customer bills. Other non-rate revenues are Miscellaneous Non-Utility Revenue, \$230,748 comprised of revenues from non-utility services and Losses Other Non-Operating Revenue of \$102,895 which is a Service Company allocation of non-operating deferred compensation investment fluctuations.⁵³

Gains on sales of utility plant are split evenly with ratepayers. Over the time period reviewed, September 2015 through March 2019, the period since the last NJAW rate case, all sales of utility plant were split evenly with ratepayers. As shown in *Exhibit XII-2* of *Chapter XII*, the utility property sale in 2018 posted to the utility property sale account was split evenly with customers.⁵⁴ A utility property sale, in January 2016, was misposted to the Non-Utility Property Sale account. The misposting was realized and corrected. The customer's portion of the gain on the sale is currently being returned through as approved in NJAW's last base case.⁵⁵



Operations Review

Inspection and Maintenance Programs

NJAW has a rigorous inspection and maintenance program certified to be in compliance with WQAA and in fact, NJAW implemented a second level of certification requiring operating personnel to certify that the company is in compliance with the regulations. In *Chapter XIII, Exhibit XIII-12* provides an example of NJAW's second level of verification for WQAA compliance certification.⁵⁶

NJAW has detailed and comprehensive maintenance protocols for preventative maintenance for which *Exhibit XIII-7* details NJAW's maintenance protocols.

There is a substantial backlog of repairs, as seen in *Exhibit XIII-13*, which calls into question staffing at the worker level and/or the need to clean up work orders no longer needed or duplicate work orders. While carrying a reasonable backlog of work is normal. There is no estimate of time required to perform this work it most likely amounts to over a year backlog it should be cleaned up and/or reduced.⁵⁷ Maintenance work at production facilities is done by NJAW employees and contract personnel depending on the nature and complexity of the activity. Water and sewer employees can work on either water or sewer facilities in the field which gives the Company flexibility and efficiency when making repairs.⁵⁸ Mostly all construction work and plant maintenance is contracted. Seasonal variations in work load can be handled through overtime and/or variations in contract work. As shown in *Exhibit XIII-14*, it can be seen that the regular hours worked has stayed relatively constant and overtime has increased slightly since 2013 from 9% to 11.1% in 2013, which is still very reasonable.⁵⁹

Valve and Hydrant maintenance is essentially in compliance with WQAA, as currently shown in *Exhibit XIII-8*.

It is not possible to determine if plant maintenance is current, because it is not possible, at present, to determine through data and reports if plant maintenance work is current. There is no reporting of planned vs actual work performed. However, the new MapCall system should provide this reporting capability in the future. More granular reporting and records can be made available from the system which should enable the reporting of the status of planned plant maintenance.⁶⁰ The ratio of planned maintenance versus corrective work orders for Production maintenance is an indicator of how effective the planned maintenance protocols are. *Exhibit XIII-15* indicates that there is relatively little corrective maintenance with respect to the planned maintenance in terms of the number of work orders and is indicative that the plant planned maintenance plans and protocols are effective.⁶¹

Asset-Life-Cycle Maintenance Philosophy

The NJAW asset management plan is very comprehensive and incorporates many existing practices and systems for water assets but does not incorporate meter, sewer, and wastewater systems.

NJAW's backlog of water and sewer main capital projects is extremely large, as shown in *Exhibit XIII-37*. This large backlog calls into question each project's validity and NJAW's ability to fund and execute the projects.

NJAW residential (5/8 inch) meter retirement rates are shorter than it needs to be. There are a number of states that have varying cycle times ranging from 10 to 20 years. Most states are 15 years. The average for all American Water Companies is 13 years which is heavily weighted by New Jersey's 10 year cycle. When the WQAA was reviewed, NJAW requested that the testing and replacement of residential meters be extended from 10 years to 15 years. The request was based on a study conducted by Utah State that demonstrated that a 15 year cycle was justified. The NJBPU turned down the request.⁶²

The 2018 – 2020 increase in DSIC program funding is justified. This is borne out by the March, 2018 "Water Main Break Rates in the USA and Canada" study conducted by Utah State University.⁶³ The study indicates main breaks are expected to accelerate at an exponential rate, as shown previously in *Exhibit XIII-36*, plus *Exhibit XIII-39* shows potential accelerating main break rates.⁶⁴ Some of the key conclusions from the study are shown in *Exhibit XIII-40*.⁶⁵

It is given that the results of the study are general in nature and that each company need to look at its own assets. However, the \$100 million increase in DSIC funding being requested by NJAW, shown in *Exhibit XIII-34*,⁶⁶ is consistent with the need to replace failing assets on a more rapid rate.



Phase II - Comprehensive Management Audit

Executive Management & Corporate Governance

The American Water holding company structure is reasonable and beneficial to NJAW customers. AW's corporate structure allows the holding company the resources to focus on critical governance issues that would be difficult and more expensive for individual operating companies to address on their own (e.g. ethics, internal controls, disclosure reporting). Company Boards are then free to address specific operating and financial issues specific to their company. Likewise, the Executive Leadership Team and the activities of the service company helps leverage expertise and resources to the benefit of the individual operating companies.

American Water's Board of Directors has the proper level of experience, diversity and independence to oversee corporate objectives. In July 2019, American Water's corporate Board increased to 11 members with the addition of three additional directors. Ten of the 11 directors are independent and the Chairman of the Board is an independent director. All directors have extensive management experience in a wide range of areas (e.g. finance, law, operations, and customer service) as well as industries. Industry experience includes State Regulatory experience as well as utility industry experience. Board turnover is appropriate: As of July 2019, seven of the 11 Board directors have joined within the past five years: three within the past 6 months. A review of Board and Audit, Finance and Risk Committee minutes,⁶⁷ as well as interviews with AW's Chairman of the Board and Chairman of the Audit, Finance and Risk Committee, indicates the Board is active in overseeing important issues and topics critical to the operation of American Water and its subsidiaries.

American Water and NJAW corporate administration compensation packages are within industry norms, but allocated across subsidiaries based primarily on customer count. Periodic compensation surveys are conducted by outside, independent, and qualified firms for senior management and Board directors. These surveys show that management and directors are compensated well within norms for the Energy and Core General industries. Allocation of these costs to NJAW is approximately 20 percent based on customer count.

AW's Board committee structure is well defined and effective, although the administrative reporting relationship of AW Internal Auditor results in potential conflicts. The AW Board has the proper number committees that focus on the important issues facing the corporation. All committees have substantive charters that are reviewed and updated annually. All committees are assigned directors with relevant knowledge and experience to conduct their duties. Minutes are maintained on all Board and Committee meetings. The Director of Internal auditing functionally reports to the Chairman of the Audit Committee and does meet frequently with her in executive session. However, Internal Audit reports administratively up through the Finance Department. This represents a conflict of interest.

AW is in compliance with New York Stock Exchange (NYSE) and Sarbanes-Oxley (SOx) requirements. AW contracts with PwC, one of the Big 4 accounting firms, for conducting its audits and providing

independent attestations for public disclosure. Internal controls are specifically identified and tracked by Company financial personnel and through an organizational compliance group. Testing is performed by Internal Auditing and outside support from an outside firm (Ernst & Young). PwC reviews the results and discloses the deficiencies they believe are significant or material weaknesses in internal control over financial reporting. Management determines what needs to be performed to correct the deficiencies. All required attestations from senior management are included in public disclosure documents (e.g. 10K, Proxy Statements).

AW has a substantive Code of Ethics document and process, but it does not explicitly extend these requirements to all contractors and vendors who do business with American Water. The Company has a documented, substantive Code of Ethics that includes examples of ethical situations and how to properly respond. The Code is reviewed and updated periodically by the Board Audit, Finance and Risk Committee. Training is available on-line and through training sessions and all employees are required to periodically undergo ethics training acknowledge The Code. A process is in place for allegations to be reported, via a hotline, to an independent, outside firm for tracking. All allegations (with sufficient information and relating to Code violations) are investigated and documented in a formatted investigation report. Statistics, reports, and key resolutions are presented quarterly to the Board Audit, Finance and Risk Committee. Outside law firms experienced in conducting ethics investigations have been identified and used for serious or sensitive investigations. An ethics committee, consisting of senior management, helps to oversee the program. The AW Board Audit, Finance and Risk Committee is responsible for the Ethics Program. Interviews with directors and senior company management reinforces that AW takes ethical behavior seriously. Master Service Agreements have language in them that states the Company expects contractors to conform their business dealings in accordance with the underlying principles of the Company's Code of Ethics. This requirement is somewhat vague and should be better clarified.

The AW Board exercises appropriate control over external auditors; however, a process has not been established to ensure that cost comparisons for external auditing services are performed on a periodic basis. The Board Audit, Finance and Risk Committee meets quarterly with the external auditor in executive session. The Audit, Finance and Risk Committee evaluates the external auditor's performance and recommends their retention for the upcoming year. However, PwC's audit fees have increased over the past five years. Although we found no indication of any issues related to the quality of PwC's audit services for AW, there has recently been some issues related to their audit quality with some of their other clients. PwC has been the external auditor for AW for at least the past ten years and there has not been any formal rebidding of audit services in that time.

Organization Structure

The AW and NJAW organization is appropriate. Given the size and dispersed nature of the AW organization, focusing expertise in a service company is appropriate and beneficial to operating companies, including NJAW. Service company departments, as necessary, have managers and employees assigned to specific regions to better communicate and advocate for the needs of different operating companies. Operating companies do not receive any services from non-regulated, for profit companies, which eliminates a potential conflict of interest. In the case where NJAW provides support



for a non-regulated subsidiary, NJAW is compensated at a premium to their costs – a benefit to NJAW ratepayers. Service company support is all at cost (subject to appropriate allocation methodologies, record keeping and internal controls). Construction, maintenance and operation is still staffed by and the responsibility of NJAW personnel. AW/Service Company does provide an oversight/checking function. As mentioned earlier, a review of the AW/NJAW organization showed that like functions are grouped together and spans of control, although in some cases quite broad (e.g. 15 in one case), are generally appropriate. The organization is fairly flat and there are no cases of excessive layering. Detailed position descriptions are maintained.

AW/NJAW does not conduct periodic, broad-based organization analysis. In the past five years, AW has made a number of minor organization changes, but these have been largely ad-hoc: coming from needs identified and discussed through senior management team meetings and various transformation initiatives. When asked for documentation on organizational analysis, the Company only provided employee communications releases announcing newly hired managers, promotions, and (in some cases) specific organization realignment. There hasn't been any Corporate-wide, documented organizational analysis.

Human Resources

No issues were found regarding copies of the Letter of Commitment or other reports concerning federal or state audits of NJAW for regulatory compliance. NJAW received copies of the letter of commitment or other reports concerning federal or state audits of NJAW for regulatory compliance, as follows:⁶⁸

- ◆ On December 4, 2018 NJAW received a letter from the U.S. Department of Labor, Office of Federal Contract Compliance Programs (OFCCP), which indicated that it selected NJAW's establishment at 204 Carriage Lane, Delran, NJ 008075 for compliance review involving a desk audit, an on-site review, and an off-site analysis.
- ◆ On February 5, 2019 NJAW received a letter from the U.S. Department of Labor, Office of Federal Contract Compliance Programs (OFCCP), which indicated that it has recently completed a compliance valuation of this location's equal employment opportunities (policies and practices), and during the process the OFCCP had found no apparent violations of Executive Order 112456, as amended, Section 503 of the Rehabilitation Act of 1973, as amended (Section 503), or the Vietnam Era Veterans' Rehabilitation Act of 1974, as amended (Section 4212).

Any practices documentation doesn't always exist along with associated policy documentation. Human Resources policies and practices documentation resides on the company's Intranet and are accessible to all employees.⁶⁹ However, there are none of the following type of practices documentation with these three policy documentation: Solicitation and Distribution Policy; Talent and Performance Management Policy; or Workplace Accommodation Policy.

Also, it is not clear how frequently the Human Resources Department reviews these policies and practices documentation items and changes when necessary.

Safety statistics are trending in a good direction. The recordable injury rate has been declining since 2001 as was shown in *Exhibit XVI-13*. Although the long-term goal is to be at a level of zero, the activities being taken are getting results.

Overall HR policies and procedures are well documented and thorough. NJAW has developed good documentation on its HR policies and procedures as were discussed in the *Background and Perspectives* section of this HR section.

Strategic Planning

There is no integrated, documented strategic planning process. Goals and targets are established annually by the ELT and promulgated down through the organization, where managers and employees then establish supporting performance targets. And the AWK Board does address strategic and risk issues at most of their meetings. But although there are many elements of strategic planning throughout the organization, they are not integrated into a single strategic plan that integrates into operating company business plans. There are no specific corporate, operating unit, or departmental business plans.⁷⁰ There are no process flow charts that defines the strategic or business planning process.⁷¹ There is no documented process to develop annual strategic plans, to include schedules, key staff, or approvals required.⁷²

Systems Operations

A number of the organization names in the Engineering and Operations Departments are not descriptive of the organization's responsibilities. The Asset Planning organization in the Engineering Department is responsible for GIS data. The Risk Management organization in the Operations Department is responsible for safety activities.⁷³

The Risk Management/Safety program at NJAW is well run and yielding positive results. *Exhibit XVIII-5* in *Chapter XVIII* indicates that NJAW's OSHA Recordable Incident was on a downward trend from 7.28 for 2009 to 5.55 for 2015 (23.8% decrease). After the introduction of BAPP in 2015 the trend accelerated from 5.55 for 2015 to 1.50 (73.0% reduction). The 2009 (7.28) to 2018 (1.50) reduction was 79.4%.

There are discrepancies between NJAW and NJDEP PWSID data. The notes in *Exhibit XVIII-7* and *Exhibit XVIII-8* list the differences in data between NLAW and NJDEP.

NJAW is in compliance with all current water quality regulations. All NOV's are captured in MapCall along with critical action items to ensure the avoidance of future compliance issues associated with the NOV. A root cause analysis is performed for each NOV to identify any further action required to prevent future NOV's.

NJAW is in full compliance of the Lead and Copper Rule. NJAW is limited in its ability to mediate lead in service lines because the line is owned by the customer, but the Company has decided to further mitigate potential customer exposure to lead in drinking water by replacing the entire lead service line,



which it believes is the most cost-effective and prudent method to reduce customer exposure to lead in drinking water and to continue to maintain full compliance with the Lead and Copper Rule.⁷⁴

NJAW participates with the New Jersey Water Quality Institute to keep abreast of emerging contaminants and testing procedures. NJAW's participation in the State Drinking Water Quality Institute (DWQI) that is responsible for developing Maximum Contaminant Levels (MCL) or standards for hazardous contaminants in drinking water enables the company to evaluate the capability its production assets to meet the standards.

NJAW keeps aware of potential future compliance requirements using the "Unregulated Contaminant Monitoring Rule (UCMR)" published by the Environmental Protection Agency every 5 years and looks ahead for emerging contaminants and testing procedures. NJAW's awareness of future compliance requires allows the company to program compliance actions into its strategic planning.

NJAW has a comprehensive, current plan for reducing non-revenue water losses. *Exhibit XVIII-15* provides the summary of the 21 page plan which has not been funded.

NJAW uses state-of-the-art software systems to support decision making in all organizations, in which *Exhibit XVIII-23* through *Exhibit XVIII-33* indicate the software systems used.

NJAW's Design and Construction Standards and Practices are well documented and thorough. *Exhibit XVIII-34* through *Exhibit XVIII-38* illustrate NJAW's comprehensive documentation.

NJAW's Asset Assessment Process is timely and thorough. *Exhibit XVIII-40* through *Exhibit XVIII-47* provide examples of the comprehensive process.

NJAW's Forecasting and Modelling process is comprehensive and fully integrated into its Asset Planning process. The company's forecasting and modeling practices are illustrated in *Exhibit XVIII-48* through *Exhibit XVIII-50*.

NJAW has well document policies and practices, which it is following, for the management of its capital budgeting process and the creation of its capital budget. Overviews of the policy and practices used for capital budgeting are presented in *Exhibit XVIII-52* through *Exhibit XVIII-54*.

Implement measures to indicate if the condition of the water and sewer distribution systems is improving or degrading as guidance in determining the level of capital investment. From *Exhibit XVIII-55*, the increased expenditures were justified given the under investment prior to 2012. The question that remains is: "Is the amount of money being invested in renewing and replacing water and sewer main systems appropriate?" The amount invested should be based on trends in measures that indicate the condition of the main systems, both water and sewer. NJAW has an excellent set of tools, GIS and InfoMaster, to identify high risk pipe for water main and recommend projects for investment in infrastructure improvement. InfoMaster relies heavily on leak data to arrive at the risk rating. Because the InfoMaster system is relatively new and presently does not cover sewer main (NJAW plans to include sewer in the future), there are no trend lines of the risk levels for the water main system and

sewer main system. In addition, as previously discussed in this report under the Water Loss Management section, there is no recurring, repeatable leak survey of the entire water main systems in place.

NJAW's Construction Management process is systematically documented in its Capital Project Delivery practice. Project Managers use the processes summarized from *Exhibit XVIII-57* to *Exhibit XVIII-65* to guide projects from initiation to in-service completion.

NJAW Field Operations is appropriately organized and staffed. Organization charts throughout *Chapter XVIII* indicate the workforce is organized and located to facilitate centralized and de-centralized management.

All locations toured indicated facilities were well maintained and housekeeping was above average. Examples of the housekeeping is given in *Exhibit XVIII-72* and *Exhibit XVIII-82*.

NJAW has not consistently achieved its internal target for % Appt Met or overall FSR Satisfaction. *Exhibit XVIII-76* indicates the inconsistent achievement of internal targets.

NJAW has reduced the number of estimated meter readings by 79% from 2014-2018, as shown in *Exhibit XVIII-77*.

NJAW's 2018 Sewer Plant Discharge Permit Exceedances was above average. The 39 exceedances was 52.5% higher than the 2011-2017 (excluding 2013) average of 24 as presented in *Exhibit XVIII-83*.

Customer Service

American Water does not compare NJAW to other utilities in New Jersey. NJAW does not have a comparison of NJAW relative to other comparable utilities within the state. As NJAW does not have a formal process for comparing itself to other peer utilities; however, informal comparisons and benchmarking does take place as part of routine business.⁷⁵

Customers cannot chat with Call Handlers on the American Water website. Customers can go up to NJAW's portion of the website, but can't chat on the website. They must make telephone calls to discuss with American Water, but the company is looking into the possibility. American Water is coordinating responses, but not having them created recently.⁷⁶

Although NJAW had some difficulty achieving its Average Speed of Answer (ASA) in the early 2018 timeframe, the results in 2019 have improved. As shown in *Exhibit XIX-7*, the ASA objective was significantly missed in the January 2018 to March 2018 timeframe. According to NJAW management, they experienced some significant weather conditions which drove up call volumes during this timeframe, as shown in *Exhibit XIX-25*. Call volumes peaked in the January 2018 timeframe which also happens to be the timeframe that ASA was at its highest level in looking at *Exhibit XIX-7*. Starting in November 2018, call volumes returned to a more consistent level and ASA was more closely being met. It appears that the call handler staffing levels are at an appropriate level. It is also important to



note that in January/February to May 2018, American Water was changing its telephone system which could have also had some additional impact.⁷⁷

No YouTube or Chat features have been incorporated into American Water websites. NJAW websites have changed significantly since Schumaker & Company consultants had last reviewed these websites while performing a review of another America Water company in 2008 timeframe, customers can inquiry regarding the account balances and make payments among other things. However, customers cannot chat with a representative if they have a problem or issue. Similarly, if there is a need for instruction on certain aspects of the website or American Water in general, there are no links to YouTube or imbedded videos available on the website.

Reasonable calls were made by Call Handlers during audit interviews. Also, Call Handlers who complete a call must indicate that he/she is available for a next call.⁷⁸

Although NJAW has guidelines for handling customer disputes, it does not have a formal, documented policy. NJAW does not have a formal, documented policy regarding the handling of customer disputes; however, it has guidelines that have been developed for the Customer Advocacy group and Supervisors/Team Leads, which details the process steps for handling customer disputes.⁷⁹

Three billing projects described in detail in *Chapter XIX* for the 2019 to 2020 timeframe are in progress:

- ◆ MyBilling App⁸⁰
- ◆ OutSort Project⁸¹
- ◆ Billing Accuracy Project (100% Accurate Bills)⁸²

Regulated Utility Accounts Receivable Write-off Practice documentation has not changed since 2013, which differs from expected three-year intervals. Date wording in the *Regulated Utility Accounts Receivable Write-off Practice* documentation shows that it has not been changed since 2013, as it was last approved in May 20, 2013 and the next review date was May 20, 2016. However, there is no indication that it was subsequently reviewed or updated.

External Relations

NJAW has an effective external relations program. In September 2018, New Jersey American Water retained an outside firm to conduct a phone survey of 1,500 New Jersey voters to measure their satisfaction with water and sewer services, as well as their responses to questions about privatization of those services and the referendum process.⁸³ Responses indicated New Jersey voters are generally satisfied with their local public services, particularly their local water and sewer services; supporters of water and sewer privatization outnumber opponents by a 5-point margin; and more than seven-in-ten voters express support for the referendum process.⁸⁴

Spending in the area of external relations has remained essentially constant over the last five years, as shown in *Exhibit XX-2* in *Chapter XX*⁸⁵ and broken down, as shown in *Exhibit XX-3*.⁸⁶

While NJAW does not have any formal outreach programs for state and local governments and regulatory / legislative bodies, various employees and members of the Senior Management Team engage with these organizations on a regular basis. Outreach programs to community groups are designed to educate and engage with the local communities in which NJAW operates. These events occur throughout the year but are primarily focused on the summer and fall months. NJAW provide a six page document containing all of the events that they were planning on attending this year.⁸⁷ NJAW also utilizes a vehicle when attending some of these events as shown in *Exhibit XX-4*. Chilled water can be handed out to event attendees while NJAW volunteers staff the van and disseminate information.⁸⁸ These programs include providing educational information in person at a variety of community events, list of outreach events. NJAW also provides information about wise water use, watershed protection, the water cycle and the science of treating and delivering water on its website, under Water Information at <https://amwater.com/njaw/water-information/water-learning-center>.⁸⁹ Additionally, NJAW engages with local communities through two grant programs – Environmental Grant Program and Emergency Responder Grant program – and its speakers’ bureau and community donation request program. Information about these programs is available at <https://amwater.com/njaw/news-community> and at <https://amwater.com/njaw/news-community/community-involvement>.⁹⁰ NJAW also partners with community groups that focus on environmental education, stewardship and sustainability in the areas we serve. These groups include Sustainable Jersey, Partnership for the Delaware Estuary, Barnegat Bay Partnership, Raritan Headwaters, Great Swamp Watershed Association and The Watershed Institute.⁹¹

NJAW is fairly active in the summer months in attending various community festivals and functions throughout the state of New Jersey. In 2017 NJAW was involved in approximately 17 community outreach events in 2017 and 26 in 2018, plus 27 scheduled in 2019. In many cases, summer months are involved.⁹² They take the vehicle to many of the summer events.

Support Services

Insurance and Claims/Risk Management

AWWSC and NJAW are working together for insurance renewal changes to address the amount of claims. New Jersey is one of the largest states with the biggest exposure involving a lot of claims, as supposedly previously shown in *Exhibit XXI-4*; however, this group is looking at renewal changes, then negotiations.

Risk management activities have been addressed, as appropriate, by a Risk Committee. Top 10 risks exist within the Enterprise Risk Management (ERM) program, including the following top three risks (employee and public safety; water contamination, and cyber security).⁹³ The ERM program is done by a Risk Committee, including 15-25 employees who meet on a quarterly basis and have *information* go up to the Executive Leadership Team and Board of Directors (BOD) on a quarterly basis, which includes key/high risk issues currently in place and mitigation activities.⁹⁴ NJAW’s President joined the Risk Committee recently. Regarding the ERM program, there has been no major events in New Jersey in the past three years.⁹⁵ Refer to *Chapter XIV – Executive Management and Corporate Governance* regarding other risk management items.



Legal Counsel

The amount of legal costs has been reasonable. The amount of legal costs included in NJAW's operating expenses for 2017 and 2018, for example, were .10% for 2017 .18% for 2018.⁹⁶

AWWSC's Legal Counsel function does not currently use a formalized legal management system. Primarily the VP Eastern Division would like matter management documentation, as currently Legal Counsel employees only uses Outlook email messages and folder structure to keep documentation, plus interface with Business Development group via SharePoint.⁹⁷

No strategic plan or goals/objectives exist specifically for the Legal Counsel function. The Legal Counsel and Regulatory Services Departments do not have a standalone strategic plan, but the legal services function serves as a business partner that provides legal counsel and services to support American Water's overall strategic plan, goals, and objectives.⁹⁸ In 2020, however, the Regulatory Services Department began reporting into the CFO.⁹⁹

NJAW does not have much litigation. *Exhibit XXI-10* lists all currently active cases (approximately 70) involving NJAW, including subpoena requests and complaints, in which NJAW has been named as a party.¹⁰⁰ However, according to AWWSC management, NJAW does not have much litigation, but in the fall of 2018, the Company instituted a lawsuit against Dupont and other manufacturers seeking damages in connection with the detection of PFCs, as the Company expects to continue to incur costs associated with addressing PFCs. They believe that with expectation to get settlement for 20-30 years, it could result in economic needs.¹⁰¹ It is the second time done NJAW has a Model Trademark Bill (MTB), since 2005-2006, resulting in 85% customers refund and 15% keep.¹⁰²

In a prior BPU rate case settlement, the Company agreed to share 85% of the settlement proceeds from a class action lawsuit related to methyl tertiary butyl ether (MTBE), but that stipulation made clear that the treatment of settlement proceeds in that case had no precedential value.¹⁰³

Real Estate and Property Management, including Facilities Management and Real Estate/Land Management

There are no formal facilities and property management groups within AW or NJAW with the responsibility of overseeing land, real estate, and property management functions. The AW Facilities Manager is only responsible for the corporate headquarters building and has no oversight of operating company real estate or facilities. The senior engineer identified as the point person for these activities within NJAW has a position description that does not include any of these responsibilities and his role is largely to manage/facilitate capital projects. The lack of a dedicated Real Estate/Facilities/Property Management group results in these activities being performed in varying ways and with no overriding standards. The decision on how to conduct the included activities is up to the judgment of the various employees who are assigned to handle specific functions, with very little in the way of standardized policies and procedures to guide the activities. This lack of oversight can result in variations in the results achieved and makes the analysis of the efficiency and cost-effectiveness of such activities impossible to judge.

There are no formal policies and procedures that guides the facilities and property function. There are no standardized policies and procedures to guide the everyday conduct of the facilities and properties management function at NJAW. The Procurement Policy recently updated in April, 2019 makes reference in the Related Practices section of a “Real Estate Leasing and Purchasing Practice”, but this practice was not supplied to Schumaker & Company during the field work and the Company stated it did not exist.¹⁰⁴

Procurement Services & Materials Management

The organization, staffing, and interrelationships between AW Supply Chain and NJAW purchasing and materials control is appropriate, but the Supply Chain Group can be further leveraged to the benefit of AW. The Service Company Supply Chain Group is organizationally located and staffed with resources to best leverage purchasing and materials management expertise that benefits all operating companies. Purchasing agents and storekeepers are assigned to the operating companies to ensure local needs are met. There is frequent interface between Supply Chain Group and NJAW. Three complete, representative bid packages were reviewed. Specifications were quite detailed. Other steps included a tabulated bid price summary, an engineering assessment of bid (including proposed alternatives and a review of contractor design information), award recommendation (including schedule and diversity status), and detailed contracts that included specific owner’s representatives were present.¹⁰⁵ Whereas these purchasing and bidding processes are appropriate, the market size across all AW companies represents an opportunity to apply more vendor partnering techniques to further drive down costs and increase quality of materials and service.

Purchasing and materials policies and practices are well documented, but are not reviewed on a periodic and timely basis. As noted earlier, AW has detailed procedure and practice documentation covering all purchasing and materials management functions. However, many of these policies and practices have not been reviewed and updated, many going back to 2012. The Company has indicated they are in the process of reviewing policies and procedures, but six months after the start of field work, many of these documents have not been finalized. By their own procedures, these policies should be reviewed and updated every two to three years. Updating of policies is particularly important now that Supply Chain is going through a transformational period, e.g. several technological changes to speed up processes.

The use of technology in Purchasing and Materials is appropriate and improving. Purchasing and materials management functions are mainly automated through ERP/SAP. As discussed earlier, there are currently several development efforts with add-on systems to further increase effectiveness and efficiency. These processes include appropriate checks.

The level of Internal Auditing for Purchasing and Materials functions is low. There has only been one internal audit of the Purchasing and Materials Management functions (narrowly focused on contracting) in the past five years, the last coming in 2016. Given the number and size of transactions in these areas, much more attention from Internal Audit is necessary. Again, this is particularly important in that there are a number of technological process changes being made in Supply Chain.



Vendor Master Database is maintained, but performance evaluations are not consistently applied and consistently used in future contract/supplier awards. Documented post project reviews are conducted for major projects. In addition to detailed information on project scope, schedule, unusual circumstances, etc., there are written evaluations on the performance of the project manager, operations representative, and contractors/suppliers. In addition, numerical scores are assigned to key performance indicators of product and service satisfaction, defects at completion, project cost and schedule, safety, and communication. Detailed guidelines for evaluators are provided.¹⁰⁶ However, these evaluations are not transferred, even in summary format, to any vendor master database. As such, it is difficult to gauge a vendor's performance over time to aid in bid/contract evaluation.

Inventory is properly tracked and counted, but inventory levels, EOQ, min/max order points are all determined subjectively by operations. As noted earlier, there is a comprehensive process in place for performing physical inventory counts and verifying any discrepancies. Inventory levels by location are maintained on automated systems and, at one time, performance statistics were tracked and routinely reported out. But these performance tracking measures, e.g. turnover, Economic Order Quantities (EOQ), min/max order points, have been discontinued. Currently, turnover is not tracked and EOQ/minmax order points are subjectively determined by operations personnel. The Master Materials File, which contains many fields that could assist with this analysis, is little used.

Transportation and Fleet Management

AWWSC and NJAW Fleet organization and staffing is appropriate. A category manager experienced in fleet operations is assigned responsibility for supporting fleet functions across all AW companies. This position reports to the Supply Chain Group within the Service Company. As such, he is in a position to ensure better planning, budgeting, standardization, maintenance practices, and volume purchasing of vehicles. Each operating company, including NJAW, have their own fleet supervisors to ensure company operational needs are properly met. In the case of NJAW, this groups includes three positions who work closely with operations and engineering groups on a regular basis.

NJAW vehicle forecasting and planning is largely informal. Annual vehicle needs are based on informal feedback from the field. Fleet capital procurement budgets are sent down to the operating companies who then set their purchases to stay within that budget. There are no formal analysis, metrics, or documented analytics (e.g. repair versus replace, utilization) justifying vehicle purchases. Vehicles are ordered from the dealer shortly before they're to be put in service and, in the cases where there may be a 6 to 10 month lead time, may not be available when needed.

Fleet acquisition process is adequate, but there isn't standardization across all AW operating companies. NJAW fleet and operations personnel do a good job of informally determining their needs (equipment as well as cost/maintenance/warranty considerations) and have settled on specific dealers (Chevrolet) based on these considerations. But there is no corporate-wide, formal standardization of fleet vehicles that could result in better volume purchasing across all operating companies (including NJAW). The Supply Chain Group has indicated they have begun this process, but operating companies will not be required to heed any new standards.

Fleet policies, procedures, and practices are well documented at a proper level of detail. The last review and updating of these policies and practices was performed in 2016. A previously discussed, detailed policies and practices are in place covering the full range of fleet functions including vehicle assignment and fuel purchasing practices. These policies were last reviewed and updated in 2016. The Company indicated these policies were undergoing review as of last Spring, yet as of the end of the year, the review had not been completed.

Maintenance management is appropriate but reporting and analysis could be more robust. Given the dispersed nature of AW operations, utilizing an outside management company and outside maintenance services is appropriate instead of maintaining internal garage and repair service. Element and Penske maintain records that provide a considerable amount of information, but there is little summary level reporting useful to management.

There have been no internal audits of the fleet function in the past three years. Fleet management and maintenance is provided by outside vendors, which represents a high level of financial transactions. Under these circumstances, Fleet functions should be periodically audited.

Computer Systems and Services, including Cyber Risk

When the Technology & Innovation (T&I) Department changed from IT to T&I recently, it has been substantially improving its activities. Now that American Water's technology function is being modified by the T&I Department in which management considers T&I's real value to be customers and employees,¹⁰⁷ its policies and procedures are significantly different than many utility organizations, but it is an excellent set of methodologies and activities to occur. In short, it is interesting to see a utility migrating away from the traditional water fall approach to software development by migrating to a more agile approach. Technology systems have developed significantly over the last 10 years making in-house development and integration a more effective and efficient approach to meeting an entities technology needs.

The T&I function could not provide all job descriptions even though discussed during interviews. Job descriptions which Schumaker & Company reviewed included Product Managers, including Principal Product Manager and Senior Product Manager, which are some of the key employees in this group.¹⁰⁸ However, detailed job descriptions for Product Engineers or Product Owners did not exist, as they are not full time job positions that people are hired into; instead they are roles that are needed within projects.¹⁰⁹ We also reviewed brief descriptions and objectives for Infrastructure Engineer, Principal Infrastructure Engineer, Senior Infrastructure Engineer, Principal Technologist, Senior Technologist, Technologist, Principal Software Engineer, Senior Software Engineer, and Software Engineer.¹¹⁰ Staff development activities are discussed in *Chapter XVI – Human Resources* for American Water employees.

The T&I Department expects to review policies and procedures at least annually. As the Chief Digital Infrastructure & Security Officer will be looking annually to see if any changes need to be made in T&I policies and procedures, which must be reviewed at least annually, it is good that they expect to do it this way, as previously effective dates or adopted dates were often long ago.



Written documentation on server and workstations configuration and network diagrams was not readily available. Schumaker & Company consultants made several requests for written documentation on technology resources and configurations. Some documentation was provided, although the exact information that we were looking for was not provided. We recognize that there are security issues surrounding such documentation; however, the information we were looking for is too important to be solely resident in personnel's brains and not committed to paper or a system. We have provided NJAW with some examples of the information that needs to be committed to paper or a system within the T&I area.

Records Management

The Records Retention Policy documentation regarding review of the documentation does not appear to be done properly in a timely manner. The *Record Retention Policy* documentation, which was prepared by the Legal Department, was originally adopted on May 29, 2009 and made effective January 1, 2010, but has not been revised subsequently even though the policy indicates that it will be reviewed at least every three (3) years. American Water intends that its retention schedule be comprehensive and up-to-date. Operating units must notify the Legal Department about records that are omitted from the company's retention schedule. Until the retention schedule is revised to include such unscheduled records, organizational units will continue to observe their established business practices for retention and destruction of the records.¹¹¹ The policy also indicates the company's retention schedule will require periodic revisions to add or delete specific record series or to change retention periods. Employees should notify the Legal Department when any of the specified items occur.¹¹² The date associated on the records retention schedule is October 2010, which is many years ago.¹¹³ Therefore, it's also not apparent that reviews or revisions have been made for various practice documentation items in a timely manner.

Insufficient activities are being performed to ensure employees comply with records retention requirements. Since compliance with the policy is managed at a local level, the Chief Compliance Officer could not discuss employee compliance activities. The Compliance Department does not provide any current training on the Record Retention Policy and Schedule for employees. Since the Chief Compliance Officer started her role in November 2018, she also doesn't know if training has been done in past. Also, the records retention policy and schedule are maintained on the Intranet, but the Chief Compliance Officer does not have insight into local communications about the Policy and Schedule (e.g., communications between managers and employees).¹¹⁴ According to the Legal Counsel group, employees tend to hold onto everything beyond the limited schedule;¹¹⁵ however, the Chief Compliance Officer wasn't sure if employees maintain documents longer than the time period set forth in the schedule.¹¹⁶ Supposedly the T&I Cyber & Physical Security group assists with making sure records management occurs.¹¹⁷

NJAW does not have any company-wide filing standards; however, American Water does for affiliates. Included, however, is an index of NJAW legal department files, which system is consistent with all Legal Department vault files across American Water's regulated subsidiaries.¹¹⁸

Security of Infrastructure

Refer to *Section F-Computer Systems and Services* of this chapter, plus *Chapter XXVII-Cyber Risk Mitigation-Cyber Security*.

Finance

The current tax sharing policy being used at AW is dated August 3 2011. The tax sharing agreement currently in use by AW and its affiliates is dated in 2011 and although is relevant to the current situation at AW needs to be reviewed and updated for any changes that might have occurred. Also, the policy should be reviewed on a regular ongoing basis in the future.

The Audit Methodology and Framework, the guiding practice document for AW Internal Audit, does not include guidance regarding how to review all areas eligible for audit and then how to select an area to audit. It is a thorough and appropriate document, but begins after an audit has been selected. It begins with scheduling the audit by reaching out to the area's management team. The first critical step in developing an audit plan or audit calendar is to select and prioritize potential audit engagements from a pool of possible audit engagements. This list is then further refined to best use available audit department resources. The selection process described in interview was one of discussion and personal evaluation by the IA VP and others as appropriate at AW. However, no process is documented in the Audit Methodology and Framework manual.¹¹⁹ Accompanying the description of the selection process, should also be a description of the evaluation, or ranking process. Having a standardized evaluation and ranking process for potential audit engagements would help maintain consistency of the process from year to year in the audit department and the ability to add enhancements to a known process going forward. Ideally, a consistent, stated methodology for selection and ranking should be applied to a potential pool of audit engagements so that a systematic selection can be conducted and documented, not only for current selection but for analytical, methodical review and ongoing improvement of the selection process itself.¹²⁰

Planning and SOx internal controls testing memos resulting from the annual SOx internal control audit work conducted by Ernst & Young is available to AW and maintained by Internal Audit. During field work, which concluded mid-2019, it was learned in interviews that from 2011 to 2018, internal controls, specifically SOx controls, had been tested and evaluated in the earlier years by AW IA and then by Ernst & Young (EY) in the later years and through to today. Documentation of this work was requested in interviews but we were informed that IA has no records of the testing performed by IA or by EY. We were also informed that EY does not share any of the documentation created in the process of their work but communicates directly with the Audit Committee.¹²¹ However, in the fact verification portion of the S&C engagement, the client provided annual planning memos from 2013 through 2019 documenting the SOx internal controls testing strategy for the corresponding years. These planning memos are precisely the type of document that is appropriate in this situation with sections in the planning memos specific to Materiality, Control Overview, Testing Overview, and Sampling Methodology as examples of the areas described. The planning memo is thorough and appropriate to the task. Also, provided was an example of specific control test memos for one control tested in each of



the years 2013 through 2019. The company described that all SOx controls tested have similar control test memos created that document the audit work and findings of that specific control being tested. We have not verified test memos of other SOx controls, but the test memo format is standardized and could easily be applied to other SOx controls tested. This, along with the company's assertion that other SOx controls are similarly documented, leads us to believe that test memos exist for other SOx controls tested as well.¹²² So, with the provided 2013 through 2019 Planning Memos and the sample Internal Control SOx Testing Memos, as examples of other SOx control testing memos, appropriate documentation of the SOx internal control testing and results is and has been available to AW areas, as needed.¹²³ Also refer to *Chapter VI – Internal Controls Finding VI-3* for similar discussion.

The Internal Audit Vice President reports administratively to the EVP Chief Financial Officer. Currently at AW, the IA VP reports functionally to the Audit Committee and administratively to the Executive Vice President and Chief Financial Officer. The reporting structure comprises the appearance of Internal Audit independence with the Financial Organization of AW with the possibility that the VP IA could be unduly influenced by the CFO. To mitigate this situation the Audit Charter includes this language: "The Audit, Finance and Risk Committee Chair's approval is required for the hiring, compensation, removal or replacement of the VPIA."¹²⁴ Ideally, the Internal Audit function should be completely independent of the Financial Management organization. When this is not the case, there can be the perception of the Finance organization exerting control or power over the auditing teams responsible for auditing the financial activities. There is clear consistent communication with the Internal Audit Group and Audit Committee, but there is still opportunity for inappropriate pressure or to be placed on the corporate independent audit group or at the very least, the appearance of inappropriate pressure.

Cash Management & Treasury

Short term investment policy and practice is appropriate for NJAW needs. NJAW is a net borrower and so invests money only occasionally. However, the short-term investment policy of money market and treasury investments is appropriate focusing on principal preservation.¹²⁵

The Treasury and Insurance Policy and the Short Term Investment Practice are due for review. The Treasury and Insurance Policy is dated October 29, 2012 and was set for review November 30, 2015. The Short-term Investment Practice is dated October 15, 2010 and no review date is set. Through interviews we understand the policies and practices have not changed significantly, however, the age of these policy documents justifies a review and update.

NJAW cash is not held in a separate bank account and is held separately from other AW affiliates in a Mellon Lockbox account. End of the year account balances are listed in *Exhibit XXIII-2* in *Chapter XXIII*.¹²⁶

Cash forecasting and analysis is appropriate. The process for cash forecasting and analysis is appropriate using primarily the Daily Cash Positioning Schedule as a tool for this process.

A policy and practice document for Cash Forecasting does not exist. Through interviews and document request process, it was determined that a NJAW policy and practice did not yield such documents specific to cash forecasting.¹²⁷

Accounting & Property Records

There are four to five payrolls to process each month. There are approximately four to five payroll runs each month. One AW company has a pay per week agreement driving that number. However, most payrolls at AW are biweekly.¹²⁸ We realize the difficulty in changing payroll schedules. The difficulties encompass employee needs and expectations not being met and pay schedules possibly being integral to contracts. However, the amount of time and work saved by reducing a payroll from 52 weekly to 26 biweekly payrolls is significant.

Most Accounting policies and practices are overdue for review and update. As shown in *Exhibit XXIV-8*, of the 24 policies and practices reviewed, four are dated currently and 20 are overdue for their review. The oldest of these is one dated 2011, followed by two others dated 2015.

The budget process is not documented appropriately. The budget process was described in interviews in great detail and is driven by a calendar. The process is well known and described in detail by the Divisional CFO, but it has not been formed into a practice or policy document.¹²⁹ This is similar to the recommendation made in the previous management audit, *Recommendation XII-1*, to document the process for developing the five-year business plan.

There is not a documented link between the Strategic Plan and the Budget Process. Without budget process documentation, there is also lacking a clear link from the strategic plan to the budget process. Ideally, the strategic plan should drive the budget process at AW and NJAW. The process is driven by the budget calendar and is cost driven beginning with an update of the previous year budget adjusted for known upcoming events in all AW organizations. Comments occur after an initial budget is prepared and submitted and adjustments made before final submission. Upper level management determines when and how the strategic plan is shared with managers preparing budgets. From various descriptions it appears that the strategic plan is shared through the company during the budget process.¹³⁰ However, it is clear that the budget is reviewed by upper level management and through that review the budget is lined up with the strategic plan and in line with AW goals.¹³¹ However, there is not a documented process describing when the strategic plan is discussed with managers and how that information is used in creating budgets for their areas.

Affiliate Cost Allocations & Relationships

American Water Holding Company structure, affiliates, and their diversified activities do not seem to negatively impact NJAW. Based on the information and data reviewed in *Phase One Chapter V – Affiliate Relationships* or *Chapter IX – Affiliate Cost Methodologies*, the American Water holding company structure, affiliates, and their diversified activities do not seem to have any detrimental effects on NJAW. NJAW's interactions with its affiliates is reasonable. In *Phase One Chapter V – Affiliate Relationships*, reviewing of



NJAW's files covering all contracts and transactions with other affiliates was reasonable. In *Phase One Chapter IV – Procurement and Purchasing*, it also indicated that the following was reasonable for purchasing on behalf of NJAW:

- ◆ Independence of purchasing on behalf of NJAW on all staff levels was reasonable, because both Corporate Procurement and State Procurement groups seem to positively help NJAW, including acting in the best interests of NJAW and its ratepayers.
- ◆ NJAW's relationships with its affiliates and the ability of NJAW's internal controls and structure to ensure that purchases made on behalf of NJAW are in the best interest of NJAW and its ratepayers.

While controls exist for billing activities, NJAW does not seem to have any internal system to provide assurance that its goals and objectives are accomplished at the lowest possible cost and maximum benefit to its ratepayers. As indicated in *Phase One Chapter IV – Procurement and Purchasing*, we are not aware of any internal system NJAW has to provide assurance that its goals and objectives are accomplished at the lowest possible cost and maximum benefit to its ratepayers, as procurement and purchasing are primarily done by AWWSC, not NJAW. As indicated in *Phase One Chapter V – Affiliate Relationships*, AWWSC conducts numerous controls around the AWWSC billing process to protect against irregular, illegal, and/or improper transactions; therefore, the internal controls should give a true and accurate account of the transactions of NJAW and its affiliates, and should show that the transactions have been carried out with integrity and according to standards consistent with regulatory and legal requirements. Because AWWSC is responsible for procurement and purchasing, it is not necessary that NJAW itself has internal controls that protect against irregular, illegal, and/or improper transactions.

Interactions with NJAW Board of Directors regarding affiliate relationships and transactions are reasonable. As indicated in *Phase One Chapter V – Affiliate Relationships*, written and verbal correspondence between NJAW directors and officers takes place in connection with the regularly scheduled Board of Directors meetings,¹³² which in practice NJAW holds quarterly Board meetings, plus one in addition meeting (five meetings per year)¹³³. It appears that such correspondence is at arms' length and in the best interests of NJAW's ratepayers.

Company Contractor Performance

The One Call Mark Out process is effective. *Exhibit XXVI-1* through *Exhibit XXVI-4* demonstrate the effectiveness of the One Call Location methodology.

Contractor and vendor qualification is very comprehensive. An overview of the vendor qualification process is given in *Exhibit XXVI-5* through *Exhibit XXVI-7*.

The Company's Outside Auditor that performs vendor contract audits uses a thoroughly documented methodology. The Outside Auditors Planning, Fieldwork, and Completion steps are summarized in *Exhibit XXVI-8* through *Exhibit XXVI-10*.

Cyber Risk Mitigation/Cyber Security

NJAW has developed good documentation describing their overall cybersecurity program. Schumaker & Company consultants reviewed all of the cybersecurity documentation (on-site due to the confidential nature). Generally, the process control computers (technologies which are used to run various water and waste water plants and the distribution and collections systems) are located in a separate physical network from the administrative network computers (business computers). Firewalls separate these network from each other and also provide separation from the Internet. Web facing resources are appropriately contained in the DMZ or demilitarized zone network. Generally Internet facing computers are located within a DMZ (a third network which is configured to allow access from the Internet if certain conditions are met). In some cases, only these computers are allowed to access computers within the administrative network. In short, access from the Internet is controlled via multiple firewalls.¹³⁴ This configuration is documented in written documentation.

Any access to the NJAW network requires two factor authentication. The use of a username and password is single factor authentication. Two factor authentication requires another of authentication in addition to just a username and password. The second form of authentication could be one of several such as a fingerprint reader, a certificate on the computer, a separate code with is sent to a user's dingle or cell phone, etc. They have even implemented two factor authentication for Microsoft Office and for all Virtual Private Network (VPN) access to their internal network.¹³⁵

Outside access to NJAW resources is limited to certain personnel and again requires two factor authentication. However, this access may need to be expanded due to the COVID-19 virus currently underway in the USA.

Although cybersecurity is primarily associated with network and computer penetration via the Internet, just as important is protection from internal access from within the organization. NJAW uses the active directory organizational groups and security groups within Microsoft Active Directory to control access to network resources. The primary tool used to control internal access by unauthorized personnel is Microsoft Active Directory. Active Directory is a security database which controls access to various resources (computers servers, printers, and other items) on a Microsoft network. Network Administrators essential assign rights to various groups of personnel and individuals users are placed in these groups to obtain rights to various resources on the network. In essence it is a software systems which not only grants users with rights but also limits the ability of what users can do with these rights – such as being limited to viewing but not changing a resource. Schumaker & Company consultants performed a high level review of the implementation of this system.¹³⁶

All network users login into the network using a Cisco appliance which is integrated with Microsoft Active Directory. In addition to the use of Active Directory, NJAW has also implemented a Cisco appliance for further controlling network access. In particular, this further helps support the two factor authentication process. This is particularly important on Virtual Private Network (VPN) access to the NJAW network. This permits NJAW to better control external access to the NJAW network.¹³⁷



Table top exercises have been conducted to further reinforce NJAW responsiveness to unusual threats. NJAW has conducted some table top exercises to further evaluate its cybersecurity processes.¹³⁸

NJAW has developed an Excel spreadsheet which identifies the specific requirements of the Utility Cyber Security Program Requirements identified in BPU Docket No. AO16030196.¹³⁹

Network backup is accomplished and detailed in written backup procedures which run automatically. Since the computers are located at an IBM datacenter, IBM is responsible for performing adequate backup of these resources. However, NJAW should be monitoring these backups to ensure they are being correctly performed. Ransomware is an external threat which can be somewhat minimized by appropriate network backups. It would be incumbent on NJAW to periodically ensure that important information can be adequately recovered.¹⁴⁰

NJAW has periodically performed penetration testing on its firewalls. NJAW has had penetration testing performed on its network by third parties. In addition, NJAW has taken advantage of the penetration testing that the Department of Homeland Security (DHS) periodically performs for utilities. Findings from these tests have been implemented into NJAW security policies and procedures.¹⁴¹

NJAW runs a program that periodically tests user's conformance to adequate security conformance. All NJAW personnel have been trained regarding basic computer security considerations. In addition, NJAW periodically populates users email boxes with messages which highlight security issues to see if any user "takes the bait." Individuals that fail the exercise are identified for further security training.¹⁴²

B. Summary of Recommendations

To assist NJAW management in developing implementation plans, each recommendation has been assigned a priority of "high," "medium," or "low" according to the following criteria:

- ◆ *High* – Designated recommendations are high priority because of their importance and urgency. These represent significant benefit potential, major improvements to service, or substantial improvements to methods or procedures.
- ◆ *Medium* – Designated recommendations are of medium priority. In some instances, the implementation of these recommendations is expected to provide moderate improvements in profitability of operations, or management methods and performance. In other instances, implementation may provide significant longer-term benefits which are less predictable.
- ◆ *Low* – Designated recommendations reflect a lower priority. In many instances, they should be studied further or implemented sometime during the next few years. Potential benefits are perceived to be either modest or difficult to measure.

Exhibit I-1 summarizes the priority totals for each audit phase.

Exhibit I-1			
Summary of Priority Totals			
	High	Medium	Low
Phase I	0	21	0
Phase II	0	48	0
Total	0	69	0

In many recommendations, it is not possible or practical at this time to measure “quantitative” benefits. The benefits associated with these recommendations fall primarily into four categories:

- ◆ Reduction in actual costs of operations within a NJAW area
- ◆ Increase in a revenue source within a NJAW area
- ◆ Change in work flow processes used in the provision of services to NJAW customers on a more effective or efficient basis
- ◆ Change in other processes resulting in good business practices being implemented

Particularly in instances where a new management practice or procedure is recommended (where one either did not exist or was not fully implemented), it may be difficult to estimate the actual benefit to be derived. It is believed, however, that the overall benefit will be improved effectiveness and efficiency of the specified NJAW area. Additionally, qualitative benefits may occur that cannot be easily quantified. They could include improved effectiveness and efficiency in operations, increased customer satisfaction, additional cost savings, increased revenues, etc. It should also be noted that, because it is not possible in all instances to estimate expected benefits prior to implementation, any implementation plan should include a reliable measurement tool to track benefits after implementation.

As NJAW will have varying ways to implement recommendations, Schumaker & Company did not estimate the impact of implementing audit recommendations on NJAW’s expense. However, the short-term impact could be considerable. Additionally, implementation of recommendations often requires a phase-in period before benefits can be achieved.

The 69 recommendation statements contained in the audit report are shown by phase and work plan area on the following pages. We have also indicated the recommendation number, page number in the report, priority, estimated time-frame to initiate implementation efforts, and estimated benefits following implementation. The details of each recommendation can be found in the individual chapters where the subject matter is evaluated.



Phase I – Operational & Financial Performance Review & Affiliate Transactions & Relationships

Description		Page	Priority	Initiation Timeframe
II. Evaluation of Financial Performance				
II-1	Review and update, as needed, dividend policy and practices documentation regularly, at least no longer than every two years.	70	Medium	0-6 Months
II-2	Use load research studies and associated data in future NJAW rate cases.	70	Medium	0-6 Months
II-3	Provide additional training to the Revenue Analytics group for rate cases.	70	Medium	0-6 Months
III. Regulatory Filing Process and Review of Current Case Workpapers and Spreadsheets				
III-1	Create Policy and Practice documents to provide guidance to the rate filing process.	81	Medium	0-6 Months
III-2	Revise the supporting rate case schedules to show totals that will agree directly to the rate case documentation without additional mathematical accumulations.	81	Medium	0-6 Months
IV. Procurement and Purchasing				
IV-1	Modify activities performed by management to review policy and practice documentation at least every two years and make any needed changes.	114	Medium	0-6 Months
IV-2	Modify practice documentation due to the lack of the Enterprise Data policy documentation or create the Enterprise Data policy documentation.	115	Medium	0-6 Months
IV-3	Make sure the S1V application is completed in a timely manner.	115	Medium	0-6 Months
IV-4	Make sure the Supplier Relationship Management program application is completed in a timely manner.	115	Medium	0-6 Months
IV-5	Complete all actions of internal audits involving procurement and purchasing in a timely manner.	115	Medium	0-6 Months
IV-6	Make sure the BAM is updated to include items not previously included, plus others.	115	Medium	0-6 Months
V. Affiliate Relationships				
V-1	Develop monthly affiliate transaction reports.	132	Medium	0-6 Months
V-2	Perform a study to determine if affiliate transactions between AWWSC and regulated utilities should be done with other causal factors.	133	Medium	0-6 Months
VI. Internal Controls				
VI-1	Continue the process whereby documented planning and results of the EY SOx testing is shared with AW and documented results maintained by the Internal Audit Group	142	Medium	0-6 Months
VII. Market Conditions				
	No recommendations.			

	Description	Page	Priority	Initiation Timeframe
VIII. Recommendations and Review of Previous Audit				
	Recommendations appear in other chapters, not this one.			
IX. Affiliate Cost Allocation Methodologies				
IX-1	Review and update, as necessary, policies and procedures documentation at least every two years.	199	Medium	0-6 Months
X. Capital Allocation among Subsidiaries				
	No recommendations.			
XI. Cost Recovery Mechanism				
	No recommendations.			
XII. Non Rate-Related Revenues				
	No recommendations.			
XIII. Operations Review				
XIII-1	Confirm work orders in the backlog.	235	Medium	0-6 Months
XIII-2	Modify the Monthly Performance Report.	235	Medium	0-6 Months
XIII-3	Develop Asset Management plans for meter, sewer, and waste water systems.	250	Medium	0-6 Months
XIII-4	Establish a base line threshold, including linkage to approved budgets or 5 and 10 year plans, that a project must meet before it is placed into the MapCall backlog.	250	Medium	0-6 Months
XIII-5	Review, using the established base line threshold, the backlog of water and sewer main projects for validity and probability of funding and completion.	250	Medium	0-6 Months
XIII-6	Work with the NJBPU to move to a 15 year testing cycle for residential meters.	250	Medium	0-6 Months

C. Understanding of Water/Wastewater Utility Industry

For many years, water utilities have been referred to as “silent servants.” This was an appropriate descriptor. The operation of water/wastewater utilities 20 years ago was characterized by consistently low rates, availability of generally inexpensive water supplies, infrequent contact with the public and the regulatory community (at least in comparison with today), relatively unchanging drinking water regulations, only gradual introduction of computerization, and an infrastructure that was for the most part “out of sight, out of mind.” There was little innovation because it was not perceived to be needed.

Today, new challenges are making water/wastewater operations a dynamic and rapidly changing environment, requiring increased interaction between the functional areas, new technologies, expanded capabilities from staff personnel, and for some utilities, re-evaluation of utility philosophies. Utilities have had to increase staff and obtain new technical skills. Many utilities have had to re-assess the extent to which analytical laboratory functions should remain in-house. New regulations, such as those pertaining to the disposal of sludge and the protection of aquatic wildlife, combined storm and sewer regulations have also had important implications on water/wastewater utility operations. One effect of



these regulations has been to decrease the accessibility of water supplies and/or increase the cost of developing new supplies. In addition, many utilities have had to deal with the possibility that their current raw water sources may be inadequate over the long-term. Because of the combination of these factors, techniques used to determine “least-cost” long-term supply planning alternatives have become more rigorous for many utilities. Demand management, conservation, and other non-conventional solutions have become important elements in long-term planning. The implications on water rates have resulted in greater interaction between the engineering design, finance and rates, and customer relations departments of many utilities throughout the long-term planning process.

Infrastructure rehabilitation, establishment of new rate structures that encourage (as oppose to discourage) water conservation, and computerizing the system wherever possible to achieve greater efficiencies of operation are just some of the pressing needs facing water/wastewater utilities. The now successful water/wastewater utility is one that seeks to cope with the demands of the following:

- ◆ *Maintaining Compliance with SDWA Amendments and Other Regulations* – Much of the initial challenges of SDWA are behind the largest utilities. Nonetheless, cost and compliance issues with regard to the disinfection byproducts rule, the lead and copper rule, radionuclide rule, groundwater contamination, and others are still important concerns. Some regulations impacting (or potentially impacting) water utilities include:
 - Interim Enhanced Surface Water Treatment Rule (IESWTR)
 - Long-term 1 Enhanced Surface Water Treatment Rule (LT1 ESWTR)
 - Long-term 2 Enhanced Surface Water Treatment Rule (LT2 ESWTR)
 - Stage 1 Disinfectants/Disinfection Byproducts Rule (Stage 1 D/DBP)
 - Stage 2 Disinfectants/Disinfection Byproducts Rule (Stage 2 D/DBP)
 - Filter Backwash Recycling Rule (FBBR)
- ◆ *Convincing the Public That Dramatic Increases in Water Rates are Justified* – Economists speak of the consumer’s “ability to pay” and “willingness to pay.” Environmental groups and other interest groups can force utilities, through public pressure, to become public relations experts.
- ◆ *Convincing the Public That Increased Disposal Costs Associated with Storm Runoff* – The need to account for periodic surges into the treatment plant due to storms.
- ◆ *Addressing Accumulated “Deferred Maintenance” Problems* – Many water utilities have “unaccounted-for-water” percentages ranging from 15% to 40%. This is often tolerated because of the expense and disruption resulting from digging up and replacing old, leaky mains. This is an inefficient practice that must be corrected. If a utility is faced with constructing a filtration plant, the savings that can be realized in reduced design capacity as a result of reducing “unaccounted-for-water” percentages to 10% to 12%, more than justifies costs to replace aging mains.
- ◆ *Dealing with Inadequate Quantities of Water* – Water shortages used to be a purely “west of the Mississippi” phenomenon. Water was plentiful in the East where the mean annual rainfall amounts to about 40 inches. This is no longer the case. Many utilities, east and west, face water shortages. Water conservation is a reality. This will manifest itself in a number of forms: peak

period pricing, use of demand management techniques, 100 % metering, reduction of leakage, adoption of rate structures which penalize excessive use, and public appeals to conserve.

- ◆ *Attracting, Training, and Retaining Skilled Human Resources* – Water supply, though not often viewed as an environmental function, is nevertheless forced to compete with environmental firms, other utilities, and other governmental entities for skilled individuals. Implementing the Clean Water Act, the Clean Air Act, a reauthorized Resource Conservation and Recovery Act, Superfund, and other environmental laws requires huge amounts of money and many trained people. The growth of environmental engineering firms is constrained primarily by the lack of skilled people; thus, they look to water utilities, state government, and other related sectors for skilled individuals. Human Resource departments face other pressures, such as demands for higher skills, requirements for higher wages, and the need for detailed training (e.g., in water systems engineering, management, use of computers, etc.).
- ◆ *Obtaining Capital* – Financing is always a major challenge for utilities. The limitations on tax-exempt financing posed by the Tax Reform Act of 1986, competition for capital make it difficult for water utilities to obtain the funding needed to make capital improvements, rehabilitate their systems, and obtain new sources of supply.
- ◆ *Moving to an Age of Automation* – Computerization is essential to increase productivity, achieve efficiency, and reduce costs. Many water utilities have installed supervisory control and data acquisition (SCADA) systems, others have computerized their billing systems, while still others have moved toward installation of automatic or central meter reading systems (AMR or CMR). As these technologies are demonstrated effective, more utilities will purchase and use automated systems.

To conduct a successful management audit of a water utility, a management consulting firm must have a clear understanding of the specific management and operational challenges facing the regulated water utility. NJAW's financial condition and results of operations are influenced by a variety of industry-wide factors, including the following:

- ◆ Economic utility regulation
- ◆ The need for infrastructure investment
- ◆ Compliance with environmental, health and safety standards
- ◆ Production costs
- ◆ Customer growth
- ◆ An overall trend of declining water usage per customer
- ◆ Weather and seasonality
- ◆ Economic environment

This project team has richly detailed and unique insights into the water utility industry by virtue of the fact that a significant number of the consulting assignments that its principals have conducted over the past decade have been within the drinking water industry. A focused management and operational study of NJAW must recognize and take into account the industry-specific issues and challenges that will confront NJAW's management over the next five years. The project team's understanding of these issues will allow



us to efficiently and effectively audit NJAW, while at the same time recognize the realities of the physical and political environment within which the utility must operate.

Phase II - Comprehensive Management Audit

Description		Page	Priority	Initiation Timeframe
XIV. Executive Management & Corporate Governance				
XIV-1	Examine broadening the formula for allocating senior management and AW director compensation.	263	Medium	0-6 Months
XIV-2	Change administrative reporting of the Internal Audit Function.	262	Medium	0-6 Months
XIV-3	Require vendors and contractors to explicitly acknowledge and agree to conduct themselves in accordance to AW's Code of Ethics.	262	Medium	0-6 Months
XIV-4	Implement a process to periodically perform cost comparisons for external audit services.	263	Medium	0-6 Months
XV. Organization Structure				
XV-1	Conduct a Corporate-wide, broad-based organization review.	270	Medium	0-6 Months
XVI. Human Resources				
XVI-1	Provide practice documentation that correspond with all policy documentation, plus make sure policy and practice documentation is updated in a timely manner.	308	Medium	0-6 Months
XVII. Strategic Planning				
XVII-1	Develop a formal, integrated strategic planning process.	313	Medium	0-6 Months
XVIII. Systems Operations				
XVIII-1	Provide funding and implement the four recommendations in the current Water Loss Management Plan.	337	Medium	0-6 Months
XVIII-2	Implement a practice of running a System Wide InfoMaster risk level report during the same month every year and plotting the results to trend the percentage of pipe in each risk category.	364	Medium	0-6 Months
XVIII-3	Include a leaks per mile of main, including targets, in the Management Reports.	364	Medium	0-6 Months
XVIII-4	Implement measures to indicate if the condition of the water and sewer distribution systems is improving or degrading as guidance in determining the level of capital investment	364	Medium	0-6 Months
XVIII-5	Implement a plan, based on root cause analysis, to improve customer perception.	393	Medium	0-6 Months
XVIII-6	Implement a plan, based on investigations, to stabilize the level of Discharge Permit Exceedances.	393	Medium	0-6 Months
XIX. Customer Service				
XIX-1	Regularly compare NJAW to other utilities in New Jersey.	440	Medium	0-6 Months
XIX-2	Allow customers to chat with Call Handlers on the American Water website.	440	Medium	0-6 Months
XIX-3	Provide incorporation of video content on the website.	440	Medium	0-6 Months
XIX-4	Create a formal policy documentation for handling customer disputes.	440	Medium	0-6 Months
XIX-5	Review and update, as needed, Utility Accounts Receivable Write-off Practice documentation regularly, at least no longer than every two years.	441	Medium	0-6 Months



Description		Page	Priority	Initiation Timeframe
XX. External Relations				
	No recommendations.		Medium	0-6 Months
XXI. Support Services				
Legal Counsel				
XXI-1	Review and Evaluate Acquisition of a Formalized Legal Management System.	467	Medium	0-6 Months
XXI-2	Develop Annually a Legal Counsel Strategic Plan with its Own Goals/Objectives to Support American Water's Overall Strategic Plan, Goals, and Objectives.	467	Medium	0-6 Months
Real Estate and Property Management, including Facilities Management and Real Estate/Land Management				
XXI-3	Establish a Facilities and Property Manager function at NJAW.	471	Medium	0-6 Months
XXI-4	Develop detailed policies and practices on all real estate, facilities and property processes.	471	Medium	0-6 Months
Procurement Services and Materials Management				
XXI-5	Aggressively Develop and Implement Vendor Partnering Processes.	488	Medium	0-6 Months
XXI-6	Require all policies and practices be reviewed and updated at least every Three Years.	488	Medium	0-6 Months
XXI-7	Increase the level of Internal Auditing in the Purchasing/Materials area.	488	Medium	0-6 Months
XXI-8	Enhance the Vendor Master Database to capture more vendor performance data and make these evaluations a formal part of contract/supplier award decisions.	489	Medium	0-6 Months
XXI-9	Perform objective analyses of inventory levels, EOQ, reorder points, min/max levels.	489	Medium	0-6 Months
Transportation and Fleet Management				
XXI-10	Perform more formal forecasting of fleet needs.	497	Medium	0-6 Months
XXI-11	Perform a comprehensive, corporate-wide standardization study and use the results to guide fleet vehicle purchasing.	497	Medium	0-6 Months
XXI-12	Provide better summary level management reporting and analysis on capital and operating costs.	497	Medium	0-6 Months
XXI-13	Perform more internal audits of the Fleet function	497	Medium	0-6 Months
Computer Systems and Services				
XXI-14	Make sure T&I functions have job descriptions for all employee types.	513	Medium	0-6 Months
XXI-15	Modify policies and procedures documentation dates.	513	Medium	0-6 Months
XXI-16	Develop documentation or a systems for documenting current system configurations.	513	Medium	0-6 Months
Records Management				
XXI-17	Review and update, as needed, Records Retention and associated practices documentation regularly, at least no longer than every two years.	520	Medium	0-6 Months
XXI-18	Provide formal training sessions frequently for employees involving their records retention requirements.	520	Medium	0-6 Months
Security of Infrastructure				
	Refer to <i>Section F-Computer Systems and Services</i> of this chapter, plus <i>Chapter XXVII-Cyber Risk Mitigation-Cyber Security</i> .			

	Description	Page	Priority	Initiation Timeframe
XXII. Finance				
XXII-1	Review and update the tax sharing policy.	541	Medium	0-6 Months
XXII-2	Expand the Audit Methodology and Framework document to include the audit selection and evaluation process.	541	Medium	0-6 Months
XXII-3	Continue the process whereby documented planning and results of the EY SOx testing is shared with AW and documented results maintained by the Internal Audit Group.	541	Medium	0-6 Months
XXII-4	Adjust the reporting structure so that the Internal Audit Vice President reports administratively to the Chief Executive Officer.	542	Medium	0-6 Months
XXIII. Cash Management				
XXIII-1	Review and update, if needed, the Treasury and Insurance Policy and the Short Term Investment Practice.	551	Medium	0-6 Months
XXIII-2	Create a policy and practice document for the cash forecasting process.	551	Medium	0-6 Months
XXIV. Accounting & Property Records				
XXIV-1	Review the possibility of reducing payroll run frequencies to lessen the amount of work in the payroll area.	576	Medium	0-6 Months
XXIV-2	Review and update all Policy and Practice documents that have past their review date.	576	Medium	0-6 Months
XXIV-3	Create a Policy and Practice document for the budget process.	576	Medium	0-6 Months
XXIV-4	Create a visible link between the strategic plan and the budget.	576	Medium	0-6 Months
XXV. Affiliate Cost Allocations & Relationships				
XXV-1	Using a system let NJAW understand that its goals and objectives are accomplished at the lowest possible cost and maximum benefit to its ratepayers.	579	Medium	0-6 Months
XXVI. Company Contractor Performance				
	No recommendations.			
XXVII. Cyber Risk Mitigation/Cyber Security				
XXVII-1	Ensure that network backups are adequately being performed.	593	Medium	0-6 Months



D. Understanding of NJAW

Founded in 1886, American Water {NYSE: AWK} is the largest investor-owned U.S. water and wastewater utility company. With its headquarters in Camden, NJ, the company employs more than 7,000 professionals who provide drinking water, wastewater, and other related services to approximately 15 million people in 32 states and Ontario, Canada. New Jersey American Water (NJAW) is a wholly owned subsidiary of American Water. In addition to its subsidiaries' regulated operations, American Water provides operation and maintenance services to an additional 274,000 people in New Jersey.



NJAW is also the largest investor-owned water utility in the State of New Jersey, providing water and/or wastewater services to more than 2.7 million people. NJAW facts include:

- ◆ Serves approximately 2.7 million people in 191 communities in 18 counties for approximately 93% residential and 7% commercial/industrial customers.
- ◆ System includes:
 - 7 surface water treatment plants with a combined capacity of 350 million gallons of water per day (MGD) and 247 wells and 20 sewer treatment plants with a combined capacity of 7.2 MGD
 - 8,500 miles of water main and 400 miles of sewer main pipes
 - 158 water storage tanks and 121 water booster pumping stations and 60 sewer lift stations
 - Source of supply includes 72% ground water, 23% groundwater, and 5% purchased water
 - 210 pumping stations and seven dams
- ◆ Pumps, treats, and delivers more than 350 million gallons every day through the 8,500 miles of water pipes

NJAW is now headquartered in Camden, New Jersey. More than 800 professionals carry out the company's foremost responsibility of providing safe, reliable water and wastewater service to its customers around the clock. In New Jersey, the Board of Public Utilities (NJBPU) and the New Jersey Department of Environmental Protection set the rules for NJAW to follow. Those regulations are what help to ensure everyone is receiving high-quality water and waste water service at a fair price. All increases in service rates are directly related to the cost of providing water and/or waste water service and are subjected to a public review process and approval by the NJBPU.

II. Evaluation of Financial Performance

Schumaker & Company examined the company's corporate goals and objectives with regard to the short and long-term strategic performance and look for irregularity and/or significant changes from year to year. We examined and assessed, but not limited to, the following financial information for the period 2010 through the end of the test period, December 31, 2018, if available, including the post-test year period as proposed by New Jersey American Water (NJAW) in its recent base rate case to determine its impact on NJAW's overall financial performance.

- ◆ The company's financial statements from year to year for significant changes
- ◆ The level and type of operational and maintenance and other expenses over this period of time
- ◆ The level of depreciation expense and method of calculating depreciation expense over this period of time, including the level and calculation of the salvage of assets
- ◆ Tax credits, deferred taxes, and tax rates and any other tax line items and policies
- ◆ The percentage of net income being distributed as dividends over this period of time and how this impacted equity and the return on equity and the impact of the American Water and NJAW's policies regarding dividends of NJAW's earnings
- ◆ The level of retained earnings and decisions with regards to retained earnings
- ◆ The level of and changes in equity in the company and decisions and policies with regards to the issuance of new shares, stock splits, and the buying back of shares and the timing of those decisions relative to the filing of rate cases
- ◆ The company's participation in the money pool
- ◆ The company's policy with regards to its capital structure relative to the use of a consolidated capital structure based upon the structure maintained by American Water as opposed to a stand-alone NJAW capital structure
- ◆ The level and type of capital expenditures (CAPEX) and the company's financing of such projects, including the amount of the annual interest and principal payments policies
- ◆ Evaluate whether NJAW has conducted load research studies to assist them in their operations, developing rate design and reasonable estimates of billing determinants when setting rates to recovery costs
- ◆ NJAW's method for determining the number of customers for each class on which billing determinates are based
- ◆ Evaluate NJAW's borrowing costs with respect to the rate it has paid and whether the rate is impacted by the holding company structure

We also assessed the company's 2010-2018 capital expenditures and operational expenditures (OPEX) to confirm that the focus of these expenditures reflects the appropriate balance necessary to meet

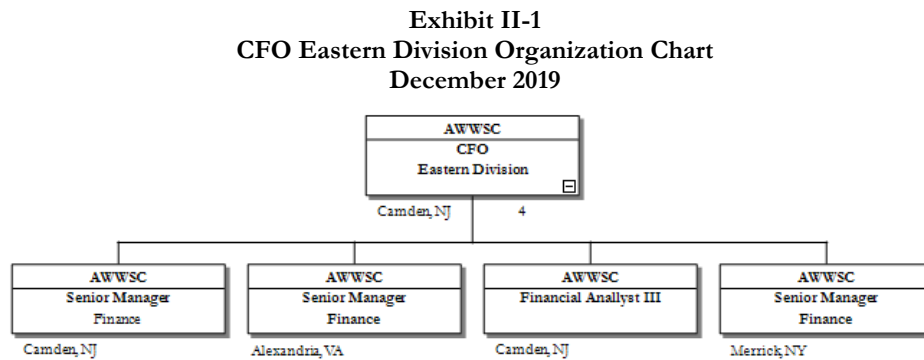


shorter term system performance mandates while achieving reliability performance targets over the longer term taking into account both costs and benefits through our review of:

- ◆ NJAW's 2010-2018 CAPEX and OPEX by project categories (i.e., reliability, infrastructure, new business)
- ◆ NJAW's ten-year forecasted CAPEX and OPEX through 2020
- ◆ NJAW's CAPEX decision-making and level of input of American Water regarding budgets and expenditures.

A. Background & Perspective

Exhibit II-1 illustrates the organization chart of the CFO Eastern Division, which has responsibility for financial performance involving NJAW along with New York, Virginia, and Maryland utilities.¹⁴³



Source: Interview 14

Other chapters provide other financial management information and data, including:

- ◆ *Chapter V* – Affiliate Relationships
- ◆ *Chapter IX* – Affiliate Cost Allocation Methodologies
- ◆ *Chapter X* – Capital Allocation Among Subsidiaries
- ◆ *Chapter XXII* – Finance
- ◆ *Chapter XXIII* – Cash Management
- ◆ *Chapter XXIV* – Accounting & Property Records
- ◆ *Chapter XXV* – *Affiliate Cost Allocations and Relationships*

Financial Statements

Balance Sheets

Exhibit II-2 illustrates the Balance Sheets Summary from Calendar Years 2009 to 2018.¹⁴⁴

Exhibit II-2 Balance Sheets Summary Calendar Years 2009 to 2018

Balance Sheets										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
(Dollars in Thousands)										
Assets										
Current Assets	\$150,148	\$131,643	\$103,092	\$110,325	\$123,586	\$101,077	\$123,152	\$109,216	\$126,307	\$115,271
Property, Plant, & Equipment	\$2,427,317	\$2,523,552	\$2,636,808	\$2,776,795	\$2,951,369	\$3,108,289	\$3,353,001	\$3,563,741	\$3,894,468	\$4,133,616
Regulatory & Other Long-Term Assets	\$77,677	\$87,246	\$103,091	\$118,573	\$131,635	\$155,886	\$187,295	\$204,446	\$228,811	\$238,573
Total Assets	\$2,655,142	\$2,742,441	\$2,842,991	\$3,005,693	\$3,206,590	\$3,365,252	\$3,663,448	\$3,877,403	\$4,249,586	\$4,487,460
Capitalization & Liabilities										
Current Liabilities	\$68,369	\$104,373	\$140,041	\$128,122	\$193,226	\$129,922	\$190,249	\$217,591	\$272,909	\$342,814
Regulatory & Other Long-Term Liabilities	\$511,770	\$521,285	\$560,357	\$608,101	\$668,955	\$723,843	\$798,546	\$866,020	\$924,618	\$940,433
Capitalization	\$1,881,488	\$1,913,208	\$1,934,194	\$2,054,718	\$2,125,460	\$2,290,295	\$2,447,583	\$2,566,442	\$2,817,596	\$2,967,321
Contributions in Aid of Construction	\$193,515	\$203,575	\$208,399	\$214,752	\$218,949	\$221,192	\$227,070	\$227,350	\$234,463	\$236,892
Commitments & Contingencies	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capitalization & Liabilities	\$2,655,142	\$2,742,441	\$2,842,991	\$3,005,693	\$3,206,590	\$3,365,252	\$3,663,448	\$3,877,403	\$4,249,586	\$4,487,460
				\$3,010,609		\$3,361,700		\$3,912,755		

Source: Information Response 1 and Associated Attachments for 2009 to 2018

Income Statements

Exhibit II-3 illustrates the Statements of Income Summary from Calendar Years 2009 to 2018.¹⁴⁵

Exhibit II-3 Statements of Income Summary Calendar Years 2009 to 2018

Statements of Income										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
(Dollars in Thousands)										
Income & Losses										
Operating Revenues	\$560,355	\$601,172	\$612,052	\$639,040	\$638,017	\$652,328	\$703,727	\$724,393	\$738,140	\$723,197
Operating Expenses	\$392,373	\$416,312	\$419,339	\$436,353	\$429,276	\$432,089	\$445,815	\$456,349	\$465,142	\$485,390
Operating Income	\$167,982	\$184,860	\$192,713	\$202,687	\$208,741	\$220,239	\$257,912	\$268,044	\$272,998	\$237,807
Other Income (Expenses)	(\$44,574)	(\$48,500)	(\$48,829)	(\$46,129)	(\$47,257)	(\$49,729)	(\$50,916)	(\$54,198)	(\$55,600)	(\$57,078)
Income Before Income Taxes	\$123,408	\$136,360	\$143,884	\$156,558	\$161,484	\$170,510	\$206,996	\$213,846	\$217,398	\$180,729
Provision for Income Taxes	\$42,921	\$48,070	\$50,633	\$55,111	\$57,161	\$58,275	\$72,782	\$75,195	\$76,886	\$38,243
Net Income	\$80,487	\$88,290	\$93,251	\$101,447	\$104,323	\$112,235	\$134,214	\$138,651	\$140,512	\$142,486
Tax Percentage	34.8%	35.3%	35.2%	35.2%	35.4%	34.2%	35.2%	35.2%	35.4%	21.2%
		\$88,290						\$140,426	\$140,512	

Source: Information Response 1 and Associated Attachments for 2009 to 2018



Statements of Cash Flows

Exhibit II-4 illustrates the Statements of Cash Flows Summary from Calendar Years 2009 to 2018.¹⁴⁶

Exhibit II-4 Statements of Cash Flows Summary Calendar Years 2009 to 2018

Statements of Cash Flows										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
(Dollars in Thousands)										
Cash Flow from Operating Activities										
Net Income	\$80,487	\$88,290	\$93,251	\$101,447	\$104,323	\$112,235	\$134,214	\$138,651	\$140,512	\$142,486
Adjustments	\$127,392	\$127,649	\$77,779	\$127,026	\$112,722	\$174,972	\$168,113	\$195,636	\$185,698	\$131,322
Net Cash Provided by Operating Activities	\$207,879	\$215,939	\$171,030	\$228,473	\$217,045	\$287,207	\$302,327	\$334,287	\$326,210	\$273,808
Cash Flows from Investing Activities										
	(\$167,958)	(\$145,347)	(\$152,669)	(\$158,552)	(\$259,888)	(\$253,626)	(\$367,442)	(\$346,565)	(\$396,584)	(\$408,158)
Cash Flows from Financing Activities										
	(\$40,816)	(\$71,998)	(\$18,269)	(\$68,621)	\$41,614	(\$33,494)	\$65,574	\$13,359	\$67,605	\$133,901
Net Decrease in Cash & Cash Equivalents	(\$895)	(\$1,406)	\$92	\$1,300	(\$1,229)	\$87	\$459	\$1,081	(\$2,769)	(\$449)
Cash & Cash Equivalents at Beginning of Year	\$3,761	\$2,866	\$1,460	\$1,552	\$2,852	\$1,623	\$1,710	\$2,169	\$7,833	\$5,064
Cash & Cash Equivalents at End of Year	\$2,866	\$1,460	\$1,552	\$2,852	\$1,623	\$1,710	\$2,169	\$3,250	\$5,064	\$4,615
								\$7,833		
Cash Paid (Received) During Year for:										
Interest, not of Capitalized Amount	\$46,461	\$55,180	\$54,336	\$54,876	\$53,433	\$53,469	\$55,574	\$59,271	\$61,799	\$60,748
Income Taxes, not of Refunds *	(\$13,862)	\$4,861	\$23,517	(\$2,342)	\$18,520	\$992	\$11,774	(\$12,733)	\$1,813	(\$8,497)
Non-Cash Investing Activity**	\$7,660	\$24,702	\$25,131	\$34,582	\$35,911	\$38,156	\$56,363	\$48,492	\$102,756	\$36,765
Non-Cash Financing Activity***	\$366	\$12,353	\$822	\$69,283	(\$3,299)	\$9,276	\$40,355	\$319	\$322	\$402

Source: Information Response 1 and Associated Attachments for Calendar Years 2009 to 2018

* Net of refunds of \$13,862 in 2009, \$0 in 2010 and 2011, \$2,342 in 2012, \$0 in 2013; after 2013, refunds associated with income taxes no longer had to be disclosed on the face of the cash flow statements, so 2014 and 2015 and 2016 and 2017 and 2018

** Capital expenditures acquired on account but unpaid as of period end

*** Capital contributions by stockholders and long-term debt

Restating Reasons

The orange-highlighted items in *Exhibit II-2* (2012, 2014, and 2016), *Exhibit II-3* (2010, 2016, and 2017), and *Exhibit II-4* (2016) above reflect the amounts in reports for the year specified;¹⁴⁷ however, sometimes yearly PwC reports had to be restated during the following year when it was included as the prior year in reports, which are shown below in exhibits above.¹⁴⁸

2010 Income Statement Changes in 2011 Report

Two presentation reclassifications occurred in the 2010 Income Statement as reported in 2011 to be consistent with the current year presentation; however, no overall change in net income occurred.¹⁴⁹

- ◆ Public Utility Assessment fee was reclassified from Operation and Maintenance expense to General Taxes.
- ◆ Antenna Revenue was reclassified from Other, Net to Operating Revenues.

2017 Income Statement Changes in 2018 Report

There was a restatement in 2018's annual report for 2017, a \$2.991 million reclass out of Operating Expenses occurred into Other Income (Expense),

2012 Balance Sheet Changes in 2013 Report

Four presentation reclassifications occurred in the 2012 Balance Sheet as reported in 2013 to be consistent with current year presentation:¹⁵⁰

- ◆ Refunds due to Customers were reclassified from Accounts Receivable to a separate line, Refunds due to Customers in the Current Liabilities section.
- ◆ Accounts Payable–Affiliated Company was reclassified to Other in the Current Liabilities section due to reporting requirements.
- ◆ Accrued Purchased Water was reclassified to Other in the Current Liabilities section as the account balance was immaterial and did not meet the reporting threshold to report on a separate line.
- ◆ Deferred Tax presentation adjustments were made due to reporting requirements

2014 Balance Sheet Changes in 2015 Report

Two presentation reclassifications occurred in the 2014 Balance Sheet as reported in 2015 to be consistent with current year presentation:

- ◆ Deferred Taxes Asset and Liability which had been previously been reported separately were combined and reported as Deferred Income Taxes, Net.
- ◆ Accounts Payable-Affiliated Company included a federal income tax receivable which was reclassified to a separate financial statement line in the Current Assets section due to reporting requirements.

2016 Balance Sheet, Income Statement, and Statement of Cash Flows Changes in 2017 Reports

In 2017, American Water Works (Parent) contributed Environmental Disposal Corporation (EDC) to NJAW. Parent acquired EDC in 2016 and completed the contribution in 2017 once approved by the New Jersey Board of Public Utilities. For the year ended December 31, 2017, NJAW's results included EDC as a wholly owned subsidiary and for comparative purposes, GAAP required the 2016 results to be restated with EDC incorporated. As such, when the 2017 audited financials were reported, the amounts previously reported for 2016 were updated to reflect the inclusion of EDC.¹⁵¹

Mapping Trial Balance to Audited Financial Statements

We also asked about mapping between internal trial balance and PwC final reports, as differences can occur, as they didn't align with PwC, but not for reporting purposes, as there is presentation entries that are incorporated into the general ledger download that comes out of SAP, as the Purchase to Pay (PTP) module may change something. *Exhibit II-5* displays in summary mode the steps used.¹⁵²



Exhibit II-5
Steps for Mapping Trial Balance Amounts to PwC Audited Financial Statements
Summary

TB Tab

- 1 Download Trial Balance amounts by account from SAP as of the current year-end and the prior year-end
- 2 Column A (Category Code) - Insert the VLOOKUP formula to assign the appropriate Category Code to each account according to the Category Code Mapping table in the CAT Code tab

YYYY Adj Tab

- 3 List all necessary Presentation Entries for the current year-end and the prior year-end noting the account description, brief description for the reason for the entry, debit balance, credit balance, account category code for each account, and other relevant information

BS, IS Tabs

- 4 Template tabs for the necessary reporting lines required on the final PwC audited financial statements
- 5 YYYY Per TB columns - Formulas to look up and aggregate the necessary balances from the TB tab according to the assigned Category Code (Column A on BS tab and Column I on IS tab)
- 6 YYYY Presentation columns - Balances input by mapping to the applicable detail on the YYYY Adj tab
- 7 Template columns A-H = Contain formulas to add the YYYY TB balances to the YYYY Presentation balances to show the final BS and IS balances that are presented on the PwC audited financial statements

EQU Tab

- 8 Template for the Changes in Common Stockholder's Equity to show the final balances that are presented on the PwC audited financial statements
- 9 Hard code the prior balances from the prior year's PwC audited financial statements
- 10 Formulas to obtain the balances for the current year's activity from the TB tab

Source: Information Response 604 Attachment

Tax Credits, Deferred Taxes, and Tax Rates

The Tax Strategy and Compliance group provides tax strategy and tax compliance activities for regulated and non-regulated companies, which totals approximately 65 companies. The regulated companies are in the following 16 states (CA, GA, HI, IA, IL, IN, KY, MD, MI, MO, NJ, NY, PA, TN, VA, WV), although GA and MI Commissions do not perform oversight of water/wastewater utility organizations, and the remaining companies are the non-regulated companies.¹⁵³

Activities performed by this group include:¹⁵⁶

- ◆ *Strategy* – Develops a tax strategy based on lowest cost of compliance to get correct forecasting. Interacts with acquisition/advice team, so team members can negotiate with sellers to minimize tax. Also:
 - Due diligence
 - Advocacy to watch legislation in which New Jersey made changes, and see what’s driving costs.
- ◆ *Compliance and Audit Management* – Ensure compliance of utility organization taxes, including income taxes and general taxes, the latter of which are transaction-based and property-based taxes. Specifically:
 - File returns
 - Make payments
 - Address comments
 - Address topics in rate cases
 - Perform financial accounting and tax accounting, but the AWWSC Controller has oversight for financial accounting activities; for example, those impacting customer revenues, so an employee who reports to the Controller is who this group typically works with.
 - Tax accounting research

As a regulated water utility, New Jersey American Water is subject to following kinds of taxation:¹⁵⁷

- ◆ *Income Tax*: As regulated water utility, NJAW is exempt from filing stand alone NJ income tax return. In order to consider the timely filing, completion of federal proforma return is tracked in calendar.
- ◆ *Indirect Tax*: As a regulated water utility, NJAW is exempt from sales tax. However, they are subject to filing zero returns in order to be compliant. In addition, NJAW is required to file and make payment for water monitoring surcharge on quarterly basis. They are properly tracked in calendar under Water Monitoring Tax Type.
- ◆ *Property Tax*: This consists of various filings, performed by the Property group shown above, but the Controller’s group also helps with property tax, including:
 - *GRAFT Tax: Gross Receipts and Franchise Tax* – This tax reporting starts with filing Affidavit of Line Length in current year and followed by the Excise Tax Report and Worksheet at the year end. All the filings and payments are tracked under Gross Receipts Tax as well as Franchise Tax types.
 - *Property Tax Payments* – At present American Water has total 1,954 property tax payments made by NJAW across 131 jurisdictions, in which these payments are made in February, May, August, and November, and are tracked under property tax type and payment form type.
 - *Farm Exemption Filing* – This is an annual filing under property tax to claim farm exemption for certain jurisdictions. This property tax filing is tracked under property tax type and tax return form type.

- ◆ *Miscellaneous Filings:* For NJAW, this category includes only Annual Report filing with the payment of filing fee. This is handled by indirect tax department and tracked under Annual Report Filing Tax Type.

Some of the biggest recent changes resulting from the Tax Cuts and Jobs Act (TCJA) include:¹⁵⁸

- ◆ Change down in tax rate from 35% to 21%; as also discussed with regulatory personnel, specifically Senior Director, Rates & Regulatory and Senior Manager, Rates & Regulatory, as it wasn't in NJAW's 2018 rate case. It affected valuation of deferred taxes and impacting excess deferred taxes, which in September 2019 will be handled going forward.
- ◆ To get interest deduction will be continued, but not bonus depreciation, because as of 9/27/2017 no longer qualified for bonus depreciation if purchases made after 9/27/2017. According to the VP, Tax Strategy & Compliance, in August 2018 the IRS started providing guidance, but no final guidance has been provided yet. In 1986 water/wastewater utility organizations gave up 20 year MACRS and used 25 year straight-line depreciation.
- ◆ Contributions to capital in aid of construction changed. As of December 2017, they are taxable for water and wastewater companies.
- ◆ Timing differences collected from NJBPU or customers, so also talked with regulatory personnel, specifically Senior Director, Rates & Regulatory and Senior Manager, Rates & Regulatory.

According to the VP heading this group, it is taking on more responsibility regarding property and employment taxes as an advocacy role.¹⁵⁹ Also, one of the biggest activities is minimizing tax via compliance through rate making activities, which regulatory groups do, but this group helps.¹⁶⁰ Recently in April 2019, PowerTax and PowerPlant systems were upgraded. This group is always involved in process and system improvements.¹⁶¹

Refer to *Chapter XXII – Finance* for additional information about taxes, including departmental control documentation, which is related to federal and/or state instruction codes, plus others discussed in that chapter.

Dividends

The business objective of AWWC's dividend policy, which has not changed since 2010, is to establish requirements for the payment of common dividends by subsidiaries. As AWWC is a holding company whose principal asset is the common stock of its subsidiaries, this policy is designed to provide AWWC with the cash necessary to meet its objectives to its subsidiaries and shareholders. The policy intends to ensure that equity is strictly managed while ensuring that AWWC's shareholders receive appropriate dividends.¹⁶²

Each regulated utility subsidiary of AWWC targets to pay out approximately 75% of the relevant year's net income to common stock, as a common dividend, subject to any restriction contained in loan agreements, indentures, regulatory orders, charters, or relevant state or federal tax laws. To coordinate



with the business planning process, the calculation of the dividend will be based on net income to common stock earned during a twelve-month period ending September 30 and will be paid quarterly in arrears. Quarterly payment in each of the first three quarters of a calendar year shall be limited to ensure accumulated dividend payments do not exceed a forecast of the full calendar year dividend disbursement. All regulated subsidiaries calculate a dividend per share rounded down to the nearest penny. If the calculation of available net income to common stock produces an amount equal to or less than zero, no dividends are expected to be paid to AWWC for the given quarter. A different way is subject to non-regulated subsidiaries, which are expected to payout all cash in excess of the requirements necessary to meet their approved annual business plans.¹⁶³

In instances where the regulated subsidiary's capital structure is expected to exceed 50% equity, the regulated subsidiary may increase the dividend rate above 75% upon written consent from the regulated subsidiary's Board of Directors and the Company Vice President and Treasurer.¹⁶⁴

Exhibit II-7 displays NJAW's dividends to American Water Works Company (AWWC or American Water) from 2010 to 2018.¹⁶⁵

**Exhibit II-7
Dividends
2010 – 2018**

Based on PwC Audited Annual Reports						
Year	Dividends Paid	Net Income	% Distributed	Common Equity	ROE	
2018	\$106,387	\$142,486	75%	\$1,616,037	9.09%	
2017	\$102,769	\$140,512	73%	\$1,517,516	9.77%	
2016	\$104,125	\$140,426	74%	\$1,359,772	10.63%	
2015	\$99,533	\$134,214	74%	\$1,281,479	10.81%	
2014	\$83,495	\$112,235	74%	\$1,200,729	9.84%	
2013	\$70,867	\$104,323	68%	\$1,080,668	9.81%	
2012	\$77,372	\$101,447	76%	\$1,046,946	9.97%	
2011	\$69,058	\$93,251	74%	\$987,334	9.57%	
2010	\$65,545	\$88,290	74%	\$962,319	9.33%	
Based on SAP Actual Reports						
Year	Dividends Paid (Fiscal Year)	Net Income	% Distributed*	Common Equity	ROE	
2018	\$105,552	\$142,468	74%	\$1,616,037	9.09%	
2017	\$104,926	\$140,534	75%	\$1,517,516	9.77%	
2016	\$105,239	\$140,426	75%	\$1,359,772	10.63%	
2015	\$100,577	\$134,097	75%	\$1,281,479	10.81%	
2014	\$84,156	\$112,351	75%	\$1,200,729	9.84%	
2013	\$78,138	\$104,323	75%	\$1,080,668	9.81%	
2012	\$75,842	\$101,216	75%	\$1,046,946	9.97%	
2011	\$69,823	\$93,186	75%	\$ 987,334	9.57%	
2010	\$66,379	\$88,541	75%	\$ 962,319	9.33%	

Source: Information Response 2 Update

*The 2018 dividend calculation excluded the gain on sale of assets from the net income to be distributed which resulted in a distribution less than 75%.

In the *Based on PwC Annual Reports* section provided in *Exhibit II-7* above, it reflects the net income from the PwC Audited Annual reports and the actual dividends paid for the corresponding calendar year. However, dividends are paid one quarter in arrears on net income from the prior quarter, so the dividend payouts did not align with the annual net income. Dividends payouts were aligned with net annual calendar year net income (i.e.: dividends paid from 04/01/Year 1 through 03/31/Year 2). In the *Based on SAP Actual Reports* section provided in *Exhibit II-7* above, the Accounting group uses SAP actuals to calculate the quarterly dividend payments, so the response used net income per SAP versus the PwC Audited Annual reports. The slight variances in net income between the two sources are income tax topsides, which get included in the PwC reports.¹⁶⁶

Also, all dividends must be approved by the Board of Directors of each dividend paying subsidiary and are subject to any existing restrictions imposed by loan agreements, indentures, regulatory orders, charters, or relevant state or federal laws.¹⁶⁷



Money Pool Participation

NJAW relies upon AWWSC's Treasury Department for its daily cash management process, including banking relations and advisement on refinancing and investment opportunities, anticipated interest rates, and the level of NJAW's maximum short-term loan balance during the year based on their historical short-term balance, etc. The NJAW State Finance Team determines NJAW's expected financing needs.

AWWSC Treasury monitors the funds available each day and manages short-term financing requirements for American Water. Although all cash is combined and disbursed from the AWCC account, receipts and disbursements are accounted for by each individual affiliate. Therefore, based on NJAW's daily net cash position, Treasury will either draw on, or pay down, the amount of short-term debt outstanding on NJAW's books daily. Generally, NJAW is in a net borrowing position (i.e., carrying a short-term debt balance taking into account capital expenditures, planned acquisitions, expected income throughout the year, corporate assumptions, company dynamics, etc.). Once agreed upon by the AWWSC Treasury and the NJAW State Finance Team; NJAW's financing needs are consolidated with those of all American Water affiliates in the budgeting process. American Water Capital Corporation (AWCC) is then responsible for securing the short-term financing required by American Water and its subsidiaries for the upcoming year and will obtain long-term financing for affiliates as needed throughout the year. Any financing drawn from AWCC possess the same terms secured by AWCC from external sources.¹⁶⁸

All New Jersey customer payments come into a Mellon Bank lockbox, then Mellon Bank aggregates those NJ payments with other American Water Lockbox accounts and wires the funds to an AWCC concentration account. Four additional PNC bank accounts are utilized to disburse funds from American Water: one for Accounts Payable vendor checks, one for company payroll, one for customer refunds, and one for Accounts Payable vendor electronic disbursements. Those four accounts are known as "zero balance accounts" as funds from the concentration account are used at the end of the day to pay, or zero out, those disbursement accounts.¹⁶⁹

On a daily basis, customer remittances are received by AWWSC through various channels and credited to NJAW. AWWSC's Cash Operations is responsible for the cash collection and disbursement process. All disbursements are made through an AWCC bank account. AWCC's bank account is comprised of cash receipts from all American Water affiliates lockbox accounts, including NJAW.¹⁷⁰ This enables Treasury to monitor the funds available each day and manage short-term financing requirements for American Water. Although all cash is combined and disbursed from the AWCC account, receipts and disbursements are accounted for by each individual affiliate. Therefore, based on NJAW's daily net cash position, Treasury will either draw on, or pay down, the amount of short-term debt outstanding on NJAW's books daily. Generally, NJAW is in a net borrowing position (i.e., carrying a short-term debt balance as opposed to carrying excess cash to be invested).¹⁷¹

Based on NJAW's short-term debt and long-term debt promissory notes, NJAW is generally carrying a short-term balance, which can be significantly higher than its long-term balance, if the maximums for promissory

notes (as provided in *Borrowing Costs* section of this chapter) are used; however, as shown previously in *Exhibit II-2*, short-term debt typically is lower than long-term debt.¹⁷²

Refer to *Chapter XXIII – Cash Management* for more information about the money pool participation.

Equity

Exhibit II-8 provides the level of and changes in equity in the company and decisions and policies with regards to the issuance of new shares, stock splits, and the buying back of shares and the timing of those decisions relative to the filing of rate cases.¹⁷³ The reason several years data has not been provided in quite a few information responses, such as the information response for *Exhibit II-8* and others, is because American Water moved from JD Edwards (JDE) to SAP in 2013.¹⁷⁴ As shown previously in *Exhibit II-2* (Balance Sheets Summary), NJAW's equity is typically significantly higher than its debt.

Exhibit II-8
Balances of Equity
Quarterly Basis
March 31, 2012 to June 30, 2019

	<u>3/31/2012</u>	<u>6/30/2012</u>	<u>9/30/2012</u>	<u>12/31/2012</u>	<u>3/31/2013</u>	<u>6/30/2013</u>	<u>9/30/2013</u>	<u>12/31/2013</u>	<u>3/31/2014</u>	<u>6/30/2014</u>
Common Stock	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200
Paid in Capital	533,812,062	533,976,067	534,169,468	534,331,030	534,311,460	534,398,342	534,478,728	534,597,468	534,662,198	585,742,524
Retained Earnings	405,266,698	426,375,483	447,933,064	425,640,829	430,810,653	448,502,182	469,294,644	459,097,139	458,965,701	477,644,229
Accumulated Other Comprehensive Income	0	0	0	0	0	0	0	0	0	0
Total	\$1,026,052,960	\$1,047,325,750	\$1,069,076,732	\$1,046,946,059	\$1,052,096,313	\$1,069,874,724	\$1,090,747,572	\$1,080,668,808	\$1,080,602,099	\$1,150,360,953

	<u>9/30/2014</u>	<u>12/31/2014</u>	<u>3/31/2015</u>	<u>6/30/2015</u>	<u>9/30/2015</u>	<u>12/31/2015</u>	<u>Adjusted A</u> <u>3/31/2016</u>	<u>Adjusted A</u> <u>6/30/2016</u>	<u>Adjusted A</u> <u>9/30/2016</u>	<u>Adjusted A</u> <u>12/31/2016</u>
Common Stock	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200
Paid in Capital	625,817,945	625,918,443	625,997,668	626,089,821	671,878,343	671,988,313	691,760,373	691,831,385	691,883,951	713,981,069
Retained Earnings	499,157,300	487,836,356	489,814,333	513,286,169	540,450,735	522,516,595	527,283,954	547,479,523	576,421,428	558,816,662
Accumulated Other Comprehensive Income	0	0	0	0	0	0	0	0	0	0
Total	\$1,211,949,445	\$1,200,728,998	\$1,202,786,201	\$1,226,350,190	\$1,299,303,278	\$1,281,479,108	\$1,306,018,527	\$1,326,285,108	\$1,355,279,579	\$1,359,771,931

	<u>Adjusted A</u> <u>3/31/2017</u>	<u>Adjusted A</u> <u>6/30/2017</u>	<u>Adjusted A</u> <u>9/30/2017</u>	<u>Adjusted A</u> <u>12/31/2017</u>	<u>Adjusted B</u> <u>3/31/2018</u>	<u>Adjusted B</u> <u>6/30/2018</u>	<u>Adjusted B</u> <u>9/30/2018</u>	<u>Adjusted B</u> <u>12/31/2018</u>	<u>Adjusted B</u> <u>3/31/2019</u>	<u>Adjusted B</u> <u>6/30/2019</u>
Common Stock	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200	586,974,200
Paid in Capital	714,037,840	772,581,320	832,665,568	832,764,986	832,819,441	882,941,821	883,052,216	898,166,020	898,250,248	938,376,610
Retained Earnings	563,068,649	583,512,633	609,991,471	597,777,681	608,248,749	617,574,736	651,354,988	633,877,000	636,791,736	656,842,666
Accumulated Other Comprehensive Income	0	0	0	0	0	0	0	(2,980,186)	(2,980,186)	(2,980,186)
Total	\$1,364,080,688	\$1,443,068,153	\$1,529,631,239	\$1,517,516,867	\$1,528,042,390	\$1,587,490,757	\$1,621,381,404	\$1,616,037,034	\$1,619,035,998	\$1,679,213,290

Notes:
Adjusted A - reflects adjustments to Common Stock and Paid in Capital balances from the initial response, but total Common Equity is unchanged
Adjusted B - reflects adjustments to Common Stock and Paid in Capital balances from the initial response to accurately reflect the acquisition of EDC and the transfer of EDC to NJAW in November 2017, resulting in a change to total Common Equity

Source: Information Response 5 Update, which includes adjustments to the Common Stock and Paid in Capital balances to accurately reflect the acquisition of Environmental Disposal Corp (EDC) and the subsequent transfer of the EDC investment to NJAW in November of 2017. These adjustments are labeled "Adjusted B" and resulted in changes to the total amount of Common Equity.



According to NJAW management, retained earnings are impacted by net income, dividends paid to AWWC, as well as the capital contribution from AWWC to finance capital expenditures and growth opportunities.¹⁷⁵

According to NJAW management, the issuance of equity has taken the form of equity infusions, or capital contributions, from its parent, American Water Works Company, for at least the last decade. The use and timing of equity financing, along with long-term debt financing, is driven primarily by capital expenditures. Capital expenditures are funded initially through the use of short-term debt, offset in part by internally generated cash. To manage its level of short-term debt and to help match the tenor of its funding sources with the life span of its assets, NJAW will issue common equity and long-term debt to replace short-term debt, doing so with the objective of maintaining its target capitalization ratios. The company's timing of equity infusions is impacted by ongoing capital investment in infrastructure and growth opportunities and influences the decision-making regarding the timing of base rate cases, along with a variety of other factors.¹⁷⁶

Capital Structure

NJAW believes it is appropriate to use the NJAW stand-alone capital structure for the purpose of determining its weighted average cost of capital (WACC).¹⁷⁷

- ◆ First, NJAW has an independently-determined and managed capital structure. NJAW has its own Board of Directors and in conjunction with all of its financing requirements, NJAW separately considers the mix of long-term debt and common equity appropriate for its capital structure. Thus, its financing decisions are made by NJAW based on its capital structure objectives and capital market conditions at the time securities are issued.¹⁷⁸
- ◆ Second, NJAW's stand-alone capital structure comprises the capital that actually finances NJAW's rate base, to which the overall rate of return is applied for rate setting purposes. In contrast, the consolidated American Water capital structure contains capital that was not used to finance NJAW's rate base, such as debt and equity of American Water's other operating water subsidiaries, which finances the rate bases of those other water subsidiaries. It also reflects the capital applicable to American Water's market-based businesses. Thus, using the American Water consolidated capital structure would likely result in a WACC that is either higher or lower than the appropriate level to satisfy the return requirements of NJAW's investors.¹⁷⁹
- ◆ Third, NJAW's stand-alone capital structure is managed for consistency with the capital structure ratios maintained, on average, by the group of publicly-traded United States water utilities. Consistency with the water industry can provide confidence to the NJBPU that NJAW's capital structure is reasonable for rate setting purposes.¹⁸⁰

Capital Expenditures

Exhibit II-9 displays ten-year trends of actual versus budgeted capital expenditures for the following categories:¹⁸¹

- ◆ *Centrally Sponsored (CS)*: Same as an IP; however, these are managed centrally, usually by AWWSC, with the costs charged directly to each operating unit rather than through a service company bill.
- ◆ *Developer Projects (DV)*: Similar to RP Projects (perpetual groups of smaller projects which are budgeted and managed on a yearly basis), but with external funding (typically by a developer) in part or in whole.
- ◆ *Investment Projects (IP)*: Unique, one-time projects having a definitive start and stop with total funding typically \geq \$250K.
- ◆ *Recurring Projects (RP)*: Routine, perpetual groups of sub-projects which are budgeted and managed on a calendar year basis.

Refer to *Chapter XIII – Operations Review* and/or *Chapter XVIII – Systems Operations* for information regarding what type of equipment NJAW has used for capital expenditures.



**Exhibit II-9
NJAW Capital Expenditures
2009-2018**

	2009			2010		
	YE Actual	YE Budget	YE Budget Variance	YE Actual	YE Budget	YE Budget Variance
CS	\$ -	\$ -	\$ -	\$ 5,445,563	\$ 21,540,644	\$ (16,095,081)
DV	\$ 11,227,163	\$ 11,509,035	\$ (281,872)	\$ 11,649,459	\$ 9,150,000	\$ 2,499,459
RP	\$ 58,915,592	\$ 60,394,743	\$ (1,479,150)	\$ 81,720,940	\$ 75,287,498	\$ 6,433,442
IP	\$ 23,618,378	\$ 24,211,347	\$ (592,969)	\$ 57,850,389	\$ 69,089,924	\$ (11,239,535)
Gross Capex	\$ 93,761,133	\$ 96,115,124	\$ (2,353,991)	\$ 156,666,351	\$ 175,068,066	\$ (18,401,715)
Contributions	\$ (4,606,639)	\$ (3,414,063)	\$ (1,192,576)	\$ (707,377)	\$ (4,000,000)	\$ 3,292,623
Advances	\$ (8,683,287)	\$ (7,315,051)	\$ (1,368,236)	\$ (9,215,823)	\$ (6,000,000)	\$ (3,215,823)
Refunds	\$ 8,154,520	\$ 8,496,870	\$ (342,350)	\$ 8,398,264	\$ 10,000,000	\$ (1,601,736)
Net Capex	\$ 88,625,727	\$ 93,882,880	\$ (5,257,153)	\$ 155,141,415	\$ 175,068,066	\$ (19,926,651)
			-5.60%			-11.38%

	2011			2012		
	YE Actual	YE Budget	YE Budget Variance	YE Actual	YE Budget	YE Budget Variance
CS	\$ 20,488,535	\$ 14,043,456	\$ 6,445,079	\$ 24,107,650	\$ 22,788,238	\$ 1,319,412
DV	\$ 8,117,223	\$ 9,150,000	\$ (1,032,777)	\$ 10,494,663	\$ 9,150,000	\$ 1,344,663
RP	\$ 75,960,132	\$ 65,881,280	\$ 10,078,852	\$ 94,587,666	\$ 93,826,056	\$ 761,610
IP	\$ 81,168,025	\$ 81,577,154	\$ (409,129)	\$ 93,358,137	\$ 80,925,423	\$ 12,432,714
Gross Capex	\$ 185,733,915	\$ 170,651,890	\$ 15,082,025	\$ 222,548,116	\$ 206,689,717	\$ 15,858,399
Contributions	\$ (1,856,524)	\$ (3,000,000)	\$ 1,143,476	\$ (4,902,998)	\$ (3,950,000)	\$ (952,998)
Advances	\$ (9,159,748)	\$ (6,020,000)	\$ (3,139,748)	\$ (17,205,432)	\$ (6,000,000)	\$ (11,205,432)
Refunds	\$ 7,993,505	\$ 9,095,350	\$ (1,101,845)	\$ 6,542,646	\$ 9,850,000	\$ (3,307,354)
Net Capex	\$ 182,711,148	\$ 170,727,240	\$ 11,983,908	\$ 206,982,333	\$ 206,589,717	\$ 392,616
			7.02%			0.19%

	2013			2014		
	YE Actual	YE Budget	YE Budget Variance	YE Actual	YE Budget	YE Budget Variance
CS	\$ 13,988,697	\$ 10,260,656	\$ 3,728,041	\$ 8,091,783	\$ 8,438,681	\$ (346,898)
DV	\$ 13,667,081	\$ 10,200,000	\$ 3,467,081	\$ 20,497,467	\$ 11,000,000	\$ 9,497,467
RP	\$ 157,499,991	\$ 145,063,006	\$ 12,436,985	\$ 158,247,329	\$ 145,296,851	\$ 12,950,478
IP	\$ 76,306,192	\$ 58,963,227	\$ 17,342,965	\$ 72,987,930	\$ 83,096,527	\$ (10,108,597)
Gross Capex	\$ 261,461,961	\$ 224,486,889	\$ 36,975,072	\$ 259,824,509	\$ 247,832,059	\$ 11,992,450
Contributions	\$ (239,596)	\$ (3,000,000)	\$ 2,760,404	\$ (2,236,016)	\$ (1,500,000)	\$ (736,016)
Advances	\$ (14,539,868)	\$ (6,000,000)	\$ (8,539,868)	\$ (18,453,904)	\$ (7,500,000)	\$ (10,953,904)
Refunds	\$ 12,817,832	\$ 9,000,000	\$ 3,817,832	\$ 7,860,282	\$ 9,000,000	\$ (1,139,718)
Net Capex	\$ 259,500,329	\$ 224,486,889	\$ 35,013,440	\$ 246,994,871	\$ 247,832,059	\$ (837,188)
			15.60%			-0.34%

	2015			2016		
	YE Actual	YE Budget	YE Budget Variance	YE Actual	YE Budget	YE Budget Variance
CS	\$ 7,555,992	\$ 6,254,622	\$ 1,301,370	\$ 7,471,281	\$ 7,010,432	\$ 460,849
DV	\$ 14,296,509	\$ 11,000,000	\$ 3,296,509	\$ 17,409,362	\$ 11,664,000	\$ 5,745,362
RP	\$ 205,385,767	\$ 185,408,459	\$ 19,977,308	\$ 217,069,987	\$ 203,904,126	\$ 13,165,861
IP	\$ 90,893,392	\$ 100,880,124	\$ (9,986,732)	\$ 78,352,385	\$ 95,613,228	\$ (17,260,843)
Gross Capex	\$ 318,131,660	\$ 303,543,205	\$ 14,588,455	\$ 320,303,015	\$ 318,191,786	\$ 2,111,229
Contributions	\$ (1,901,804)	\$ (1,500,000)	\$ (401,804)	\$ (700,218)	\$ (3,142,627)	\$ 2,442,409
Advances	\$ (17,295,105)	\$ (7,500,000)	\$ (9,795,105)	\$ (16,908,172)	\$ (13,680,000)	\$ (3,228,172)
Refunds	\$ 10,953,246	\$ 9,000,000	\$ 1,953,246	\$ 10,022,610	\$ 8,760,000	\$ 1,262,610
Net Capex	\$ 309,887,997	\$ 303,543,205	\$ 6,344,792	\$ 312,717,235	\$ 310,129,159	\$ 2,588,076
			2.09%			0.83%

	2017			2018		
	YE Actual	YE Budget	YE Budget Variance	YE Actual	YE Budget	YE Budget Variance
CS	\$ 11,973,547	\$ 9,144,020	\$ 2,829,527	\$ 15,681,152	\$ 10,899,019	\$ 4,782,133
DV	\$ 15,237,911	\$ 13,920,000	\$ 1,317,911	\$ 17,511,130	\$ 22,561,172	\$ (5,050,042)
RP	\$ 249,047,166	\$ 244,517,832	\$ 4,529,334	\$ 225,967,141	\$ 220,948,276	\$ 5,018,865
IP	\$ 131,788,370	\$ 138,358,054	\$ (6,569,684)	\$ 102,398,781	\$ 99,483,370	\$ 2,915,411
Gross Capex	\$ 408,046,994	\$ 405,939,906	\$ 2,107,088	\$ 361,558,203	\$ 353,891,837	\$ 7,666,366
Contributions	\$ (852,293)	\$ (2,812,333)	\$ 1,960,040	\$ (6,063,867)	\$ (2,508,000)	\$ (3,555,867)
Advances	\$ (19,139,676)	\$ (16,920,000)	\$ (2,219,676)	\$ (17,283,285)	\$ (18,612,000)	\$ 1,328,715
Refunds	\$ 8,777,011	\$ 9,600,000	\$ (822,989)	\$ 9,571,864	\$ 10,560,000	\$ (988,136)
Net Capex	\$ 396,832,035	\$ 395,807,573	\$ 1,024,462	\$ 347,782,915	\$ 343,331,837	\$ 4,451,078
			0.26%			1.30%

Source: Information Responses 8 and 81

Billing Determinates Based

NJAW counts the number of customers in each class based on counts of active contracts for each (i.e. water, sewer, and fire). A customer can have a water service contract only, or both water and sewer contracts in which they would be counted as a customer separately for water and sewer. The contract is considered active the day the customer moves into a premise which is when service starts. The contract ends or becomes inactive when the customer moves out of the premise which is when service ends. The customer is billed for the service period when the contract is active only; therefore, a contract can be counted as a partial customer (less than 1.0) in a month if the contract is not active for the entire month.¹⁸²

Borrowing Costs

NJAW has obtained tax-exempt debt financing through various New Jersey governmental agencies at subsidized rates, which are below-market rates. The actual draw down of loans issued by the I-Bank (formerly known as the New Jersey Environmental Infrastructure Trust or NJEIT)/NJEIT in 2018 involved amounts are \$25.962 million of 0% debt, and \$2.827 million of 5.0% debt. These figures align with NJAW's 2018 Consolidated Notes to Financial Statements and reflect loan dollars received / drawn down in 2018. Remaining dollars on these loans would be drawn down in future years. These loans were obtained directly by NJAW and were not impacted by American Water's corporate structure.¹⁸³

Long-Term Debt

NJAW also obtains long-term debt through its financing affiliate, American Water Capital Corporation, which, like NJAW, is a subsidiary of American Water Works Company.¹⁸⁴

- ◆ On August 9, 2018, NJAW issued a promissory note to AWCC for \$57.6 million at an interest rate of 4.2%. The terms, including the interest rate, that NJAW receives on long-term debt it obtains through AWCC are identical to the terms of the corresponding senior unsecured bonds that AWCC issues in the public debt market. Although NJAW has a separate stand-alone credit rating from both S&P and Moody's and can issue its own external debt, AWCC can borrow in the capital markets at a more efficient and lower cost due to the economies of scale of associated with an AWCC issuance. The issuance costs and any discount or premium incurred by AWCC in connection with its long-term borrowings are allocated to the participating subsidiaries, including NJAW, based on their pro rata share of the AWCC bond issuance. Due to the economies of scale, such issuance costs are less (per dollar of debt issued) than the costs that NJAW would incur by issuing its own long-term debt in the public debt market.¹⁸⁵
- ◆ On May 13, 2019, NJAW issued a promissory note to AWCC for \$72 million at an interest rate of 4.15% with maturity due June 1, 2049.¹⁸⁶



Short-Term Debt

NJAW also obtains short-term financing through AWCC. Commercial paper is generally the lowest cost short-term financing option available to corporations. NJAW is not a large enough entity to establish its own commercial paper program to efficiently fund itself in the short-term and would likely incur higher interest costs if it could not receive funding through AWCC. AWCC typically issues short-term commercial paper and, as it does with long-term debt as described above, lends the proceeds down, via intercompany loan, to NJAW at the exact terms and conditions that AWCC has with external investors. Thus, due to the use of its financing affiliate, AWCC, for both short-term and long-term financing, according to AWWSC management, NJAW benefits from lower interest rates and issuance costs resulting from the American Water holding company structure.¹⁸⁷ Regarding NJAW's borrowing costs with respect to the rate it has paid and whether the rate is impacted by the holding company structure, the Eastern Division CFO indicated that for about 10 years the company has been using AWWC, so it could get more favorable rate, so states are revolving fund debt, but NJ in a while has been stalled. Companies typically get 0% during construction phase, then May and November timeframe to convert, which revolves into FUND (75% borrowing at 0%) and TRUST (25% borrowing at blended rate), which is also called I-Bank. Generally projects can impact %.¹⁸⁸

On May 16, 2018, NJAW issued a promissory note to AWCC for \$210 million maximum. Interest is charged on the unpaid outstanding principal balance or of this note at a rate per annum equal to the lender's actual cost of funds to make such loan, such rate to change as lender's actual cost of funds changes. Interest on borrowings are due and payable on the first business day of each month, commencing with the first business day of the month after the month in which this note was executed. In the absence of manifest error, the records maintained by AWCC of the amount and term, if any, of borrowings hereunder shall be deemed conclusive.¹⁸⁹

Credit Ratings

Exhibit II-10 illustrates Moody's issuer ratings and outlook from 2012 to 2018 for American Water and NJAW.¹⁹⁰

**Exhibit II-10
Moody's Issuer Credit Rating and Outlook
2012-2018**

	American Water		NJAW	
	Issuer Credit Rating	Outlook	Issuer Credit Rating	Outlook
2011	BBB+	Stable	N/A	N/A
2012	BBB+	Stable>Positive	Stable>Positive	Stable>Positive
2013	A-	Stable	A-	Stable
2014	A-	Positive	A-	Positive
2015	A	Stable	A	Stable
2016	A	Stable	N/A	N/A
2017	A	Stable	A	Stable
2018	A	Stable	A	Stable
2019	N/A	N/A	N/A	N/A

Source: Information Response 340 N/A=Not Available (NJAW Considers Confidential, but not Schumaker & Company).

According to Moody's comments in 2019 regarding American Water is the following:¹⁹¹

American Water considers the following four paragraphs as confidential documentation.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Exhibit II-10 illustrates Standard & Poor's (S&P's) issuer credit ratings and outlook from 2012 to 2018 for American Water and NJAW.¹⁹²

Exhibit II-11
S&P's Issuer Credit Rating and Outlook
2012-2018

	American Water		NJAW	
	Issuer Credit Rating	Outlook	Issuer Credit Rating	Outlook
2011	BBB+	Stable	N/A	N/A
2012	BBB+	Stable>Positive	Stable>Positive	Stable>Positive
2013	A-	Stable	A-	Stable
2014	A-	Positive	A-	Positive
2015	A	Stable	A	Stable
2016	A	Stable	N/A	N/A
2017	A	Stable	A	Stable
2018	A	Stable	A	Stable
2019	N/A	N/A	N/A	N/A

Source: Information Response 340 N/A=Not Available (NJAW Considers Confidential, but not Schumaker & Company).

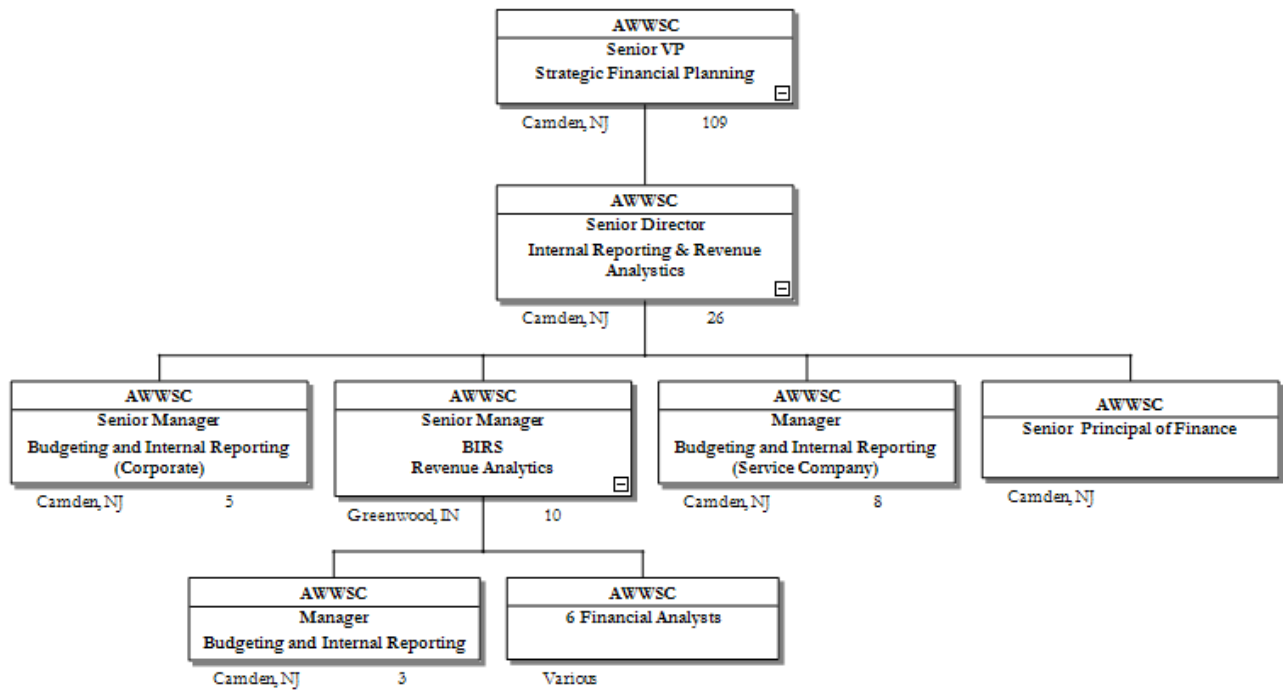
Budgeting, Internal Reporting, and Revenue Analytics

A Budget, Internal Reporting, and Revenue Analytics (BIRS) Department in AWWSC has been recently led by a Senior Director with three direct reports, including:¹⁹³

- ◆ Senior Manager – Budgeting and Internal Reporting (Corporate)
- ◆ Senior Manager – Revenue Analytics (who works primarily for NJAW, but also all other states) and has 10 employees in his group
- ◆ Manager – Budgeting and Internal Reporting (Service Company)

Exhibit II-12 illustrates the BIRS organization within AWWSC,¹⁹⁴ which reports to the Senior Vice President (SVP) of Strategic Financial Planning.¹⁹⁵ However, in late 2019 a Senior Principal of Finance has been added as a direct report, but it is currently not clear how many employees will be reporting to that person, if any.

**Exhibit II-12
Budget, Internal Reporting, & Revenue Analytics Organization Chart
May 2019**



Source: Interviews 5 and 39 and Draft Report Comments Update

The BIRS organization activities include:¹⁹⁶

- ◆ B = Budgeting – Corporate financial planning and analysis (FP&A) driving budgeting across the entire American Water Works Company with the Senior Manager – Budgeting and Internal Reporting (Corporate) responsible for deadlines and milestones.
- ◆ I = Internal Reporting – For stakeholders, including labor and profit and loss (P&L) statements.
- ◆ R = Revenue Analytics – Driving revenue budgets for states with the Senior Manager – BIRS Revenue Analytics responsible.
- ◆ S = Relocation using formulas with Manager – Budgeting and Internal Reporting (States) responsible.

Budgeting

For example, the 2020 planning process kicks off January 2019, concluding with American Water Works Company, Inc. (NYSE: AWK) Board approval of the consolidated budget in December 2019. In preparation for the planning process, the calendar is created with milestones and duties. Early in the process, “Global Assumptions” are released that are used by all parties for completing departmental budgets. The Global Assumptions are presented in February or March, which include examples, such as:¹⁹⁷

- ◆ The SVP of Human Resources merits non-union increases or decreases expected for the upcoming year, typically done in February, March, and April each year.
- ◆ The Insurance & Risk Management group provides property, workers compensation, and insurance other than group (IOTG), typically done in February, March, and April each year.
- ◆ Other assumptions include workers compensation, risk management, and materials, etc.

Standardized budget models are sent out to departments in March, April, and May.¹⁹⁸

Budget work is done in Excel in March by contributors accumulated and uploaded to the Hyperion system (a Web-based application that delivers global financial consolidation, reporting, and analysis in a single, highly scalable software solution) in June.¹⁹⁹

- ◆ The CFO of the Eastern Division is the budget liaison with budget owners for the NJ budget process, and she presents the budget to NJAW's President and its Board of Directors. In August, presentation of the consolidated budget to Executive Leadership Team (ELT) occurs. Years 2-5 of the budget is created at this point in July. In November and December, the consolidated plan is presented to the American Water Board of Directors, and the NJAW Board of Directors too. In January 2020 the current plan data will be uploaded to the Hyperion/SAP systems. The first year is approved only by the NJAW Board of Directors. Possibly only at states level are Years 2-5 used, although American Water Board of Directors has summary view of these four years.
 - Operations and maintenance expenses (OPEX) and capital expenditures (CAPEX) budgeting is included in both budgets and the five-year plans. The VP of Engineering owns the CapEx budget and the CFO owns the Year 1 and outer year budgets.
 - For the capital expenditures budget, the VP of Engineering-Enterprise Capital Programs works with NJAW and its lead engineers.

Exhibit II-13 lists the departments used for NJAW’s budgets starting in 2015.²⁰⁰

**Exhibit II-13
NJAW Budget Formats**

Department	Comment
Customer Service	
NJ Admin and General	
Small Meter Shop	Prior to 2018, the budget for the Large and Small Meter Shops were combined in this cost center. In 2018 the two meter shops were split into unique costs centers.
NJ Supply Chain	
NJ Corporate Engineering	
NJ Legal	
Water Quality	
Human Resources	
Business Development	
Community Relations	
Government Relations	
Large Meter Shop	Prior to 2018, the budget for the Large and Small Meter Shops were combined in what is now the cost center for the Small Meter Shop budget.
Project Delivery North	This is the Engineering cost center focused on capital projects in the North region of New Jersey.
Project Delivery South	This is the Engineering cost center focused on capital project in the South region of New Jersey.
Development Services	This is the engineering cost center that manages main extension projects.
Asset Planning (Engineering)	
Facility Management	
Security	
Water Loss Management	
SCADA	
Health and Safety	
Coastal Operations	This cost center is inclusive all functions of the Coastal Region (production, distribution, field services, administrative).
North Operations	This cost center is inclusive all functions of the North Region (production, distribution, field services, administrative).
Central Operations	This cost center is inclusive all functions of the Central Region (production, distribution, field services, administrative).
South Operations	This cost center is inclusive all functions of the South Region (production, distribution, field services, administrative).
Statewide Waste Water Operati	This cost center is inclusive of all functions of Statewide Waste Water.
EDC Operations	This cost center is inclusive of all functions of Environmental Disposal Corp (EDC).

Source: Information Response 184 Attachment

OPEX and CAPEX by Project Categories

NJAW’s OPEX by project categories includes:²⁰¹

- ◆ Operations and maintenance
- ◆ Depreciation
- ◆ Amortization
- ◆ General taxes
- ◆ Gain on disposition of property

Exhibit II-3, which illustrated previously operating expenses as part of its income statements, based on what operating expenses includes, is shown in Exhibit II-14:²⁰²



**Exhibit II-14
Operating Expenses**

	Statements of Income									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	(Dollars in Thousands)									
Operation and Maintenance	\$248,841	\$261,443	\$253,269	\$260,627	\$245,425	\$240,470	\$248,370	\$247,216	\$243,029	\$252,613
Depreciation	\$61,513	\$65,088	\$70,785	\$77,729	\$82,163	\$89,022	\$94,677	\$102,055	\$111,119	\$118,427
Amortization	\$5,356	\$5,702	\$4,945	\$6,045	\$6,978	\$7,805	\$7,195	\$4,011	\$4,468	\$8,036
General Taxes	\$76,826	\$84,079	\$90,460	\$92,026	\$94,897	\$94,857	\$95,647	\$103,188	\$107,510	\$108,460
Gain on Disposition of Property	(\$163)	\$0	(\$120)	(\$74)	(\$187)	(\$65)	(\$74)	(\$121)	(\$984)	(\$2,146)
Total Operating Expenses, Net	\$392,373	\$416,312	\$419,339	\$436,353	\$429,276	\$432,089	\$445,815	\$456,349	\$465,142	\$485,390

\$416,312

\$458,988 \$462,151

Source: Information Response 1

NJAW's CAPEX by project categories (i.e., reliability, infrastructures, and new business) is illustrated in *Exhibit II-15*.²⁰³

**Exhibit II-15
CAPEX by Project Categories**

NJAW 2010-2018 Capex by Purpose Code	
ADMIN AND OPERATIONAL SUPPORT	223,496,547
ASSET RENEWAL POOR CONDITION	767,284,741
ASSET RENEWAL PROACTIVE MEASURE	118,955,260
CUST SVC PRESS FLOW TASTE WAT QUAL	2,030,112
EFFICIENCY PAYBACK <5 YRS	35,565,956
EFFICIENCY PAYBACK >5 YRS	25,280,462
GROWTH/CAP IN FRANCHISE <3 YRS	133,999,299
GROWTH/CAP IN FRANCHISE >3 YRS	36,620,845
GROWTH/CAP OUT OF FRANCHISE <3 YRS	3,204,241
GROWTH/CAP OUT OF FRANCHISE >3 YRS	2,806,094
REG COMP <3 YRS	189,743,362
REG COMP >3 YRS	6,301,673
REG COMP OTHER	4,919,661
REL/QUAL BACKUP OR STANDBY	93,252,845
REL/QUAL CUSTOMER (PRES TASTE ETC)	483,933,500
REL/QUAL IMPROVED TECHNOLOGY	366,880,125
Total	2,494,274,724

Source: Information Response 12

Ten-year forecasted CAPEX and OPEX through 2020

The CFO Eastern Division group is responsible for making forecasts for all Eastern Division states, including New Jersey, and NJAW Capital Program Manager is responsible for CAPEX with regard to NJAW's ten-year forecasted CAPEX and OPEX through 2020.²⁰⁴ In preparation, according to AWWSC management, the first year is revisited to change next year, as follows:²⁰⁵

- ◆ The labor budget starts with individual labor model templates populated with information from HR, we then review with the regional operational leads, consolidate the model templates, and then get the consolidated budget approved.

- ◆ The Senior Director Budget, Internal Reporting, & Revenue Analytics (BIRS) is responsible for operational by getting information for year 1 plus others by working with the Divisional CFO who works with NJAW VP Operations and President very much through process.
- ◆ Also look at historical data for input for all line items.
- ◆ Depreciation expense budgeting/ forecasting is led by the Divisional CFO, with assistance from the BIRS group through capital by beginning plant balance through other years, plus looking at last rate case.
- ◆ Interest expense forecasting is done by the VP Treasurer's group.
- ◆ Allowance for funds during construction (AFUDC) is also done as part of forecasting.
- ◆ If lands are trying to be sold, other information is included. In June 2019 NJAW employees physically moved to the Camden, NJ American Water building. The Voorhees building transaction, including the sale of the land, was approved by the NJBPU and closed in December 2019.

Schumaker & Company investigated NJAW's 2012 to 2019 business plans on-site in Camden, NJ. The company migrated to an upgraded version of Hyperion, its financial database and budgeting tool in 2012, so the data from the prior Hyperion version is no longer available. The company will not finalize the 2020 forecast until December 2019, but *Exhibit II-16* is a summary of NJAW's Capital Plan through 2019.²⁰⁶

Exhibit II-16
NJAW Capital Budgets
2011 to 2019

New Jersey American Water Co. Capital Budgets 2011-2019									
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Gross Capital	\$170,651,890	\$206,689,717	\$224,486,889	\$247,832,059	\$303,543,205	\$318,191,786	\$405,939,906	\$253,891,837	\$346,192,838
Contributions	(3,000,000)	(3,950,000)	(3,000,000)	(1,900,000)	(1,500,000)	(3,142,627)	(2,812,333)	(2,308,000)	(1,440,000)
Advances	(6,020,000)	(6,000,000)	(6,000,000)	(7,500,000)	(7,500,000)	(13,680,000)	(16,920,000)	(18,612,000)	(12,120,004)
Refunds	9,095,350	9,850,000	9,000,000	9,000,000	9,000,000	8,760,000	9,600,000	10,560,000	9,360,000
Net Capital	\$170,727,240	\$206,589,717	\$224,486,889	\$247,832,059	\$303,543,205	\$310,129,159	\$395,807,573	\$343,331,837	\$341,992,834

Source: Information Response 13

CAPEX Decision-Making and Level of input of American Water regarding Budgets and Expenditures

According to NJAW management, on a system-by-system basis within NJAW, the capital decision-making process brings together company management, technical, and operating functions to discuss system needs and identify potential solutions. Documents, such as relevant Corporate Planning Studies (CPS) and the Planning Risk Register (replacement of assets, plus expansion, which is responsible by the VP of Engineering), are reviewed as part of the process to ensure identified needs are addressed and prioritized. The Project Prioritization Model is used by the Engineering group in this process, which was developed to assist company management in sorting out the complex and competing goals associated with capital plan development. The resulting prioritization ranking helps company



management schedule capital projects in the context of an overall strategic planning process, utilizing drivers associated with various asset investment strategies (such as regulatory compliance, capacity, customer satisfaction, etc.) to formulate a five-year capital plan.²⁰⁷

This five-year capital plan addresses known system needs while minimizing system risks. This plan is then submitted to American Water for inclusion as part of the combined American Water five-year capital plan. American Water assesses these combined capital plans and may ask individual state operating companies to explain material variances from prior capital plans.²⁰⁸

Once the current year plan is approved, the NJAW Capital Investment Management (CIM) Committee approves individual projects and these projects are initiated and constructed. Projects are then reviewed monthly to ensure they remain within the New Jersey CIM approved amount.²⁰⁹

Internal Reporting

The BIRS group provides approximately 15 to 20 standard reports (revenue, labor, etc.), which are designed in this group and used by states or other departments. Some of the BIRS standardized reports began in 2015. These reports include the following showing the dates provided so far:²¹⁰

- ◆ Chemical Report (2015 through 2018)
- ◆ Full-time Equivalent (FTE) (2015 through 2018)
- ◆ Labor by Employee Reporting (2017 through 2018)
- ◆ Labor Details (2015 through 2018)
- ◆ Profit & Loss (P&L) Statements (no variance explanations, data only) (2015 through 2018)
- ◆ Production Report (2015 through 2018)
- ◆ Revenue Analysis (2015 through 2018)
- ◆ Top 100 Customers (2015-2016 Top 25, 2017 Top 20, 2017-2018 Top 100)

Distribution of these reports is controlled through SharePoint and is reviewed annually.²¹¹

Revenue Analytics

The Revenue Analytics team was set up in 2014 due to the large number of requests for revenue specific data, analysis, and reports. This team is part of the financial planning and analysis (FP&A) function and is the regulatory function's one stop for actual and budget revenue information, such as:²¹²

- ◆ Revenue
- ◆ Usage
- ◆ Sales
- ◆ Consumption
- ◆ Customers, including industrial and commercial, sale for resale, service fees, hydrants

So too, the Revenue Analytics group is solely responsible for the forecast of each of those data series for FP&A, business plan, and regulatory purposes. In addition to those FP&A, business plan, and regulatory process responsibilities, the Revenue Analytics group is responsible for completing price and

rate change billing implementations requested by our affiliated company regulatory management teams in response to orders from their respective utility regulatory authority.²¹³

Econometrics regression analysis and monitoring, which is the application of statistical and mathematical models to economic data for the purpose of testing theories, hypotheses, and future trends, plus the line of best fit is an output of regression analysis that represents the relationship between two or more variables in a data set. It is used in a lot of models, just a tool used.²¹⁴

According to the Senior Manager of this group, he was put in charge of this group due to his economist career, which included responsibility for usage and sales proceedings. Previously this group was in one of the CFO groups before the leader of that group became CEO & President of American Water Works Company in 2014.²¹⁵

The four major activities of this group, which works exclusively within the regulated business, include:²¹⁶

- ◆ Monthly financial planning and analysis (FP&A), such as calculation and revenue usage analysis; at month-end, specifically calculations and variances analysis of billed and unbilled revenues by customer class are done for yardsticks greater than \$100,000 differences. Divisional CFOs get information, plus the BIRS Senior Director (who the Senior Manager of BIRS Revenue Analytics report to) sends the CFO and divisional CFOs reports.
- ◆ Annual business plan forecasting done typically from March to June, which includes customer sales usage forecasting for each state; including residential and commercial forecasting by reviewing usage of prior customer usage (water amounts and \$) and using for forecasting upcoming usage to same stakeholders, as monthly FP&A work. Also the business plan is reviewed by Operations team members.²¹⁷ Business plan information is provided to AWK Board of Directors in November/December timeframe.²¹⁸
- ◆ Regulatory work, for which inputs go into rate cases, including testimony that Senior Manager of BIRS Revenue Analytics does; not a high-level summary but typically customer usage by company.
- ◆ Rate case implementation process, which includes implementation of the results of rate cases, such as putting tariffs into codes that SAP can use.

The Manager – Budgeting and Internal Reporting, who reports to Senior Manager of BIRS Revenue Analytics is also in Camden, NJ and is involved on FP&A and regulatory work for all 16 American Water states. The three employees who report to the Manager assist him as follows: one is responsible for NJ and NY; the second one is responsible for VA and WVA; the third one is responsible for PA, plus another one for MD.²¹⁹ Additionally CA, HI, IL, IN, IA, KY, MI, MO, and TN are done by employees directly reporting to the Senior Manager of BIRS Revenue Analytics.²²⁰

The Manager joined as an Analyst in October 2017, but became Manager in November 2018.²²¹ Approximately three to four years ago, this group also started checking Senior Director BIRS notes.²²² There are monthly processes, which include:²²³



- ◆ *Unbilled revenues* – This group calculates unbilled revenues \$ monthly, which goes into ledger as journal entry, which is reversed the following month. This group for NY, CA, and IL reviews revenue stabilization mechanisms (RSM), but not NJ. (Rate stabilization is typically another rate design mechanism that decouples a utility’s profits from its gas throughput). The mechanism works by adjusting the utility’s monthly revenues up or down to meet pre-established revenue and return targets. The amount calculated is added to or subtracted from the commodity charge of the utility in the next month, and the utility files a revised rate schedule with the regulator.
- ◆ *Calculation of variances* – Actual versus budget variances are reported monthly with a state finance team, which for New Jersey is an Analyst reporting directly to the Manager – Budgeting and Internal Reporting.
- ◆ *Rate cases and business plans* – This group works on revenues for rate cases and business plans. Rate cases in New Jersey are typically every two years, but business plans are annually. These revenues only include regulated revenues, not non-rate related revenue (NRRR), for supporting Commission reports.

Also monthly statistics reports are generated by this group, which have month-to-date, quarterly-to-date, and year-to-date data including:²²⁴

- ◆ System delivery, sales, & non-revenue water (NRW) overview
- ◆ Water revenues by class overview
- ◆ Sewer revenues by class overview
- ◆ Other operating revenues overview
- ◆ Total operating revenues
- ◆ System delivery, sales, usage, NRW, customer count, and revenue reporting

Two financial analysts who report to the Senior Manager of BIRS Analytics are dedicated to rate implementation process activities.²²⁵ Other financial analysts are responsible as follows:²²⁶

- ◆ FP&A modeling and reporting
- ◆ Regulatory work for VA, NJ, PA, and other states
- ◆ Regulatory work and FP&A work for IN, IL, and IA
- ◆ FP&A work for IL and IA

Default charges are made through AWWSC, which are allocated to states using WBS items, but direct charges if only one state applies.²²⁷

The Senior Manager of BIRS Revenue Analytics considers the Revenue Analytics group a coordinated team between sub-groups.²²⁸ As this is the sixth year of operation for the Revenue Analytics group, this group does not anticipate any changes in 2019 or 2020, as the employees are now considered more detailed analysts and streamlined.²²⁹

B. Findings & Conclusions

Finding II-1 Financial performance has generally improved over the years.

From 2009 to 2018 the following types of financial statements show that NJAW has been improving:

- ◆ *Exhibit II-2: Balance Sheets Summary Calendar Years 2009 to 2018* – Total Assets/Total Capitalization & Liabilities have been increasing yearly from approximately \$2,655,142,000 in 2009 to \$4,487,460,000 in 2018.
- ◆ *Exhibit II-3: Statements of Income Summary Calendar Years 2009 to 2018* – Operating Revenues and Operating Expenses have generally been increasing yearly, so Operating Income has increased from approximately \$167,982,000 in 2009 to \$237,807,000 and Net Income has increased from approximately \$80,487,000 in 2009 to \$142,486,000 in 2018.
- ◆ *Exhibit II-4: Statements of Cash Flow Summary Calendar Years 2009 to 2018* – Cash & Cash Equivalents at beginning of year and end of year has gone up and down over the years; however, in Cash & Cash Equivalents at the end of 2009 was \$2,866,000 and at the end of 2018 was \$4,615,000, even though 2018 was slightly down from 2017.

As previously discussed, these amounts were slightly changed in some years due to restating reasons.

Finding II-2 Dividends have been typically paid at 75% of net income to American Water Works Company.

As previously shown in *Exhibit II-7*, from 2010 to 2018, dividends have been typically paid at roughly 75% of net income to American Water Works Company. While that is roughly the same as many utility organizations, it does not seem to hurt NJAW's ability to perform operations.

Finding II-3 Dividend Policy documentation has not changed since 2010, which differs from expected three-year intervals.

Date wording in the Dividend Policy documentation shown below shows that it has not been changed since 2010, which differs from expected three-year intervals mentioned by AWWSC management.²³⁰

Original Adopted:	<u>4/25/2007</u>
Revised Adopted:	<u>11/2010</u>
Date of Last Review:	<u>11/2010</u>
Effective Date:	<u>4/24/2007</u>
Prepared By:	<u>Corporate Treasury</u>



Finding II-4 NJAW has not used load research data in past rate cases.

Load research studies are an activity embracing the measurement and study of the characteristics of customer loads to provide a thorough & reliable knowledge of trends, and general behavior of the load characteristics of the customers serviced by the industry. Therefore, load research allows utilities to study the ways their customers use water or wastewater, either in total or by individual end uses.

However, NJAW has not used load research data in past rate cases for development of cost of service studies, rate design, or billing determinants.²³¹

Finding II-5 NJAW's credit ratings are now reasonable.

Based on *Exhibit II-10* and *Exhibit II-11*, which show Moody's and S&P's credit ratings for American Water and NJAW, NJAW's credit ratings are now reasonable.

Finding II-6 The Revenue Analytics group is considered weak for rate cases.

Next year more rate cases are expected; however, this group is considered a little bit weak by management due to a lack of experience, especially for rate cases.²³²

C. Recommendations

Recommendation II-1 Review and update, as needed, dividend policy and practices documentation regularly, at least no longer than every two years. (Refer to Finding II-3.)

As mentioned in other chapters, AWWSC management doesn't regularly review and update policies and practices documentation, such as Dividend Policy documentation, so Dividend Policy documentation should be reviewed and updated frequently, at least no longer than every two years.

Recommendation II-2 Use load research studies and associated data in future NJAW rate cases. (Refer to Finding II-4.)

Because NJAW has not used load research data in past rate cases for development of cost of service studies, rate design, or billing determinants, it should consider doing in future rate cases.

Recommendation II-3 Provide additional training to the Revenue Analytics group for rate cases. (Refer to Finding II-6.)

Because next year this group expects more rate cases, it is considered weak by management due to a lack of such experience, so additional training should be done.

III. Regulatory Filing Process and Review of Current Case Workpapers and Spreadsheets

Schumaker & Company evaluated New Jersey American Water Company, Inc.'s (NJAW's) regulatory process for rate case filings and New Jersey Board of Public Utilities (NJBPU) reporting. Specifically, we reviewed:

- ◆ The process of the preparation and review of rate case workpapers and spreadsheets (among other things, the process for prevention of errors)
- ◆ Senior management's input into rate case filings
- ◆ American Water's input and expectations of rate case outcomes
- ◆ Communications with investors, analysts, and rating agencies, which discuss the potential outcome of past and future rate cases
- ◆ Supporting documentation of rate case workpapers and spreadsheets for material errors in the last base rate case that NJAW filed in 2017.

The below discussion will follow loosely the bullets above after a narrative of the NJAW departments that interface with regulatory filing process and rates.

A. Background & Perspective

Organizations

The regulatory process for rate case filings and NJBPU reporting is supported by two groups at NJAW:

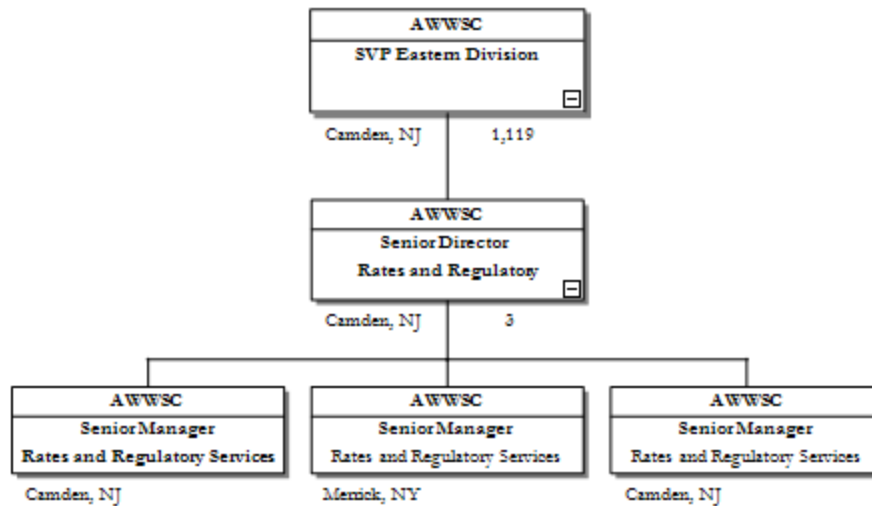
- ◆ Rates and Regulatory (organization shown in *Exhibit III-1*), responsible for regulatory filing coordination across the company, including rate filings and all NJBPU compliance filings and
- ◆ Regulatory Services (organization shown in *Exhibit III-2*), responsible for supporting the Rates and Regulatory Department filing efforts

Organization: Rates and Regulatory

The Rates and Regulatory area for the Eastern Division is headed by a Senior Director with three direct reports, all Senior Managers as shown in *Exhibit III-1*.²³³ The Senior Director reports to the Senior Vice President of the Eastern Division.²³⁴ All employees in the Rates and Regulatory area are Service Company employees.²³⁵



**Exhibit III-1
Rates and Regulatory Organization Chart
as of April 2019**



Source: Information Response #52

The Rates and Regulatory group is responsible for preparing and filing rate cases in the Eastern Division. The Eastern Division is comprised of the New Jersey, New York, Virginia, and Maryland operating utilities. Each Senior Manager is responsible for the rates and regulatory tasks for one or more operating utilities. Of the three Senior Managers reporting to the Senior Director, one is responsible for all the New Jersey rate cases; one is responsible for rate filings in New York; and one is responsible for rate filings in Maryland and Virginia. The Senior Managers' roles are primarily the same, only the state their work focuses on, differentiates their specific assignments.²³⁶

Other matters for which the Senior Director and the New Jersey Senior Manager are responsible are cost and rate recovery mechanism filings, such as the Distribution System Improvement Charge (DSIC) Foundational Filing. This program is aimed to help NJAW achieve a pipeline renewal interval of approximately 100 years from the 400-500 year interval that was projected before the DSIC was in place. The Foundational Filing is made contemporaneously with NJAW's base rate case filing and requests approval to file and implement an automatic adjustment clause tariff that would establish a DSIC or surcharge for the renewal of water distribution system assets in between rate cases. The Foundational Filing presents an engineering evaluation report detailing the work needed and the plan proposed to accelerate the renewal of the water distribution network, including a list of proposed projects, as well as the expected amount of NJAW's base spend and a proposed DSIC assessment. Under the BPU regulations, once the BPU approves the DSIC, NJAW must file every six months, or semi-annually, a surcharge filing with the BPU in order to implement the surcharge amount.²³⁷ This first part of this time frame to overlap the 2019 calendar is the six-month period December 1, 2018 through April 30, 2019 and the filing that follows was the filing covering May 1, 2019 through October 31, 2019 time period, and so on. As part of the semi-annual surcharge filing, a reconciliation is performed comparing the

implemented DSIC revenues to the actual billed revenues; the under- or over-collected revenue amount offsets the next effective surcharge rate in the six-month period which has just completed.²³⁸

The Rates and Regulatory Department is also responsible for the preparation and filing of the Annual NJBPU report. The report is prepared by the Regulatory Services group and the Rates and Regulatory Department, and along with the Finance Department, reviews and files the Annual Report.²³⁹

Another task of the Rates and Regulatory Department is BPU petitions regarding the approval to sell utility property, as well as the acquisition of other utilities and/or obtain municipal consents.

The Rates Regulatory Department is also responsible for NJAW's compliance filings with the BPU, including the annual cybersecurity filing and semi-annual filings under the BPU's financing Order. The NJAW Rates and Regulatory Senior Manager coordinates and submits these types of filings, as well.²⁴⁰

Also, Rates and Regulatory personnel are utilized across AW in detailed rate issues. Most of these instances involve customers or customer issues, as the Rates and Regulatory staff have extensive knowledge of tariff details. These details are extremely helpful in some of the more intricate issues that come to NJAW for resolution.²⁴¹

Rate Case Filing Process

The rate case filing process begins with the determination that the current rate structure is no longer supporting NJAW needs. At this point, the Senior Director Rates and Regulatory is directed to start the rate case filing process. The process begins by first obtaining an understanding of the current happenings across AW, with a specific focus on the state and operating company – in this case, New Jersey. With an understanding of current events and current needs, the Rates and Regulatory group starts to accumulate information regarding changes and specific improvements that have occurred at NJAW since the previous rate case. With this information they develop a theme for the rate case and meet with key regulatory people and a legal representative to discuss NJAW's situation, current environment, and changes since the previous rate case, and so not a part of the current rate structure. With this background, the group further fleshes out and discusses the theme they see unfolding for the anticipated rate filing. After this early on meeting, the theme for the upcoming rate case is finalized and a kick-off meeting conducted with all significant contributors to the rate case.²⁴²

The rate case filing process is controlled with a document called the "RACI", which is an acronym for Responsibility, Accountability, Consulting, Information – a description of the personnel roles summarized and assigned in this document. The RACI methodology calls for the documentation of assigned roles and tasks in the rate case filing process and specifically defines roles for employees involved in a rate case. The RACI document also specifies the lines of communications between employees during the process. For each step in the rate case process, the RACI methodology requires the rate case team to assign specific named individuals to be responsible for completing defined tasks, and individuals that are accountable for ensuring completion of those tasks, and finally individuals who



must be consulted for their expertise before an task item is completed, and lastly individuals that need to be informed of a task's progress and results.²⁴³

The RACI document also lists the issues both national and statewide, either directly in the document or through reference to supporting documents. The RACI document is maintained in spreadsheet software and updated for each case.²⁴⁴ The RACI document has been the main controlling tool for the rate case filing process at NJAW since 2017 and was rolled out for the September 2017 rate filing.²⁴⁵ Previous to the RACI document, there was not one main tool and the process was coordinated through the Rates and Regulatory area with direction from the Senior Manager or Senior Director.²⁴⁶

After the initial rate case kick off meeting, the Senior Director compiles the RACI document for the upcoming case and delivers it to the team of contributors.²⁴⁷ After the RACI is completed and delivered, approximately six months before filing the rate case, a second informational meeting occurs that includes legal personnel, analysts, and other key people. This meeting addresses issues pertinent to the rate case and describes the direction and theme of the rate case. The discussion is more general at this point with further refinement as the process proceeds. At the conclusion of this 2nd meeting, the theme is further refined, and specific rate case development begins with the preparation of compiled financials followed by adjustments to the financials. Concurrently pre-filed testimony is prepared. Ideally, the theme determined at the initial kickoff meeting and refined at this second meeting will track through all the documentation compiled for the filing, especially the pre-filed testimony.²⁴⁸

Senior Management Input to the Rate Case Process

Senior management has input to a rate case from the beginning and throughout the process, for NJAW starting with the SVP Eastern Division. Initial direction is determined by the Senior Director of Rates and Regulatory and the theme is refined throughout the process with input from senior management and others involved in the initial planning process. The NJAW Rates and Regulatory Senior Manager coordinates testimony throughout the company with testimony from the SVP Eastern Division and other executives for the case. The NJAW Senior Manager, in conjunction with the Senior Director, keep current with the pre-filed testimony as the theme refines during the rate case preparation process. The Senior Director reviews all testimony to ensure consistency.²⁴⁹

During the process at least two Regulatory Coordinating Council (RCC) meetings occur, although additional meetings can be scheduled, if deemed necessary. The RCC provides strategic guidance and support to the rate filing process and is made up of five members of the Executive Leadership Team (ELT):²⁵⁰

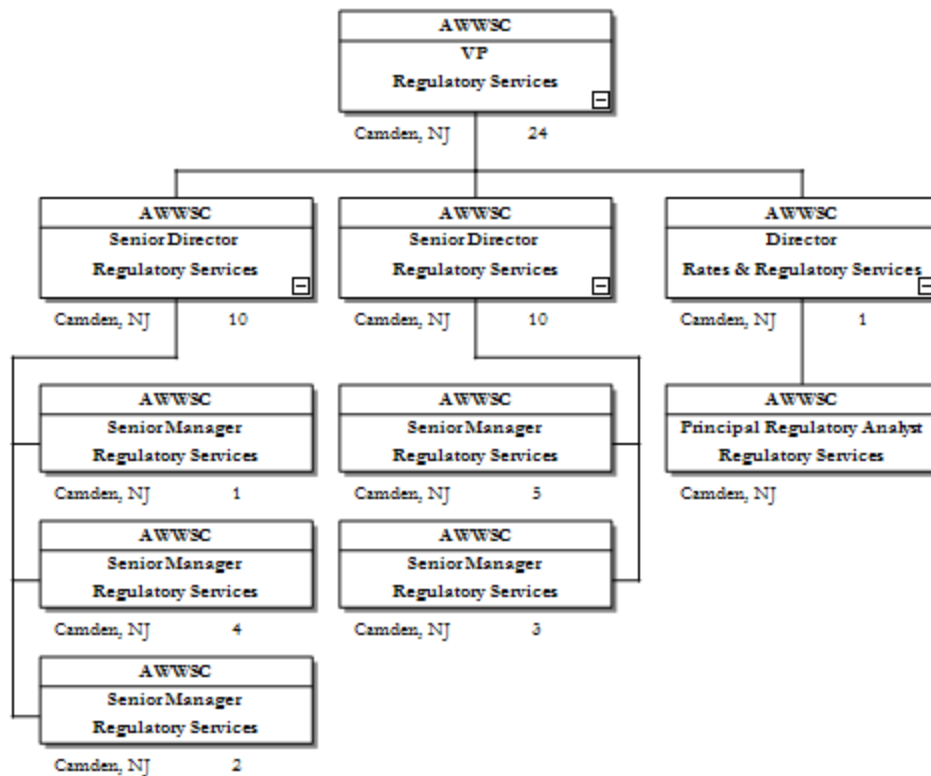
- ◆ EVP, COO
- ◆ EVP, CFO
- ◆ SVP Strategic Financial Planning
- ◆ EVP General Counsel & Corporate Secretary
- ◆ SVP External Affairs & Business Development

The first RCC meeting is held eight weeks before a rate case is to be filed and the meeting lasts approximately one hour. At this meeting, the general reason, theme and need for the filing is shared with the RCC. Four weeks before filing, the total rate case amount is disclosed as well as the estimated effect on customers.²⁵¹

Organization: Regulatory Services

Working in conjunction with the Rates and Regulatory area is Regulatory Services. Regulatory Services is headed by a Vice President and supported by three direct reports: two Senior Directors and a Director as shown in *Exhibit III-2*. As of April 2019, the Regulatory Services VP reports to the EVP General Counsel. The two regulatory related areas report through different channels of the company. Regulatory Services reports through the legal side of AW and the Rates and Regulatory, described above, reports through the operations side of the company -- the Senior Director Rates and Regulatory reports to the Eastern Division Senior Vice President as shown in *Exhibit III-1*.²⁵²

**Exhibit III-2
Regulatory Services Organization Chart
as of April 2019**



Source: Information Response 52

Reporting to the two Senior Directors Regulatory Services are five Senior Managers. The senior managers workload is split by Division state.²⁵³



- ◆ New York and NJ with one supporting staff
- ◆ Pennsylvania and West Virginia with one supporting staff
- ◆ Tennessee, Missouri, Kentucky, Indiana with one supporting staff
- ◆ Remaining states are split between last two Senior Managers and the six-supporting staff

Also reporting to VP Regulatory Services is Director Rates and Regulatory, a cost of service (COS) subject matter expert. In the past, COS work has been done by contractors. Currently Regulatory Services is developing in house expertise.²⁵⁴

Regulatory Services has two main functions, supporting rate case work coordinated in the Rates and Regulatory area and preparing required Commission reports, both the annual report and other miscellaneous reports. The first half of the year is used preparing annual commission reports. NJBPU has one annual report and DSIC filings. Also, in New Jersey and prepared throughout the year, is a purchased water and sewer surcharge true up filing and every three years a petition filing giving NJAW permission to finance up to a maximum set amount. Lastly, there is nonregulated reporting, such as quarterly NJAW Sarbanes-Oxley (SOx) reviews, regulatory asset and liability reserve, and filings for certain contracts.²⁵⁵

Agreed Upon Procedures Engagement

In 2018, Pricewaterhouse Coopers (PwC), a big 4 public accounting firm, the same firm that conducts the AW annual financial audit, conducted an Agreed Upon Procedures engagement for the NJAW rate filing with the New Jersey Board of Public Utilities under Docket No WR 17090985 with a focus on Exhibit No. P-2, schedules 1-61. The engagement letter is dated July 31, 2018 and the auditor's report on the engagement is dated one month later, August 31, 2018. The Agreed Upon Procedures engagement included reviewing amounts documented in the rate case filing and comparing those details back to the company's books and records, testing the mathematical accuracy, and where applicable also comparing amounts to the SIR schedules, schedules that are submitted to the Board and used to support the detailed rate schedule documentation. The Report of the Independent Accountants for this engagement is one page report with standard wording as required for an Agreed Upon Procedures engagement. No details are presented in the one-page Report but are listed in the 32-page Attachment that details the work performed and the auditor's findings with exhibit and schedule references.²⁵⁶

The descriptions for the work are very detailed, in some cases with column and line specificity for the numbers verified. In most cases, the listing of work performed notes if a mathematical check of specific numbers was performed or not. If a variance was found in the work, those were described along with why the variances existed. If an "unidentified" variance was found, it was called out as such.

Variances noted as unidentified were summarized by Regulatory Services and three had a financial statement impact. A summary of those variances is detailed in *Exhibit III-3*.²⁵⁷

Exhibit III-3
Financial Impact Resulting for Agreed Upon Procedures Engagement
as of August 31, 2018

Rate base overstated (5c)	\$	19,352
Rate base understated (5d)	\$	17,023
Rate base understated (5e)	\$	2,243
Net rate base overstatement	\$	86

Source: Information Response 607

The net rate base over statement identified through the Agreed Upon Procedures engagement equated to \$86. The variances were from 3 errors:

- ◆ Incorrect Depreciation and Amortization amount (5c reference in Regulatory Services summary of the Auditors letter)
- ◆ Incorrect Prepayments amount (5d reference in Regulatory Services summary of the Auditors letter)
- ◆ Incorrect Materials and Supplies amount (5e reference in Regulatory Services summary of the Auditors letter)

Policies and Procedures for Rate Case Filing Process

NJAW does not utilize formal Policy and Procedure documentation for the rate case filing process. Instead, NJAW uses the afore mentioned methodology referred to as RACI (Responsible, Accountable, Consult, and Inform) that exists in the form of an extensive spreadsheet document maintained in Excel and is described in detail above. An excerpt of a RACI document is shown in *Exhibit III-4*.²⁵⁸

The RACI document excerpt, *Exhibit III-4*, gives an idea of the specific nature of the tool and how it can be revised by adding lines and tasks and new tasks and people are incorporated into the rate case filing process. As it exists currently, the document is incredibly detailed. Review of the RACI documents reveals each worksheet to be extensive, with assigned names, detailed task descriptions and defined acronyms. There are four worksheets that comprise a RACI document. Each of the 4 worksheets is listed below by name with the number of rows in the worksheet. Each row represents a task in the rate filing process:²⁵⁹

- ◆ Standardized Activities -43 tasks/rows
- ◆ Regulatory Timeline - 51 tasks/rows
- ◆ Communications Plan - 40 tasks/rows
- ◆ Pre-filing Task List - 263 tasks/rows



Exhibit III-4
RACI Document Sample Page
From the Standardized Activities Worksheet
Current Document as of May, 2019

The screenshot shows a spreadsheet titled "Rate Case Management Document" for "NJ American 2017 Rate Case Filing". The "Rate Case Docket # WR17090985" is listed. Below this, a blue header reads "NJAWC General Rate Case Standardized Activities". The table has columns for "NJAWC Operations", "NJAWC Reg. Serv.", "NJAWC W.L.", "NJAWC W.C.", and "NJAWC RCC". The main body of the table is obscured by a large black rectangle.

Source: Information Response 15

Communications during a Rate Case Filing











NJAW rate case preparation communications are thorough as documented in the RACI. *Exhibit III-4*, an excerpt of the RACI, shows communications and tasks ranging from President to Analysts, including several departments and the RCC, Regulatory Coordinating Council.²⁶⁰

The NJAW rate case filing effort is led by the Rates and Regulatory team but has significant input and involvement from people across the company, including the entire Senior Management team, Regulatory Counsel of NJAW, and Service Company Regulatory Services and Regulatory Counsel. The Rates and Regulatory team consults and informs American Water leadership throughout the rate case filing process.²⁶¹

Although expectations are developed by NJAW for rate case outcomes, those are not discussed or provided outside of a limited number of people. (See Rate Case Filing Process section above.) As expectations of rate case outcomes are material, non-public, confidential and subject to the attorney-client privilege, the company is careful to restrict that information.²⁶²

Review of communications with investors, analysts, and rating agencies showed these communications to be very general and is of the previous rate cases, not ongoing or future rate cases. An example of those communications is from the regulatory pages of an American Water Works Company, Inc.'s Investor Relations March 2019 Presentation and is shown in *Exhibit III-5*.²⁶³

Exhibit III-5
Sample Communications with Investors, Analysts, and Rating Agencies
March 2019 Presentation

Last Rate Case Awarded - Largest Regulated Subsidiaries					
	 CALIFORNIA AMERICAN WATER	 ILLINOIS AMERICAN WATER	 INDIANA AMERICAN WATER	 KENTUCKY AMERICAN WATER	 MISSOURI AMERICAN WATER
Authorized Rate Base*	\$498,135	\$883,386	\$841,915 ^(b)	\$405,704 ^(b)	\$1,249,293 ^(b)
Authorized ROE	9.20% ^(a)	9.79%	9.75%	9.70% ^(a)	10.00% ^(a)
Authorized Equity	55.39% ^(a)	49.80%	41.55% ^(c)	47.36% ^(d)	52.80% ^(d)
Effective Date of Rate Case	1/1/2018 ^(a)	1/1/2017	1/29/2015	8/28/2016	5/28/2018
	 NEW JERSEY AMERICAN WATER	 NEW YORK AMERICAN WATER	 PENNSYLVANIA AMERICAN WATER	 VIRGINIA AMERICAN WATER	 WEST VIRGINIA AMERICAN WATER
Authorized Rate Base*	\$2,950,471	\$275,463	\$3,162,597 ^(b)	\$155,747	\$652,900 ^(b)
Authorized ROE	9.60%	9.10%	10.00% ^(c)	9.25%	9.75%
Authorized Equity	54.00%	46.00%	53.75% ^(d)	46.09%	48.40% ^(h)
Effective Date of Rate Case	10/29/2018 ^(e)	6/1/2017	1/1/2018	5/24/2017 ^(f)	2/25/2019

*Rate Base stated in \$000s

Notes:

- a) On March 22, 2018, Decision 18-03-035 set the authorized cost of capital for 2018 through 2020. CA has a separate Cost of Capital case which sets the rate of return outside of a general rate proceeding.
- b) The Rate Base listed is the Company's view of the Rate Base allowed in the case, the Rate Base was not disclosed in the Order or the applicable settlement agreement.
- c) Regulatory capital structure includes cost-free items or tax credit balances at the overall rate of return which lowers the equity percentage as an alternative to the common practice of deducting such items from rate base.
- d) The equity ratio listed is the Company's view of the equity ratio allowed in the case, the actual equity ratio was not disclosed in the Order or the applicable settlement agreement.
- e) The ROE listed is the Company's view of the ROE allowed in the case, the ROE was not disclosed in the Order or the applicable settlement agreement.
- f) Interim rates were effective April 1, 2016 and received final Order May 24, 2017.
- g) Interim rates were effective June 15, 2018 and final rates effective October 29, 2018.
- h) The Rate Base and equity ratio listed is the Company's view of what was allowed in the case, there were multiple versions disclosed by the parties in the applicable settlement agreement.

Source: Information Response 16

Rate Case Filings During the Audit Period

There were four rate cases filed during the 8-year audit period:²⁶⁴

- ◆ WR10040260 filed on April 9, 2010;
- ◆ WR11070460 filed on July 29, 2011;
- ◆ WR15010035 filed on January 9, 2015; and
- ◆ WR17090985 filed on September 15, 2017.



The most recent rate case, WR17090985, had an independent “Agreed Upon Procedure” engagement conducted by PwC culminating in a multiple page letter compiled by PwC detailing their procedures, findings, and variances, with the filing and NJAW books and records (see Agreed Upon Procedures Engagement section above for additional details). The result of that engagement revealed an \$86 overstatement of rate base, the net of three errors effecting rate base as shown in *Exhibit III-3*.²⁶⁵

Detailed Rate Case Filing Workpaper Review

To gain an understanding of the rate case financial schedules documentation and the link between the rate case financial schedules and the supporting documentation of the NJAW accounting data, random line items from the rate case financial schedules were selected and compared back to NJAW supporting documentation comprised of excerpts of the NJAW books and records.²⁶⁶ No variances were found throughout the process, but the comparison task was more onerous than it needed to be. This was due to a lack of summary amounts in the detailed supporting documents (column totals, for example) that would support exactly the rate case documentation amounts. The rate case financial schedules held summary amounts, such as a column total, while the supporting work contained all the detailed amounts that comprised the column total. Without the column total showing in the detailed supporting workpapers, comparing the detailed work to the rate case summary schedules proved challenging. However, in all random line items reviewed, no variances were found in the summary rate case filings to the supporting documentation. Please see Finding III-2 for more detail on this matter.

B. Findings & Conclusions

Finding III-1 A policy and practice does not exist for the rate case filing process.

A policy and practice does not exist for the rate case filing process. Instead, the very detailed RACI document, described above, is used to guide this process. A process overview or details of creating a RACI document to start the process, does not exist.

Finding III-2 Extensive Agreed Upon Procedures work (focused on the September 2017 rate case) by a public accounting firm yielded a small financial impact.

As shown in *Exhibit III-3*, the financial impact resulting from an extensive review of the September 2017 rate case financial schedules, the supporting documentation, and NJAW books and records was minimal.

Finding III-3 Review of the four rate case financial schedules filed during the audit period revealed no variances.

A more limited review than the Agreed Upon Procedures engagement was the Schumaker & Company review of rate case financial schedules from rate cases filed during the audit period. This was also an opportunity to review the documentation supporting the rate case financial schedules and the form of

that documentation. Review of several financial line items, selected at random from each of the rate case financial schedules, were traced back to the supporting, more detailed schedules without exception.

Finding III-4 The rate case financial schedules supporting documentation did not have the specific totals or summarized amounts that were ultimately presented in the rate case schedules. (See Recommendation III-2)

Even though review of the rate case financial schedules supporting documentation showed that the supporting documentation did support the rate case financial schedules, it was not an easy task to make that comparison. The supporting schedules were very detailed but lacked summary amounts of that detail. The summary amounts were the amounts presented in the rate case financial schedules. Without the summary amounts in the supporting details, various amounts were added to come to the amounts that were presented in the rate case schedules. To compare the detailed supporting schedules to the rate case financial schedules, various numbers were accumulated and summed manually. When that process was performed, the link to the rate case financial schedules was found and the numbers from the supporting schedules noted to be in agreement with the rate case financial schedules.

Also, without a number that shows both in the detailed schedules and the rate case supporting schedules, the task of any reviewer is more onerous.

C. Recommendations

Recommendation III-1 Create Policy and Practice documents to provide guidance to the rate filing process. (Refer to Finding III-1.)

Although the RACI document does provide a task list and assigns responsible parties in various components of those tasks, a Policy would assist in giving an overview to the process and document company priorities for the process that are outside the scope of the RACI document. A Practice document would guide all participants to the process, including the process of creating the RACI document and the information utilized to perform that task.

Recommendation III-2 Revise the supporting rate case schedules to show totals that will agree directly to the rate case documentation without additional mathematical accumulations. (Refer to Finding III-4)

Rate filing supporting schedules should be revised to include summary amounts that directly tie and are shown on the rate case financial schedules. This would allow for variances to be shown more clearly as reviews are performed of the rate case financial schedules and supporting documentation.



IV. Procurement and Purchasing

Schumaker & Company examined and determined if the pricing of New Jersey American Water's (NJAW's) goods and services to and from American Water and its affiliates is non-discriminatory and does not exceed market rates. We identified and evaluated NJAW's performance over the past eight (8) years with regard to the designated matters and shall determine if NJAW's purchases are and have been allocated across customer classes according to industry practices.

A. Background & Perspective

Purchasing Organizations

The following American Water Works Service Company (AWWSC) departments are responsible for purchasing/procurement activities:²⁶⁷

- ◆ State Procurement
- ◆ Corporate Procurement

Services are procured by both Procurement groups, but materials are primarily procured only by the Corporate Procurement group.²⁶⁸

The Directors of both the State Procurement and Corporate Procurement groups report to the Chief Procurement Officer.²⁶⁹

State Procurement

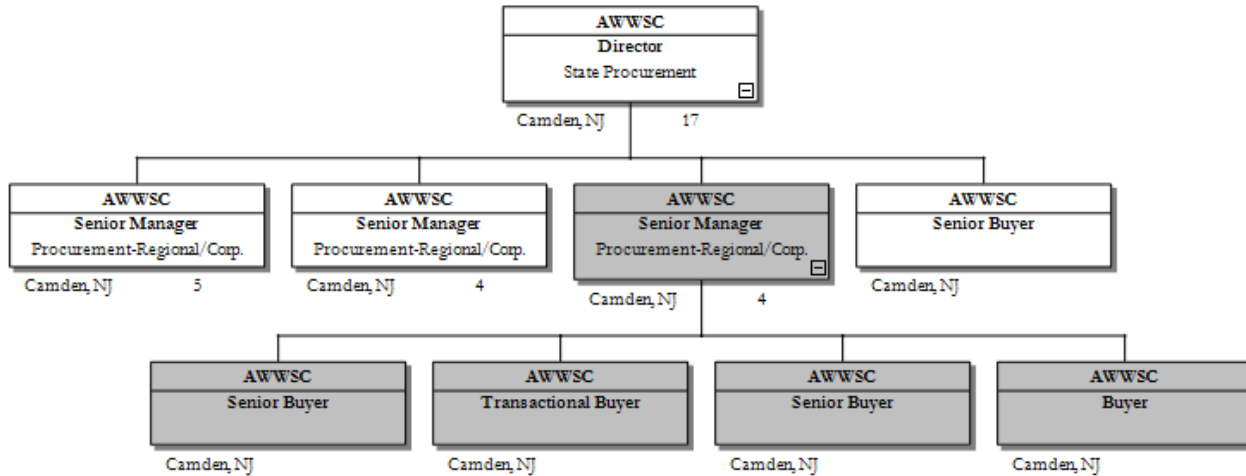
There is a State Procurement group, as highlighted in *Exhibit IV-1*, responsible for overseeing procurement for New Jersey, New York, Virginia, and Maryland, called day-to-day purchasing, such as network repair and engineering, etc. The current Senior Manager, Procurement-Regional/Corporate has been in this position since January 2018, although he previously was in the NJ Supply Chain group. This group has five (5) total people (four (4) employees reporting to the Senior Manager):²⁷⁰

- ◆ 2 Senior buyers, 1 position open currently
- ◆ 1 Buyer – responsible for low risk (not necessarily low dollars) purchasing such as janitorial and landscaping
- ◆ 1 Transactional buyer who works with field people who can add purchase requests to a “shopping cart” that is reviewed by the transactional buyer and converted to a purchase order (PO) is appropriate. Field people can also order from catalogs that have been approved, such as Grainger for items like uniforms and fittings.



The State Procurement groups are also for construction in all states²⁷¹.

Exhibit IV-1
State Procurement Group Organization Chart
April 2019



Source: Interview 3

According to this State Procurement group serving New Jersey, New York, Virginia, and Maryland, cross-training is performed, but essentially by the Senior Manager's overlooking.²⁷²

Regarding the Master Service Agreement (MSA) process, the State Procurement group creates bid requests by having subject matter experts (SMEs) scope and create, sends them out for vendors to bid, analyzes responses, negotiates services and cost, selects best value, and routes to Supplier Relationship Management (SRM) for internal review and approval (SRM is part of SAP system that routes bids to appropriate reviewers and logs approvals). (This is the process in the capital area. In the O&M area, this process is replicated, except these are routed through myPurchasing (Coupa).) After approved, the State Procurement group issues an MSA for execution. According to the State Procurement group, all work has an MSA, unless it is a "one off". It appears "one offs" are used in the Operations area and not in support areas (administration, finance, etc.). Three bids are the minimum wanted by the State Procurement group and more is considered better. It's possible they won't get three, so the Senior Manager tries to work with contractors and increase possible bids with more contractors available.²⁷³

In the State Procurement group there is a pre-bid informal process (as not in Procurement & Payment Policy documentation), which allows purchasing to have initial discussions with potential vendors regarding safety, terms, technical capabilities determined with references, crew make up, required crew training, etc. If the pre-bid conversation indicates this vendor may be a match, the bid request document is released to that vendor. Due to the time it takes for a bid to be filled out fully, the company does not want those who do not qualify at all to waste their time completing the bid documentation request. Also contractors are viewed as partners to NJAW, so NJAW works in the same respect to develop contractors as they do employees.²⁷⁴

The State Procurement group has had three-year terms in the past for MSAs, but the group is currently moving all MSAs to a two-year term.²⁷⁵ Regarding document management, terms and conditions, contracts, etc. will be managed in Coupa, a SAP application, which went live 4/29/2019 and the State Procurement group believes it will be easier for field people to use and to accumulate the documentation and data.²⁷⁶

Diversity goals for suppliers and contractors hired by the State Procurement group exist. A Supplier Diversity Manager also in AWWSC works with all states, including New Jersey. Some states have diversity goals, plus a five-year diversity plan and results. It was supposedly good last year for American Water, but often changed in past before 2017, plus American Water has a set plan along with strong tracking toward corporate goals.²⁷⁷

Procurement diversity goals, referred to as progressive plan, are shown in *Exhibit IV-2*, plus 2018 versus 2019 diversity spend analysis are shown in *Exhibit IV-3*.²⁷⁸

**Exhibit IV-2
Procurement Diversity Goals
Five-Year Diversity Goal Assignment
2019 to 2023**

Division	State	Abbr.	Average Annual Sourceable Spend (Avg. for FY 2016 & 2017) (Baseline)	Average Annual Diverse Spend (Avg. for FY 2016 & 2017)	%	Year 1 (FY 2019)		Year 2 (FY 2020)		Year 3 (FY 2021)		Year 4 (FY 2022)		Year 5 (FY 2023)	
						Spend	%	Spend	%	Spend	%	Spend	%	Spend	%
Total Overall (Total Diverse Spend includes DBE and SBE)			\$ 1,796,922,870	\$ 358,578,777	20.0%	\$ 412,067,214	22.9%	\$ 465,623,271	25.9%	\$ 519,248,304	28.9%	\$ 572,943,690	31.9%	\$ 626,710,837	34.9%
Total SBE				\$ 169,055,161	9.4%	\$ 172,436,265	9.6%	\$ 175,884,990	9.8%	\$ 179,402,690	10.0%	\$ 182,990,744	10.2%	\$ 186,650,558	10.4%
Total DBE				\$ 189,523,616	10.5%	\$ 239,630,949	13.3%	\$ 289,738,281	16.1%	\$ 339,845,614	18.9%	\$ 389,952,946	21.7%	\$ 440,060,279	24.5%
	New Jersey	NJ	\$ 389,466,936	\$ 44,994,072	11.6%	\$ 54,892,768	14.1%	\$ 64,791,464	16.6%	\$ 74,690,159	19.2%	\$ 84,588,855	21.7%	\$ 94,487,551	24.3%

Source: Information Response 473 Attachment 1 (DBE=disadvantaged business enterprise and SBE=small business enterprise)

Exhibit IV-3
Procurement Diversity Spend Analysis
2018 versus 2019

2018 v. 2019 Diversity Spend Analysis
Certified Enterprises Only (includes Small Business)

State	2018 Diversity	2018 Sourceable	2018 Diverse %	2019 Diversity	2019 Sourceable	2019 Diverse %	% Change from 2018
New Jersey American Water Company	\$ 42,778,850	\$ 123,837,542	34.54%	\$ 23,254,919	\$ 81,938,523	28.38%	-6.16%

2018 v. 2019 Diversity Spend Analysis
Certified Enterprises Only (no Small Business)

State	2018 Diversity	2018 Sourceable	2018 Diverse %	2019 Diversity	2019 Sourceable	2019 Diverse %	% Change from 2018
New Jersey American Water Company	\$ 16,794,792	\$ 123,837,542	13.56%	\$ 6,489,871	\$ 81,938,523	7.92%	-5.64%

2018 v. 2019 Diversity Spend Analysis
with Self-Certified Enterprises (includes Small Business)

State	2018 Diversity	2018 Sourceable	2018 Diverse %	2019 Diversity	2019 Sourceable	2019 Diverse %	% Change from 2018
New Jersey American Water Company	\$ 49,291,055	\$ 123,837,542	39.80%	\$ 27,923,727	\$ 81,938,523	34.08%	-5.72%

2018 v. 2019 Diversity Spend Analysis
with Self-Certified Enterprises (no Small Business)

State	2018 Diversity	2018 Sourceable	2018 Diverse %	2019 Diversity	2019 Sourceable	2019 Diverse %	% Change from 2018
New Jersey American Water Company	\$ 17,160,529	\$ 123,837,542	13.86%	\$ 6,904,681	\$ 81,938,523	8.43%	-5.43%

Source: Information Response 542 Attachment

The Senior Manager's vision is to increase his staff, as his group does a lot and he believes it would be nice to spread that work out a little.²⁷⁹

For inventory or purchases requiring long lead times, one must also talk with Operations management, but Corporate Purchase Agreement partners help with getting unavailable items.²⁸⁰

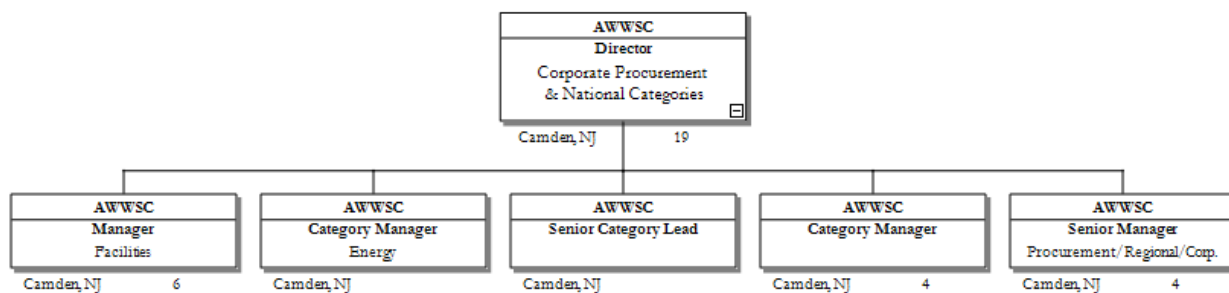
Corporate Procurement

There is a Corporate Procurement group, as highlighted in *Exhibit IV-4*, responsible for enterprise level purchasing of services and materials, including.²⁸¹

- ◆ Security
- ◆ Human Resources
- ◆ Information Technology
- ◆ Benefits
- ◆ Finance

The current Director of the Corporate Procurement group has been in this position since over two years, although he previously also worked at American Water Works Company. The Corporate Procurement group has five people reporting to the Director, plus 14 others reporting to these five people, for a total of 20 employees in this group.

Exhibit IV-4
Corporate Procurement Group Organization Chart
April 2019



Source: Interview 36

The system used by the Corporate Procurement group is also Coupa, which was recently put on top of SAP, and focuses on catalogs in the system.²⁸²

Regarding materials, the primary ones include:²⁸³

- ◆ Chemical, which involve multiple-year contracts; however, every year a running sourcing event occurs to make sure that American Water is staying competitive.
- ◆ Pipes and valves involves looking at an annual basis, plus definitely looking at trends.

Regarding services, it generally involves AWWSC spaces, with examples being security and cafeteria downstairs in the American Water building in Camden, NJ. This group has not been much involved in information technology (IT) services, but generally IT has local groups that are involved. Other services include engineering, which involves quite a few done, so this group asks states to provide who states use and what problems, if any exist, so can renegotiate who states want to use. Other services also include fleet management in New Jersey, which uses Penske, which is considered better than local vendor groups.²⁸⁴ The Director-Corporate Procurement & Nat'l Categories indicates that American Water will begin picking up IT procurements in future years for right resources and right categories.²⁸⁵ This has changed in 2020 and IT services procurement now reports to the Corporate Procurement group since February 1, 2020.²⁸⁶

According to the Director, national contracts are primarily operations based, not materials management, but sourcing items. However, the Director's team is focused on sourcing and negotiating contracts for materials and services used by many states. The National category team assists with materials management, but does not own materials management or inventory management at the state level. This group also provides procurement activities for travel programs, specifically with American and Delta airlines, plus hotel chains.²⁸⁷

The Corporate Procurement group is also trying to educate business about inventory management. Materials procurement is typically done by states, but established by this group. The group aggregates materials for all states, but some are bought regionally through local suppliers. Once contracts have



been established, Coupa is used for buying items, but if not in the catalog, states like NJAW may go to local suppliers. The group is getting more visibility in what is being used, so now can add more contracts.²⁸⁸

Regarding facilities, One Water Street Company owns the American Water building, including managing the cafeteria.²⁸⁹

Purchasing Department KPIs, Goals, and Associated Tracking

The Purchasing Department key performance indicators (KPIs), goals, and associated tracking for over past eight years was not available during this audit to review, as the Chief Procurement Officer started in 2016 and could only locate 2018 and 2019 data. They are annually developed and provided to the Chief Financial Officer (CFO) who provides them to the Executive Leadership Team (ELT), in which ELT puts together goals. Specifically, the ELT puts together their goals at the beginning of the year and Supply Chain goals are based on ELT goals. Metrics are provided to the ELT on a monthly basis. According to AWWSC management, the Supply Chain transformation, including below, at time made it go to high performance:²⁹⁰

- ◆ 2017 plan of attack reorganization
- ◆ 2018 execution on transformation
- ◆ 2019 continued execution; added new initiatives or if not fully completed in 2018 added again

Exhibit IV-5 displays 2018 (full year) and 2019 (1st quarterly only) Supply Chain metrics and results,²⁹¹ which are also called performance review plan results.²⁹² Regarding metrics, senior leadership reviews level down if “Yellow” or “Red” results occur, which only occurred slightly for this period.²⁹³

Exhibit IV-5
Supply Chain Key Chain Key Metrics
2018 (Full Year) and 2019 (1st Quarter)

2018



Source: Information Response 474 (Confidential)

Green: Meeting or exceeding target and trending to achieve desired result

Yellow: Not meeting or exceeding target “or” not trending to achieve desired result

Red: Not meeting or exceeding target “and” not trending to achieve desired result



National Supplier Diversity Program

The Senior Manager – National Supplier Diversity reports to the Chief Procurement Officer.²⁹⁴ The Senior Manager has one direct report, who started 3-4 months ago, as Supplier Diversity Coordinator.²⁹⁵

This group is a corporate function for all states, but others report to State presidents, plus this group has dotted line relationships with others. For example, IL and CA have different requirements. The state of New Jersey has been pushing NJ planning to roll out goals for NJ utilities, which has been tracking since 2012.²⁹⁶ 2017 was the first year implementing diversity goals at state levels but previously not.²⁹⁷

Small companies often don't count in diversity, particularly minority, women, or veteran disabled businesses, so American Water develops a strategy for incorporating such diversity companies by tracking SBA spend as diverse spend along with that of traditional diverse companies, such as woman, minority, veteran, LGBT owned, etc. The major activities performed by the National Supplier Diversity group is:²⁹⁸

- ◆ *Increasing America Water Spend* – For example, on May 8, 2019 American Water had a diversity summit where diversity companies could sit down with American Water contacts about business options, such as work is happening in next six (6) months for working with groups. This group gets together with companies approximately three (3) times a year, such as the May 8, 2019 session.
- ◆ *Development Program* – Making sure developing such companies, in which the major NJ focus in engineering and construction, by helping them get through qualifications.
- ◆ *Communications* – Now a business imperative, as some states ask American Water to do.

AWWSC believes that information technology and systems is very saturated, but has limited opportunities for diversity companies, so American Water asked large contractors to support diversity companies.²⁹⁹

The National Supplier Diversity group looks at certifications or ask businesses to provide certifications, as it only counts businesses with certifications through approved certifying bodies. It does not count self-certifying companies and encourage self-certifying companies to pursue formal certification. National organizations are generally used for reviewing certifications. This group is working closely with NJAW, especially an employee who reports to the Senior Manager Procurement – Regional/Corporate in the State Procurement group.³⁰⁰

According to AWWSC management, NJAW has been doing fairly well if you look at eight years data, as shown in *Exhibit IV-6*.³⁰¹

**Exhibit IV-6
Diversity Usage
2012-2018**

Total Diverse Dollars	Diverse Business Type	2012	2013	2014	2015	2016	2017	2018	Grand Total	
NAJAW	Small Business	\$ 27,113,799.15	\$ 33,843,793.00	\$ 44,910,554.56	\$ 62,933,096.46	\$ 58,509,219.61	\$ 69,307,514.78	\$ 84,407,990.56	\$ 381,025,968.12	
	Women Owned	\$ 1,928,657.73	\$ 3,262,743.26	\$ 17,110,187.43	\$ 27,696,952.18	\$ 31,168,452.77	\$ 31,692,633.00	\$ 35,595,707.46	\$ 148,455,333.82	
	Minority Owned	\$ 16,838,862.20	\$ 1,706,936.48	\$ 4,714,606.19	\$ 11,419,721.39	\$ 8,276,900.39	\$ 17,525,863.58	\$ 12,123,087.53	\$ 72,605,977.75	
	Disabled Veteran Owned			\$ 261,312.00	\$ 696,369.29		\$ 7,693.12		\$ 1,085,095.41	
	Veteran Owned	\$ 32,964.72	\$ 39,660.00	\$ 24,190.98	\$ 362,545.88	\$ 65,013.79	\$ 161,539.41	\$ 117,632.48	\$ 803,547.25	
	Disabled Owned			\$ 8,554.00		\$ 717,249.44			\$ 725,803.44	
	Small Disadvantaged Business				\$ 13,431.73	\$ 22,523.57	\$ 349,182.05	\$ 79,036.38	\$ 464,173.73	
	Historically Underutilized					\$ 396.65	\$ 696.12	\$ 255.11	\$ 1,347.88	
	NAJAW Total		\$ 45,914,283.80	\$ 38,853,132.74	\$ 67,029,405.16	\$ 103,122,116.92	\$ 98,759,756.22	\$ 119,045,122.05	\$ 132,443,430.52	\$ 605,167,247.41
Diverse Spend Percent of Sourceable	Diverse Business Type	2012	2013	2014	2015	2016	2017	2018	Grand Total	
NAJAW	Small Business	7.97%	11.30%	15.01%	18.37%	15.95%	16.81%	18.90%	15.20%	
	Women Owned	0.57%	1.09%	5.72%	8.08%	8.50%	7.69%	7.97%	5.92%	
	Minority Owned	4.95%	0.57%	1.58%	3.33%	2.26%	4.25%	2.71%	2.90%	
	Disabled Veteran Owned	0.00%	0.00%	0.09%	0.20%	0.00%	0.00%	0.03%	0.04%	
	Veteran Owned	0.01%	0.01%	0.01%	0.11%	0.02%	0.04%	0.03%	0.03%	
	Disabled Owned	0.00%	0.00%	0.00%	0.00%	0.20%	0.00%	0.00%	0.03%	
	Small Disadvantaged Business	0.00%	0.00%	0.00%	0.00%	0.01%	0.08%	0.02%	0.02%	
	Historically Underutilized	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
	Total Diverse %		13.49%	12.97%	22.40%	30.09%	26.93%	28.88%	29.66%	24.14%
	Total Diverse Spend		\$ 45,914,283.80	\$ 38,853,132.74	\$ 67,029,405.16	\$ 103,122,116.92	\$ 98,759,756.22	\$ 119,045,122.05	\$ 132,443,430.52	\$ 605,167,247.41
NAJAW Total Sourceable		\$ 340,359,021.91	\$ 299,447,030.68	\$ 299,177,977.52	\$ 342,678,970.17	\$ 366,727,407.07	\$ 412,206,465.54	\$ 446,612,606.90	\$ 2,507,209,479.78	

Source: Information Response 541

Policies and Procedures Documentation

NAJAW’s procurement and purchasing policies and procedures documentation includes:³⁰²

- ◆ Contract Management Policy
- ◆ Contract Management Practice
- ◆ Electronic Disbursement Request Practice
- ◆ Fleet Management Policy
- ◆ Goods and Services Receipt Practice
- ◆ Invoice Processing Practice
- ◆ Materials and Supplies Policy
- ◆ Open Purchase Orders Practice
- ◆ Outstanding Check Practice
- ◆ Processing Requisitions and Purchase Orders Practice
- ◆ Procurement Policy, previously called Procurement and Payment Policy
- ◆ Purchasing Card Policy
- ◆ Purchasing Card Practice
- ◆ Sourcing Practice
- ◆ Supplier Diversity Practice
- ◆ Vendor Master Database Practice

These policies or practices apply to American Water Works Company, Inc., and its controlled subsidiaries, including NAJAW.³⁰³



No information substantially provided about updating timeframe of documentation, because the Procurement & Purchasing groups are not sure about any review timeframe requirements, even though the Diversity practice documentation says “next review of this practice is not to exceed 2 years”.³⁰⁴

Contract Management

Regarding contract types and thresholds, the “owner” is the person requestor of the contract. The Contract Owner Questionnaire is used for construction and also some services.³⁰⁵ The Operating Unit Finance is the CFO state or region or corporate to help manage budgets.³⁰⁶

Ongoing contracts are governed by Master Service Agreements (MSAs) for services and goods. The Corporate Procurement group is responsible for the Corporate Service MSAs, such as the annual audit and employee benefits (and currently electric, which is in process). Service MSAs that are in the State Procurement group are generally janitorial and network repair or replacement, as two (2) examples, mostly for residential customers.³⁰⁷

NJAW’s current contractor agreements through March 31, 2019 total 180 agreements, including 151 service agreements and 29 construction agreements.³⁰⁸

Contract Management Policy

This policy documentation describes the policy which provides to conduct contract management activities by addressing timing, key methods, approvals, reporting, and roles/responsibilities. It also highlights differences between the regulated and market-based business (MBB), where applicable.³⁰⁹ The policy statement contains guidance relevant to contact initiation, review, approval, and maintenance.³¹⁰

- ◆ A contract is an agreement with specific terms between two or more persons or entities in which there is a promise to do something in return for a valuable benefit known as consideration; such consideration need not be of monetary value.
- ◆ A contract includes any amendment to an existing contract and any “statement of work”, “work order”, “task order”, or “change order,” which alters the legally-binding obligations of a party under an existing contract.
- ◆ Amendments to existing contracts are treated the same as new contracts for purposes of this policy.
- ◆ A contract does not include a conveyance document without responsibilities or obligations of the company other than to deliver the purchase price on the date of conveyance (e.g. an easement, deed, or bill of sale that does not include an on-going payment or maintenance obligation).

Unless otherwise specified, this policy establishes the requirements that are to be followed by all employees involved in contract management activities. More detailed guidance is found in the applicable practices, which are referenced in the Appendix section of this policy.³¹¹

Contract Management Practice

This practice documentation outlines the key enterprise activities of contract management, which aligns with the requirements of the Contract Management Policy, which is discussed in the next section. High level practice variances related to market-based businesses (MBB), if any, are also outlined in this document. Contracts are managed and stored within two different contract management systems based on contract type. [REDACTED] is used for procurement contracts, which include construction, services, license, and supply agreements and [REDACTED] is used for non-procurement contracts (all other contract types). The following are the major sections covered within the Key Activities area of this practice:³¹²

- ◆ Section 1: Contract Initiation
- ◆ Section 2: Contract Review and Approval
- ◆ Section 3: Contract Execution and Publication
- ◆ Section 4: Ongoing Management and Expiring Contracts

This practice also contains appendices for the following:³¹³

- ◆ Contract Types and Thresholds
- ◆ Contract Owner Questionnaire
- ◆ Summary of Policies Related to the Contract Management Practice

Exhibit IV-7 summarizes the contract types and associated thresholds.³¹⁴



Exhibit IV-7
Contract Types and Thresholds
 Page 1 of 3

Type	Description	Contract Management System	Legal Dept. Approval	Finance Dept. Approval	Supply Chain Dept. Approval
Benefit/Pension Agreement	All contracts relating to employee benefits, such as 401(k) management, pension management, health insurance group contracts, union benefit/pension agreements	SharePoint			
Billing/Shutdown Agreement	Usage data, termination and customer billing agreements	SharePoint			
Debt/Securities Agreement	Agreements relating to the issuance of debt or securities by the company to non-affiliates, generally in a capital raising or refinancing transaction; includes related underwriting and placement agreements; does not include intercompany agreements	SharePoint			
Confidentiality Agreement	Stand-alone non-disclosure or confidentiality agreements, such as related to an RFP or acquisition transaction	SharePoint			
Construction Agreement (Supply Chain Department Initiated)	New projects, includes prime contract and subcontract agreements; does not include main extension agreements or outsourced maintenance or repair provider contracts	Regular Business, SRM; M&B: SharePoint			
Developer Service/Main Extension Agreement	All Developer Service or Main Extension Agreements	SharePoint			
Easement Agreement	Easement Agreements with multiple payments	SharePoint			
Employment Agreement	Individual employment agreements, termination agreements and severance agreements; does not include union/collective bargaining or pension/benefit agreements	SharePoint			
Energy Agreement (Supply Chain Department Initiated)	Supply Chain negotiated agreements that specifically contemplate the acquisition of power, fuel, etc.	SharePoint			
Environmental Agreement	Agreements with governmental authority; does not include agreements to provide remediation services, testing, consulting or professional service agreements	SharePoint			
Financial Agreement	Agreements dealing with the company's internal financing, such as intercompany loan or capital contribution arrangements, agreements to purchase or sell securities held for investment; does	SharePoint			

Source: Information Response 18 Attachment 1 (Confidential)

**Exhibit IV-7
Contract Types and Thresholds
Page 2 of 3**

Type	Description	Contract Management System	Legal Dept. Approval	Finance Dept. Approval	Supply Chain Dept. Approval
	not include variable interest investments (FIN 48) or joint ventures				
Fire Protection Agreement	All Fire Protection Agreements	SharePoint			
Franchise Agreement	Agreement or municipal ordinance under which the company receives the right or consent of a particular town or city to provide water or wastewater service to customers located in the town or city (or a part thereof)	SharePoint			
Insurance Agreement	All insurance policies underwritten through the Services Company only	SharePoint			
Joint Venture Agreement	Variable interest investments (FIN 48), non-control class investments	SharePoint			
Labor Agreement	Union/collective bargaining contracts and related agreements; arbitration agreements/settlements; does not include union benefit/pension agreements	SharePoint			
Lease Agreement	Real estate and equipment leases, including capital leases; includes agreements where the company is either lessor/landlord or lessee/tenant	SharePoint			
License Agreement (Supply Chain Department Consult During Initiation)	Software and other intellectual property agreements, does not include "shrink-wrap" software licenses or licenses to software incidental to other equipment	Regulated Businesses: SRM; MBB: SharePoint			
Merger/Acquisition/Disposition Agreement	Purchase or sale of businesses, including water or wastewater system assets in the aggregate and related agreements (letters of intent, bills of sale, assignment and assumption agreements, etc.)	SharePoint			
Miscellaneous Agreement	To be used very sparingly and only if no other category is relevant	SharePoint			
Operating Agreement	O&M, Design-Build-Operate and other agreements to operate systems owned by others; does not include subcontracts with third parties to provide services to the company	SharePoint			
Purchase/Sale Agreement (Supply Chain Department Initiated)	Individual purchase or sale of a specific asset not related to a joint venture or merger/acquisition/disposition, such as real estate or a single piece of equipment	SharePoint			
Rate Agreement/Stipulation	All contracts dealing with rate issues, e.g. rate orders, stipulations, rate case consultants, etc.	SharePoint			
Services Agreement (Supply Chain Department Initiated)	Includes agreements where the company is providing specialized services to customers and agreements where the company is engaging outside consulting firms or individuals, such as law firms, architects, etc., or purchasing services such as maintenance, outsourced construction/repair, janitorial, printing, travel, etc.; does not include such agreements relating to rate cases	Regulated Businesses: SRM; MBB: SharePoint			
Settlement Agreement	Settlement of legal claims, including releases and court orders; does not	SharePoint			

Source: Information Response 18 Attachment 1 (Confidential)

Exhibit IV-7
Contract Types and Thresholds
Page 3 of 3

Type	Description	Contract Management System	Legal Dept. Approval	Finance Dept. Approval	Supply Chain Dept. Approval
	include settlements involving rate cases				
Supply Agreement (Supply Chain Department Initiated)	Supply agreements negotiated by Supply Chain Department	Regulated Businesses: CRM MBB: SharePoint			
Water Supply/Wastewater Agreement	Buy, purchase or sale, sale for resale and wholesale agreements, wastewater treatment agreements	SharePoint			

Source: Information Response 18 Attachment 1 (Confidential)

Electronic Disbursement Request Practice

This practice documentation outlines the key enterprise activities to process electronic disbursement requests (EDRs), which aligns with the requirements of the Procurement Policy. High level practice variances related to market-based businesses (MBB), if any, are also outlined in this document. It is intended to outline the steps involved in the processing of EDRs, which are initiated through the system for transactions that do not typically require an invoice. This practice does not cover treasury-related transactions, such as debt service payments, pension and Voluntary Employment Benefit Association (VEBA) contributions, acquisitions, short-term investments, borrowing settlements (commercial paper or bank credit facility), intercompany transfers, and emergency wire transfers; which are covered by the Treasury and Insurance Policy and the Treasury Settlements Practice. Examples of EDR payments include, but are not limited to, corporate and general tax payments, payroll tax payments and reimbursements, group insurance premium contributions, child support/ garnishments, petty cash reimbursements, extension deposit refunds, permits, membership dues, and charitable donations. The following are the major sections covered within the Key Activities area of this practice:³¹⁵

- ◆ EDR Processing
- ◆ Summary of Policies Related to the Electronic Disbursement Request Practice

Exhibit IV-8 provides a listing of activities, responsibility, activity type, and timing.³¹⁶³¹⁷

**Exhibit IV-8
EDR Processing**

No.	Activity	Responsibility	Activity Type	Timing
1				
2				
3				
4				
5				
6				

Source: Information Response 18 Attachment 3 (Confidential)

Fleet Management Policy

This policy documentation defines company policy for assignment and operation of company fleet vehicles and it is intended to support efficient operation and compliance with laws and regulations while also allowing flexibility to meet customer and stakeholder needs. It includes:³¹⁸

- ◆ Vehicle eligibility
- ◆ Vehicle procurement
- ◆ Vehicle operation
- ◆ Vehicle replacement and disposal
- ◆ Data management

Refer to *Chapter XXI – Support Services (Fleet Management)* for discussion of non-procurement items.

Goods and Services Receipt Practice

This practice documentation outlines the key enterprise activities of processing goods and/or services receipts, which aligns with the Procurement Policy and Materials and Supplies Policy, discussed later in this section. The purpose of this practice is to outline the process for physically and systemically receiving goods and services. High-level practice variances related to market-based businesses, if any, are outlined in this documentation.³¹⁹

[REDACTED]

The following are the major sections covered within the Key Activities area of this practice:³²⁰

- ◆ Goods Receipt Process
- ◆ Chemical Receipt Process
- ◆ Services Receipt Process

This practice also contains an appendix for a Summary of Policies related to the Goods and Services Receipt Practice, including:³²¹

- ◆ Materials and Supplies Policy
- ◆ Procurement Policy
- ◆ Record Retention Policy

Invoice Processing Practice

This practice documentation outlines the key enterprise activities required to perform end-to-end invoice processing, which aligns to the requirements of the Procurement Policy, discussed later in this section. High level practice variances related to market-based business, if any, are outlined in this documentation.³²²

This documentation covers activities related to invoice processing, including: invoice capture, invoice processing, and blocked invoice resolution handling, so the following are the major sections covered within the Key Activities area of this documentation practice:³²³

- ◆ Invoice Capture and Issue Handling
- ◆ Invoice Processing and Issue Handling
- ◆ Blocked Invoice Resolution Handling and Issue Handling

This practice documentation also contains appendices for the Invoice Processing Exception Handling and Summary of Policies Related to the Invoice Processing Practice.³²⁴

Materials and Supplies Policy

This policy documentation provides requirements to conduct materials and supplies management activities. It addresses timing, key methods, approvals, reporting, and roles/responsibilities.³²⁵

This policy statement contains guidance relevant to the administration, financial valuation, and handling of materials and supplies inventory. Materials and supplies items are purchased to support maintenance and operational activities needed to conduct company business. These items are received and maintained by appropriate personnel into inventory and are subject to inventory counts, issuances, and receipts that are completed accurately, timely, and in the month of occurrence. Unless otherwise specified, this policy establishes requirements that are to be followed by all employees involved in materials and supplies related activities. More detailed guidance is found in the applicable practices, which are referenced in the appendix section of this policy.³²⁶ This practice also contains an appendix for a Summary of Policies related to the Materials and Supplies Policy, including.³²⁷

- ◆ Goods and Services Receipt
- ◆ Inventory Count
- ◆ Inventory Issuance and Transfer
- ◆ Materials Replenishment Planning
- ◆ Recycling

Refer to *Chapter XXI – Support Services (Procurement & Materials Management)* for discussion of other procurement and non-procurement items.

Open Purchase Orders Practice

This practice documentation outlines the key enterprise activities required to perform the Open Purchase Order review, which aligns to the requirements of the Procurement Policy and the Financial Reporting Policy. Closing purchase orders is necessary to accurately report commitments and liabilities for financial reporting. High level practice variances related to market-based business, if any, are outlined in this documentation.³²⁸ This documentation provides a detailed process overview for the periodic review of Open Purchase Orders (POs). The major sections covered within the Key Activities area of this practice relates to Processing Open POs.³²⁹

Outstanding Check Practice

This practice documentation outlines how to maintain, review, reconcile, and research outstanding third-party accounts payable checks and employee payroll checks issued by the Company. This practice delineates the activities required for the proper reconciliation and final settlement of outstanding checks. It also indicates that the policy will be reviewed annually but it hasn't since July 16, 2007.³³⁰



Processing Requisitions and Purchase Orders Practice

This practice documentation outlines the key enterprise activities related to the generation of purchase requisitions (PR) and the related transmittal of purchase orders to suppliers, which aligns to the requirements of the Materials and Supplies Policy and the Procurement Policy. High level practice variances related to market-based business, if any, are outlined in this documentation.³³¹

This documentation provides an overview of how to procure goods and services through requisitioning, which will result in the creation of a standard, framework, or emergency PO. The following are the major sections covered within the Key Activities area of this practice:³³²

- ◆ Purchase Requisition Process
- ◆ Standard PO Process
- ◆ Framework PO Process
- ◆ Emergency PO Process

This practice contains appendices for the following:³³³

- ◆ Shopping Cart Approval Thresholds
- ◆ Summary of Policies Related to the Processing Purchase Orders Practice

Procurement Policy

This policy documentation, which was originally called *Procurement & Payment Policy*, provides requirements to conduct procurement activities and process payments to suppliers. It addresses timing, key methods, approvals, reporting, and roles/responsibilities. The policy highlights differences between the regulated and market-based businesses, where applicable.³³⁴ This policy documentation contains guidance relevant to procurement and payment. Unless otherwise specified, this policy establishes requirements that are to be followed by all employees involved in procurement and payment activities. More detailed guidance is found in the applicable practices, which are referenced in the Appendix section of this policy, including:³³⁵

- | | | |
|----------------------------------|------------------------------|--------------------------|
| ◆ Approval Authority Maintenance | ◆ Invoice Processing | ◆ Purchasing Card |
| ◆ Contract Management | ◆ Open Purchase Orders | ◆ Segregation of Duties |
| ◆ Electronic Disbursements | ◆ Outstanding Checks | ◆ Supplier Diversity |
| ◆ Goods and Services Receipt | ◆ Processing Purchase Orders | ◆ Vendor Master Database |
| | ◆ Procurement | |

*Then, on 4/30/2019, it was updated and renamed Procurement Policy. It provides requirements to conduct procurement activities and process payments to suppliers. It also addresses timing, key methods, approvals, reporting, and roles/responsibilities; the policy applies to the procurement activities of the regulated business and to the procurement activities of the market based businesses (MBBs); and the policy highlights differences between the regulated and market-based businesses, where applicable. Unless otherwise specified, this policy establishes requirements that are to be followed by all employees involved in procurement and payment activities. This policy establishes requirements for all employees involved in procuring goods or services in an effort to:*³³⁶

- ◆ Ensure the company leverages its spend and achieves the best value when procuring goods and services
- ◆ Protect the company from risks and liabilities in the procurement process
- ◆ Ensure company suppliers share its values and ethics
- ◆ Ensure fair and equitable competition amongst suppliers

It has three appendices. More detailed guidance is found in the applicable policies and practices, which are referenced in *Appendix A*, including:³³⁷

Policy	Related Practice
Procurement Policy	Procurement Practice Real Estate Leasing and Purchasing Practice Supplier Management Practice Supplier Diversity Practice Buy America Practice
Capital Policy	Capital Project Delivery
Fleet Policy	
Employee Travel and Business Expenditures Policy	
Code of Ethics	
Contract Management Policy	Contract Management Practice

For inventory, catalog, P-Card, or travel purchases, self-help may be an option. See *Table 1*, Buying Channel Matrix in *Appendix B* for instructions on using the most appropriate buying channel. See *Table 2* in *Appendix B*, which outlines who is authorized to sign a contract for a good or service covered under this policy. See *Table 3* in *Appendix B*, a RACI diagram matrix of responsibilities, outlines roles and responsibilities associated with the different activities discussed in this policy.³³⁸

Purchasing Cards

Regarding purchasing cards (P-cards), which are primarily for travel expenses, American Water reviews employees to see if the P-cards are used okay. P-cards are managed by AWWSC Accounts Payable, which reports to the AWWSC Controller.³³⁹

Purchasing Card Policy

This policy documentation provides requirements for use of the purchasing card. It addresses timing, approvals, reporting, and roles/responsibilities. The policy highlights differences between the regulated and market-based businesses, where applicable.³⁴⁰

This policy contains guidance relevant to the administration, use, and reporting related to purchasing cards (P-cards). P-cards are company credit cards issued to employees for use in conducting business activities. The P-card is not used for personal use by cardholders. Unless otherwise specified, the statements, activities, and processes described in this section are requirements to be followed by all employees involved in P-card related activities. More detailed guidance is found in the applicable practice, the Purchasing Card Practice, which is referenced in the Appendix section of this policy.³⁴¹



Purchasing Card Practice

This practice documentation outlines the key enterprise activities required to process purchasing card (P-card) transactions, which aligns to the requirements of the Purchasing Card Policy, Procurement Policy, Employee Travel and Business Expenditures Policy. High level practice variances related to market-based businesses, if any, are outlined in this documentation.³⁴²

This documentation covers activities related to P-cards including approval, issuance, management, cancellation, and limits through the use of PNC Bank's ActivePay. ActivePay is PNC Bank's web-based P-card account management system.³⁴³

The following are the major sections covered within the Key Activities area of this practice:³⁴⁴

- ◆ P-card Issuance and P-card Limit Waiver
- ◆ P-card Charge Submission
- ◆ P-card Charge Approval
- ◆ Submission and Approval Delegation
- ◆ Unprocessed Expense Aging
- ◆ Unauthorized P-card Charges
- ◆ Disputed Charges
- ◆ Accounts Payable P-card and Ghost Card (G-card)
- ◆ P-card Cancellation
- ◆ P-card Limits

This practice also contains appendices for the following:³⁴⁵

- ◆ Purchasing Card Allowable and Prohibited Use and Example Tables
- ◆ Agreement to Accept P-card and Training Acknowledgement
- ◆ Summary of Policies Related to the Purchasing Card Practice

Sourcing Practice

This practice documentation outlines the key enterprise activity of sourcing, which aligns with the requirements of the Contract Management Policy and the Procurement Policy. High level practice variances related to market-based businesses, if any, are outlined in this documentation.³⁴⁶ It was presumably updated after December 2019, after Schumaker & Company performed Feld work.³⁴⁷

This documentation provides an overview of the sourcing process from the initial purchase procedures through supplier performance management. The following are the major sections covered within the Key Activities area of this practice:³⁴⁸

- ◆ Purchasing Methods and Requirements
- ◆ Supplier Selection, Competitive Bidding, and Contract Award Process
- ◆ Managing Supplier Performance

This practice documentation also contains an appendix for Summary of Policies related to this practice.³⁴⁹

Supplier Diversity Practice

Initially when starting this audit, the objective of this practice documentation is to ensure that qualified diverse suppliers are given the opportunity to compete for business with American Water Works Company, Inc. and its controlled subsidiaries, including NJAW. It also indicates that the policy will be reviewed within two years; however, it doesn't seem to have been done since 2008, although it said June 16, 2009 date of last review, so possibly practice development team, functional reviewers, and approvers are no longer applicable names.³⁵⁰

Then, on February 10, 2020, an updated practice documentation was made effective in which the objective of this practice is for Company employees to identify and engage diverse suppliers to ensure that those suppliers are provided an opportunity to compete for business with American Water and its subsidiaries (together "American Water" or "Company"). It is American Water's goal that the Company and its supplier partners are representative of the communities it serves. This practice provides guidance to employees of American Water in identifying suitable diverse suppliers and extending opportunities to them.

[REDACTED]

Other topics in the practice documentation include: organizational responsibilities, resources, and definitions, plus *Appendix A* indicates that the *Procurement Policy* and *Sourcing and Procurement Practice* documentation are related to supplier diversity practice activities, and *Appendix B* outlines roles and responsibilities associated with the different activities discussed in this practice.³⁵³

American Water's diversity supplier goal is 22.9%, which includes Tier 1 and Tier 2. In 2018 the actual diversity results totaled 22%, but previously 8% from 2012 to 2014.³⁵⁴ It is not known what 2019 results have been.

Vendor Master Database Practice

This practice documentation outlines the key enterprise activities for creating/updating supplier records and cleaning up the supplier records, which aligns with the requirements of the Procurement Policy and supposedly the Enterprise Data Policy. High level practice variances related to market-based businesses, if any, are outlined in this documentation.³⁵⁵

This documentation provides the activities involved in creating or updating pertinent supplier records, and the following are the major sections covered within the Key Activities area of this practice:³⁵⁶

- ◆ Create/Update Supplier Record
- ◆ Database Clean Up



This practice documentation also contains an appendix for Summary of Policies related to this practice, although Enterprise Data Policy is not referenced in the appendix.³⁵⁷

Internal Audits Involving Procurement and Purchasing

Internal Audit (IA) reports readily available starting 2014 and forward include:³⁵⁸

- ◆ Procurement and Sourcing Processes and Compliance Audit (2016), including Multiple Affiliates³⁵⁹
- ◆ Capital Project Planning and Budgeting Governance Audit (2016), including Multiple States

However, some of the actions to address these internal audits are still open and not completed.³⁶⁰ At this time, only recommendation 2 remains open in the Supply Chain audit and that will be closed out shortly based on new controls.³⁶¹

American Water considers the following two sections as confidential based on these two audit reports.

Procurement and Sourcing Processes and Compliance Audit (2016), including Multiple Affiliates

The audit report presents the results of an evaluation of the company's procurement and sourcing processes and related policy compliance, [REDACTED]

- ◆ [REDACTED]
- ◆ [REDACTED]

³⁶³ Specific recommendations included in this audit report are listed in *Exhibit IV-9*.³⁶⁴

Exhibit IV-9
Procurement and Sourcing Processes and Compliance
IA Recommendations
2016

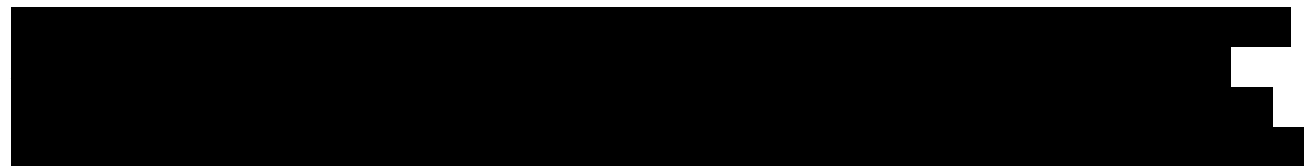
Recommendations	Priority

Source: Information Response 472

According to AWWSC Supplier Diversity management, the company is also currently reviewing supplier relationship activities and it is not currently considered a risk.³⁶⁵

Capital Project Planning and Budgeting Governance Audit (2016), including Multiple States

The audit report presents the results of an evaluation of the governance of the company’s capital project planning, budgeting, and delivery processes.³⁶⁶



Specific recommendations included in this audit report are listed in *Exhibit IV-10*.³⁶⁷

Exhibit IV-10
Capital Project Planning and Budgeting Governance
IA Recommendations
2016



Source: Information Response 352

Although the capital policy and related practices were due for review at the end of 2015, the content was considered still materially accurate, per the discussions the IA group had during walk-throughs. Additionally, there was a current outstanding SOx finding related to outdated policies and practices, which management was in the process of remediating.

Studies to Compare Amounts Charged versus Market Rates among Affiliates

No review of internal services to and from affiliates is performed in the State Procurement group, plus no quality assessment of internal services is performed there.³⁶⁸ Therefore, in NJAW's response studies performed by NJAW, American Water, or affiliates to compare amounts charged versus market rates involving goods and services among affiliates over the past eight years indicated that NJAW engages a third-party consultant, which is Patrick Baryenbruch of Baryenbruch & Company, LLC, to perform a Market to Cost Comparison study for the services provided by the American Water Works Service Company, Inc. (AWWSC or Service Company) to NJAW during base rate cases. NJAW engaged this consultant to perform studies for its 2011, 2015, and 2017 base rate cases.³⁶⁹

Refer to *Chapter IX – Affiliate Cost Allocation Methodologies* for details provided by Baryenbruch & Company, LLC regarding these studies.

How Pricing \$ are Developed

Services provided by affiliates to NJAW and vice versa are provided at cost, which is described in the AWWSC Billing and Accounting Manual (BAM), which was updated March 1, 2018.³⁷⁰ The BAM table of contents highlights the major topics of this documentation, as shown in *Exhibit IV-11*.³⁷¹

Exhibit IV-11
BAM Documentation Topics

Section	Title
I	Overview of American Water, Service Company, and Affiliates
II	Service Company Costs and Related Accounting
III	Service Company Budgeting and Planning
IV	Service Company Reporting
V	Service Billing and Clearing
Appendices	Affiliate Listing
	Cost Centers and Hierarchy
	Cost Centers by Location (Overhead cost pools)
	Expense Category Listing
	Type of Services provided by Service Company to American Water

Source: Information Response 20 Attachment 1 (Attachment also includes some confidential information and data)



Electric Procurement Activities

Electric procurement activities are performed by the Category Manager – Energy, which has been shown in *Exhibit IV-4*, which is part of the Corporate Procurement group.³⁷² The Category Manager – Energy has been in this position for approximately 14 years, but he has been in energy activities since 1980.³⁷³

According to the Director of the Corporate Procurement group, energy procurement is roughly \$90 million per year for all states, although the Category Manager – Energy indicates that New Jersey has been roughly \$23 million per year.³⁷⁴ This Manager buys commodities, including types of commodities and approximate annual amount of NJAW, as follows:³⁷⁵

- ◆ Electricity (~\$20 million)
- ◆ Natural gas (~\$2 million)
- ◆ Gasoline/regular and diesel (~\$.5 to \$1 million)

Commodities are locally bought in New Jersey, with a higher amount of natural gas in New Jersey because of large number of pumps (four pumps). Both electricity and natural gas are purchased in a competitive state in New Jersey, by watching markets and pricing trends, which are mostly bought on an index basis. A lot of time is spent evaluating markets by working with New Jersey operations and telling them quarterly what has been found, so they can say yes or no from New Jersey operations.³⁷⁶

If a commodity is currently in a contract, then NJAW must go ahead and do; however, if a commodity is not in a contract, Category Manager – Energy must contact bidders and request RFP responses; possibly reverse auction in some cases. Contracts typically go for two to three years. Electric and gas was bought from Direct Energy, but now Constellation Energy starting in 2020. Gasoline is primarily diesel for emergency generators, which involves Taylor and Petro commercial services in two separate agreements.³⁷⁷

New Jersey has moved around quite a bit in the past, because NJAW doesn't want to have a lot of price risks, and this group likes moving in indexes. There's a lot of fluctuation of usage. Previously there were usage limits, but the market no longer has these limits. Electric and gas only changes in price if there is a change in laws or change in tariffs for transportation. Gasoline has no fixed pricing. Vendors also like that a client is consistent in usage.³⁷⁸

Documentation to review included environmental policy/practice documentation, but there's no documentation specific about energy proposals.³⁷⁹ Items reviewed include renewable energy proposals and/or investments (subsidy programs regarding investments) to see if good energy costs exist,³⁸⁰ including 2% NJ but less in total for American Water of electricity buys; example solar).³⁸¹

NJAW wants the most cost effective options for electricity, natural gas, and gasoline, and the Category Manager – Energy works with the Manager of Production, in central New Jersey at Warrenton Millstone called Bridgewater, NJ.³⁸² In the past eight (8) years the market has certainly changed. In the last several years changes have been provided downward prices, so NJAW has taken advantage. But, in 2010-2012,

prices have been going upwards, so American Water has shortened its buying horizon. They have also added solar capability in 2012-2013.³⁸³

The system used is an Energy Management System, with the Category Manager – Energy as the main contact/liaison involving an ENGIE contract for the system. Electric and natural gas bills are sent to ENGIE, who processes them for payments to Direct Energy. American Water has outsourced accounts payable because invoices are easy to understand. It has used outsourced since 2006, in which it starting using ITRON, then in 2012 ENGIE was used. Specifically Direct Energy sends invoices to ENGIE and ENGIE invoices American Water and American Water pays ENGIE directly. It totals \$12k to \$14k monthly for all states, including New Jersey.³⁸⁴

Liquidated damages with contracts can occur, so possibly American Water does not get out of contracts if prices in outside contracts go down. American Water can also add additional years, if pricing continues good.³⁸⁵

Right now, electricity contracts are in effect until January 2020, gas contracts are in effect until December 2021, and gasoline contracts are in effect for roughly two (2) more years. Diesel buying is based on index.³⁸⁶

Regarding NJ solar renewable energy credits (SRECs), markets are monitored for selling: for example to Public Service Enterprise Group (PSEG). It costs \$220 for buying 1 megawatt hour. American Water only sells, but not buy, SRECs. For example, American Water can sell from NJ to PA or another state. There are stable prices but can be fluctuating.³⁸⁷

The Environmental Policy documentation provided was effective November 30, 2012, but it was last reviewed August 28, 2015, but not updated yet. The purpose of this documentation was to provide the requirements for American Water to conduct business in a manner that protects public health while promoting environmental stewardship and maintaining American Water's brand. It addresses timing, key methods, approvals, reporting, and roles/responsibilities. The policy also addresses the differences between regulated and market-based businesses (MBB), where applicable. According to American Water management, it is committed to:³⁸⁸

- ◆ Compliance with all relevant environmental laws, regulations, and standards.
- ◆ Sustaining the environment through responsible business practices which promote environmental stewardship with a holistic approach to the prevention of pollution.
- ◆ Effective and efficient use of natural resources, including energy.

As identified in the policy documentation, responsibilities include:³⁸⁹

- ◆ Each facility will identify and manage its environmental impacts in a systematic way through the implementation of an Environmental Management Plan. For drinking water and wastewater systems, Environmental Management Plans are developed at the system level, but include facility level information regarding sampling requirements and the person(s) who will be



responsible for ensuring required sampling occurs. More information on Environmental Management Plans, including templates, is posted on the Intranet.

- ◆ The presidents of the state regulated operating units and presidents of the MBB or their designees are accountable for ensuring that the Environmental Management Plans have been developed and are being implemented at all drinking water systems, wastewater systems, and, as needed, operating centers; and that the plans have been reviewed and updated at a minimum of once per quarter. The President of the American Water Works Service Company (AWWSC) or his/her designee is accountable for ensuring that the Environmental Management Plans have been developed and are being implemented for facilities that are not owned or operated by the state regulated operating units or the MBB.
- ◆ The presidents of the state regulated operating units, the MBBs, and AWWSC will be responsible for identifying an Environmental Program Lead (the principle person responsible for environmental compliance and stewardship) who will be responsible for maintaining the Environmental Management Plans.
- ◆ Each functional area is responsible for providing updates to the Environmental Management Plan, highlighting new requirements/responsibilities, reporting progress against goals, and indicating any changes in responsible parties.
- ◆ American Water will strive to do business with vendors that: have not incurred violations related to the environment within the past 7 years; have an environmental policy or similar commitment that focuses on sustaining the environment through responsible business practices; publishes a Corporate Responsibility Report and/or invests in the community; and shows it has adopted other environmentally-friendly/environmentally-sustainable practices.

All employees are responsible for reporting instances of non-compliance in accordance with the Environmental Non-Compliance Reporting Practice. On an annual basis, the Environmental Program Leads will report to the Manager of Environmental Compliance and Stewardship that each Environmental Management Plan has been reviewed and updated according to this policy.³⁹⁰

Allocation of Purchases across Customer Classes

To the extent that NJAW purchases are included in NJAW's revenue requirement in rate cases, these purchases are allocated to customer classes through cost of service studies. Cost of service studies allocate NJAW's proposed revenue requirements to customer classes using traditionally-accepted cost allocation methodologies as set out in the American Water Works Association (AWWA) M1 Manual of Water Supply Practices, Principles of Water Rates, Fees, and Charges.³⁹¹

B. Findings & Conclusions

Finding IV-1 Policies and practices documentation are not regularly reviewed or updated when appropriate.

Exhibit IV-12 illustrates the purchasing/procurement policy and practice documents provided by NJAW in April 2019, including the latest effective date and the scheduled next review date following the latest effective date, even though, in most cases, it does not appear to have been done by April 2019, as the effective date was not changed. Many Purchasing / Procurement policies and practices were in the process of being reviewed at the time of the audit and additional policies and practices are currently being reviewed.³⁹² The Procurement Practice documentation was again published in December 2019.³⁹³

Exhibit IV-12
Purchasing/Procurement Policy and Practice Documents
as of April 2019

Documentation Name	Latest Effective Date	Next Review Date
Contract Management Policy	8/1/2012	Unknown
Contract Management Practice	8/1/2012	7/31/2015
Electronic Disbursement Request Practice	8/1/2012	Unknown
Fleet Management Policy	1/1/2016	1/1/2019
Goods and Services Receipt Practice	6/2/2013	6/1/2016
Invoice Processing Practice	8/1/2012	7/31/2015
Materials and Supplies Policy	11/30/2012	11/30/2015
Open Purchase Orders Practice	8/1/2012	11/30/2015
Outstanding Check Practice	Unknown (2007?)	11/30/2015
Processing Requisitions and Purchase Orders Practice	8/1/2012	11/30/2015
Procurement Policy	8/1/2012	11/30/2015
Purchasing Card Policy	3/1/2013	3/6/2016
Purchasing Card Practice	3/1/2013	3/1/2016
Sourcing Practice	8/1/2012	9/27/2015
Supplier Diversity Practice	Unknown (2008?)	Unknown
Vendor Master Database Practice	8/1/2012	Unknown

Source: Information Response 16, including Attachments 1-16

Subsequently, following Schumaker & Company's field work and review of documentation, American Water provided in 2020 the following dates shown in *Exhibit IV-13*.³⁹⁴



Exhibit IV-13
Updated Purchasing/Procurement Policy and Practice Documents
as of 2020

Documentation Name	Latest Effective Date	Next Review Date
Contract Management Policy	8/1/2012	Unknown
Contract Management Practice	8/1/2012	7/31/2015
Electronic Disbursement Request Practice	8/1/2012	Unknown
Fleet Management Policy	1/1/2016	1/1/2019
Goods and Services Receipt Practice	6/2/2013	6/1/2016
Invoice Processing Practice	8/1/2012	7/31/2015
Materials and Supplies Policy	11/30/2012	11/30/2015
(RETIRED) Updated to a Standard Operating Procedure	RETIRED 12/9/19	RETIRED
Outstanding Check Practice	Unknown (2007?)	11/30/2015
Processing Requisitions and Purchase Orders Practice (RETIRED) The content is now included in the Sourcing and Purchasing Practice	RETIRED 12/9/19	RETIRED
Procurement Policy	4/29/2019	4/29/2022
Purchasing Card Policy	3/1/2013	3/6/2016
Purchasing Card Practice	3/1/2013	3/1/2016
(Updated) Sourcing and Purchasing Practice	1/1/2020	1/1/2023
Supplier Diversity Practice	2/10/2020	2/10/2023
(RETIRED) Updated to a Standard Operating Procedure	RETIRED 12/9/19	RETIRED

Source: Information Response 16, including Attachments 1-16

Schumaker & Company was not able to determine how often these documents were reviewed and changed, if necessary, even though in other audits we typically see that policy and practice documentation is generally reviewed at least every two years and modified as needed.³⁹⁵ Unfortunately it seems that most haven't been reviewed and updated recently, although American Water recently indicated that, in 2018, American Water adopted a Policy Management Policy, which establishes a company-wide practice to review policies and practices on a three year cycle and to make updates as appropriate.³⁹⁶

According to the State Procurement group, other changes are coming, as processes and procedures are being updated by the Director of the Corporate Procurement & National Categories group and his employees, because the last update was several years back.³⁹⁷ According to the Corporate Procurement group, currently policies and practices documentation is being redone, which was started roughly two (2) years ago.³⁹⁸

Recently the Procurement Policy and Practice documentation was updated (as of 4/30/2019),³⁹⁹ given water industry best practices, but the practice documentation was still in progress,⁴⁰⁰ but updated in December 2019.⁴⁰¹

Finding IV-2 The Enterprise Data Policy documentation is mentioned in two other documentations, but doesn't exist.

As previously discussed, two practice documentations mention the Enterprise Data Policy documentation as follows:

- ◆ *Purchasing Card practice documentation* – This Purchasing Card practice documentation outlines the key enterprise activities required to process purchasing card (P-card) transactions, which says it aligns to the requirements of the Purchasing Card Policy, Procurement Policy, Employee Travel and Business Expenditures Policy, and supposedly the Enterprise Data Policy.⁴⁰²
- ◆ *Vendor Master Database practice documentation* – This practice documentation outlines the key enterprise activities for creating/updating supplier records and cleaning up the supplier records, which aligns with the requirements of the Procurement Policy and supposedly the Enterprise Data Policy. This practice documentation also contains an appendix for Summary of Policies related to this practice, although Enterprise Data Policy is not referenced in the appendix.⁴⁰³

However, when Schumaker & Company requested a copy of the documentation, we were told by the Director in the Corporate Procurement group that, to the best of our knowledge, this policy does not exist, plus it is likely that whatever information may have been included in this policy has been incorporated into other policies regarding company data.⁴⁰⁴

Finding IV-3 Completion and use of Supply One View application for spend data analysis is in progress but not done yet.

Profit Recovery Partners (PRP) firms help American Water to buy items by doing full sweep and working side-by-side to gain savings through contractual negotiation.⁴⁰⁵ Then key suppliers are reviewed about what done, but is done informally. Now it is becoming more formally done. Supply One View (SIV) uses include spend data analysis but not performance yet.⁴⁰⁶ SIV is a single pane of glass where employees can gather information and insights about company spend, suppliers, cost models, etc. Problems AWWSC plans to solve with this application include:⁴⁰⁷

- ◆ How much do we spend on a specific category and supplier?
- ◆ What other opportunities are out there for suppliers? Diversity options?
- ◆ Currently have to go into multiple systems to analyze supplier risk
- ◆ Onboarding a supplier is a long process
- ◆ Difficult for the business and supply chain to assess supplier performance
- ◆ What should we pay for a specific item? How does the cost of that item build up from the commodity level? Where is the company's exposure?

SIV, as a spend analytics tool, takes rough account data from SAP artificial intelligence to categorize spending. It's a dynamic reporting tool involving mass amounts of data and puts into interface via WBS#, states, etc.⁴⁰⁸



However, the S1V application is still being developed, so AWWSC is still scoping out all of the supplier insights functionality and do not have key supplier views at this time.⁴⁰⁹

Once it is fully completed, it should be positive for AWWSC's use of associated data.

Finding IV-4 The Supplier Relationship Management program expects to make changes in 2020.

This group is looking next year at the Supplier Relationship Management program to make positive changes needed for segmenting American Water's suppliers and establishing more KPIs. Organizations typically use a lot of consultants for SRM programs, which are typically on time delivery, so mostly informally done, not contracted. When used, Director of State Procurement group will be involved with services and the Director of Corporate Procurement group with materials for establishing KPIs.⁴¹⁰

Finding IV-5 Recent internal audits involving procurement and purchasing have not completed all actions.

As previously discussed, some of the actions to address the following internal audits are still open and not completed.⁴¹¹

- ◆ Procurement and Sourcing Processes and Compliance Audit (2016), including Multiple Affiliates⁴¹²
- ◆ Capital Project Planning and Budgeting Governance Audit (2016), including Multiple States⁴¹³

Finding IV-6 BAM has recently been updated.

In April 1, 2019 the BAM was updated again, but no separate sessions for *Service Company Budgeting and Planning* plus for *Service Company Reporting* was included.⁴¹⁴ Mentioned also in *Background & Perspective* section of *Chapter V – Affiliate Relationships* on page 127.

C. Recommendations

Recommendation IV-1 Modify activities performed by management to review policy and practice documentation at least every two years and make any needed changes. (Refer to Finding IV-1.)

These activities to review policy and practice documentation at least every two years and make any needed changes should be done by American Water companies, plus the prior review date, effective date, and upcoming review date should be incorporated into these documents.

In 2018 American Water adopted a Policy Management Policy, which establishes a company-wide practice to review policies and practices on a three-year cycle and to make updates as needed, so American Water does not want to change this policy. Schumaker & Company disagrees and believes that at least every two years is better.

Recommendation IV-2 Modify practice documentation due to the lack of the Enterprise Data policy documentation or create the Enterprise Data policy documentation. (Refer to Finding IV-2.)

The Purchasing and Procurement groups should check other policies to see if Enterprise Data policy documentation information is included. If so, *then the Purchasing Card practice documentation and the Vendor Master Database practice documentation must be modified to reference the correct policy documents. Instead, if the Enterprise Data policy documentation information is NOT included in other policy documents, then the Purchasing and Procurement groups should create an Enterprise Data Policy documentation.*

Recommendation IV-3 Make sure the S1V application is completed in a timely manner. (Refer to Finding IV-3.)

As previously discussed, the S1V application is still being developed, so AWWSC is still scoping out all of the supplier insights functionality and do not have key supplier views at this time.⁴¹⁵

Therefore, AWWSC should make activities done so it is completed by 2020, as once it is fully completed, it should be positive for AWWSC's use of associated data.

Recommendation IV-4 Make sure the Supplier Relationship Management program application is completed in a timely manner. (Refer to Finding IV-4.)

As AWWSC is looking next year at the Supplier Relationship Management program to make positive changes needed for segmenting American Water's suppliers and establishing more KPIs.

AWWSC should make sure that the effort is completed by 2020.

Recommendation IV-5 Complete all actions of internal audits involving procurement and purchasing in a timely manner. (Refer to Finding IV-5.)

As previously discussed, some of the actions to address the two internal audits involving procurement and purchasing are still open and not completed.⁴¹⁶

AWWSC should make sure that the actions are completed by 2020.

Recommendation IV-6 Make sure the BAM is updated to include items not previously included, plus others. (Refer to Finding IV-6.)

No separate sessions for *Service Company Budgeting and Planning* plus for *Service Company Reporting* was included when, in April 1, 2019, the BAM was updated again.

AWWSC should make sure that the BAM is updated by 2020 to include these sessions, plus any others that need to be changed.



V. Affiliate Relationships

Schumaker & Company examined and determined the holding company structure, affiliates, and their diversified activities have had or may have any detrimental effects on NJAW by reviewing and evaluating NJAW's interactions with its affiliates over the past eight (8) years in which we:

- ◆ Reviewed NJAW's files covering all contracts and transactions with American Water and other affiliates.
- ◆ Evaluated the independence of purchasing on behalf of NJAW on all staff levels and assess its performance in acting in the best interest of NJAW and its ratepayers.
- ◆ Evaluated NJAW's relationship with American Water and its affiliates and the ability of American Water's internal controls and structure to allow it to make purchases on behalf of NJAW that are in the best interest of NJAW and its ratepayers.

A. Background & Perspective

*Exhibit V-1*⁴¹⁷ and *Exhibit V-2*⁴¹⁸ displays the American Water Works Company, Inc. (American Water) organization showing all regulated and non-regulated subsidiaries, in which New Jersey American Water (NJAW) is highlighted in *Exhibit V-2*.⁴¹⁹

Exhibit V-1
American Water Works Company, Inc.
Summary Organization Chart



Source: Information Response 20 Attachment 1 Updated

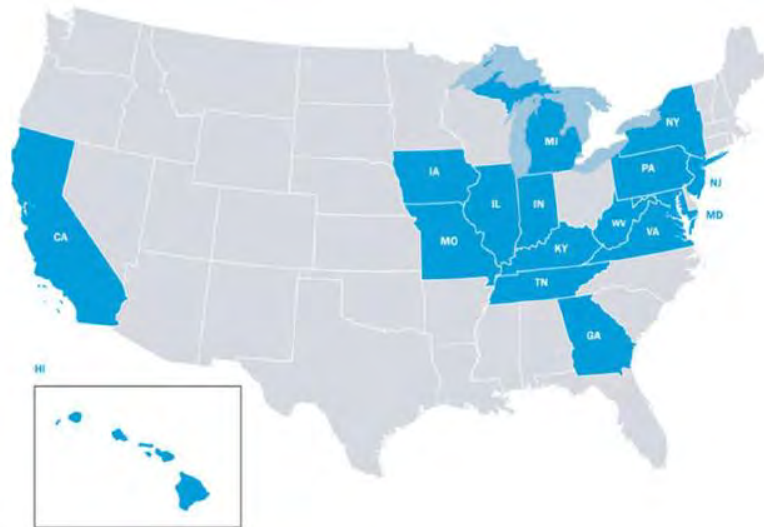


American Water owns 15 utility subsidiaries as well as various non-utility subsidiary companies that together provide water, wastewater, or other water resource management services to approximately 14 million people in the United States and Canada, in which the types include:⁴²⁰

- ◆ *Public Utility Companies (also referred to as Regulated Businesses)*: The largest component of American Water's business includes subsidiaries that provide water and wastewater services to customers in 16 states, collectively presented as Regulated Businesses. American Water conducts the majority of its business through the Regulated Businesses segment.⁴²¹
- ◆ *At Cost Companies*: Includes American Water Works Service Company (the basis for billing and accounting manual), as well as other American Water subsidiaries that provide services to American Water affiliates at cost.⁴²²
- ◆ *Market Based Companies*: American Water also operates market-based businesses through intermediate holding companies within four operating segments which are collectively referred to as Market-Based Businesses.⁴²³

The regulated operations, as highlighted, are in the following 16 states (CA, GA, HI, IA, IL, IN, KY, MD, MI, MO, NJ, NY, PA, TN, VA, WV), although GA and MI Commissions do not perform oversight of water/wastewater utility organizations.⁴²⁴

**Exhibit V-3
American Water Regulated States**



Source: Interview 2 (Kick-off presentation)

Applicable New Jersey Statute Regarding Affiliate Transactions

New Jersey Statutes Annotated (NJSA) 48:3-7.1 refers to “Certain contracts between public utilities and corporations or persons owning or controlling utility stock; approval of board; disapproval”, which includes:⁴²⁵

“No management, advisory service, construction or engineering contract that in itself or in connection with another contract relating to the same work, project, transaction or service involves the expenditure of a sum exceeding twenty-eight thousand dollars, made by any public utility with any person or corporation owning, holding or controlling separately, or in affiliation with another person or corporation, eight per cent or more of the capital stock of such public utility or with any corporation eight per cent of the capital stock of which is owned, held or controlled by a person or corporation owning, holding or controlling separately, or in affiliation with another person or corporation, eight per cent of the capital stock of such public utility shall be valid or effective until approved in writing by the board.

The board shall disapprove such contract if it determines that such contract violates the laws of this state or of the United States, or that the price or compensation thereby fixed exceeds the fair price or fair compensation for the property to be furnished or the work to be done or the services to be rendered thereunder or is contrary to the public interest: otherwise the board shall approve such contract.

No order shall be made by the board disapproving such a contract except after hearing upon notice.”

Orders Regarding Affiliate Transactions

With regards to copies of all governing regulations, orders, and decisions from the NJBPU regarding affiliate transactions, NJAW provided:⁴²⁶

- ◆ Docket# W013050374: Approval of the American Water Works Service Company (AWWSC) Agreement (November 16, 2015)
- ◆ Docket# WF00040252L Approval of the American Water Capital Corporation (AWCC) Financial Services Agreement (August 16, 2000)

NJAW, American Water Works Company, and Affiliate Organizations Affiliate Agreements

Three (3) affiliate agreements exist between NJAW and other American Water Works Company affiliates, which include:⁴²⁷

- ◆ AWWSC and NJAW (January 1, 1989), including the following sections⁴²⁸

Personnel and services to be provided	Allowance for overhead
Payment for services	Billing procedures and books and records

- ◆ AWCC and NJAW (June 15, 2000) for financial services provided by AWCC, including the following: services to be provided, costs, statements, inspections, obligations not joint, notes, non-exclusivity, effectiveness, termination, and copies, plus appendices such as description of financial services and promissory note for long-term borrowings.⁴²⁹
- ◆ American Water Resources, Inc. (AWR) and NJAW (September 1, 2001), including the following sections:⁴³⁰

<ul style="list-style-type: none"> - Definitions - Appointment of utility - Termination - Compensation - Taxes - Scope of service - Provision of information - Compliance with laws - Insurance - Obligations of AWR - Joint obligation of the parties - Arbitration - Force majeure 	<ul style="list-style-type: none"> - Assignments - Amendments - Notices - Governing law - Indemnification - Severability - No third-party beneficiaries - Independent contractor - Complete agreement - Titles and headings - Counterparts - Limitation of liability
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Products and Services Provided From/To Regulated or Unregulated Affiliates

A description of all products and services provided from/to regulated and unregulated affiliates of NJAW during the past eight (8) years, includes the following:⁴³¹

Services Obtained by NJAW

- ◆ *American Water Works Service Company* – NJAW and AWWSC entered into a service agreement on January 1, 1989, which agreement was approved by the New Jersey Board of Public Utilities (NJBPU) on August 16, 1989, and re-approved by the NJBPU by order dated November 16, 2015 under NJBPU Docket# WO13050374. The services that NJAW obtains from the Service Company agreement include: central shared services (no longer a central shared services group, so likely it refers to Financial Accounting functions, such as Accounts Payable, Accounts Receivable, Treasury, and others, plus Rates/Regulatory, and any others), customer call centers, central lab services, procurement, information systems, human resources, water quality and environmental, security and risk management.⁴³² Most affiliate costs run through AWWSC, with the only exception being those that are extraordinary in nature, meaning if an emergency occurs, costs could come through NJAW financials from other affiliates.⁴³³
- ◆ *American Water Capital Corporation* – AWCC is American Water’s financing subsidiary. It provides short-term and long-term debt and cash management services to American Water Works Company, Inc. and its regulated subsidiaries. NJAW and AWCC entered into a Financial Services Agreement on June 15, 2000, which agreement was approved by the NJBPU on August 16, 2000 for short-term borrowings and cash management services, and on August 1, 2001 for long-term financings. The agreement sets the terms and conditions under which NJAW is able to borrow from AWCC on both a short-term and long-term basis, and for cash management services provided by AWCC.⁴³⁴
- ◆ *Applied Water Management (AWM)* – AWM, a former affiliate of NJAW, is in the business of delivering geoscience services, designing, constructing, and operating decentralized water and wastewater facilities. NJAW originally entered into an agreement with AWM on August 29, 2008, which agreement was approved by the NJBPU on August 1, 2008 for AWM to operate and maintain NJAW’s Pottersville Sewer Treatment plant. That agreement was amended to include operations for additional treatment plants. NJAW also had a contract with AWM to haul residuals from certain of its water treatment plants. The affiliated relationship ended on December 31, 2011, when American Water, the parent of company of both AWM and NJAW sold AWM.⁴³⁵

- ◆ *AAET, L.P.* – AAET, L.P. was a non-regulated affiliate of NJAW that supplied carbon and carbon services to certain of American Water’s regulated utilities, including NJAW. NJAW executed a master agreement with AAET, L.P. for the purchase of granulated activated carbon and related services for use at several NJAW water treatment plants. This agreement was entered into on August 28, 2009 and it appears to have lapsed at the end of 2012, which is the last year for which any activity related to these contracts took place. At the time each filter bed was ready for replacement, a task order was issued under the master agreement to evidence the replacement under the terms of the master agreement.⁴³⁶
- ◆ *AWI, Inc. (AWI)* –AWI is authorized (by the State of Delaware Department of Insurance) to serve as a pure captive insurance company to provide insurance coverage for American Water and its affiliates, including NJAW. AWI is not intended to be used to replace all of American Water’s commercial insurance coverage. The overall goal in forming AWI is to have the ability to secure the best available coverage at lowest possible rates in all insurance market conditions. AWI provides an improved negotiating position in the commercial insurance market and will provide greater flexibility and control over risk- financing needs without relying exclusively on the traditional commercial insurance market.⁴³⁷

Services Provided by NJAW

- ◆ *American Water Resources, Inc.* – American Water Resources (AWR) provides services to domestic homeowners to protect against the cost of repairing broken or leaking pipes inside and outside their homes. NJAW and AWR entered into a service agreement on September 1, 2001, under which NJAW agreed to provide certain services to AWR, as AWR offered its service offerings to customers of NJAW. The services offered by AWR to NJAW customers include AWR’s Water Line and Sewer Line Protection Programs, and in-home warranty programs. Although the agreement does not require NJBPU approval, NJAW and AWR representatives have met with NJBPU staff from time to time to discuss AWR service offerings and answer any questions with respect to such offerings.⁴³⁸
- ◆ *Edison Water Company* – Edison Water Company is a non-regulated affiliate of NJAW that operates, maintains, and repairs the water system owned by the Township of Edison that serves a portion of Edison under an agreement for operation, maintenance, and management services for the Township of Edison’s Municipal Water System dated June 25, 1997. The contract is scheduled to expire on June 30, 2019. NJAW provides to Edison Water Company all labor, equipment, and other items necessary for Edison Water Company to satisfy its obligations under the agreement between Edison Water Company and the Township of Edison.⁴³⁹
- ◆ *Liberty Water Company* – Liberty Water Company is a non-regulated affiliate of NJAW that operates, maintains, and repairs the water system owned by the City of Elizabeth under an agreement for public/private partnership and operation, maintenance, and management services for the City of Elizabeth’s municipal water system dated as of July 1, 1998. NJAW provides to Liberty Water Company all labor, equipment, and other items necessary for Liberty



Water Company to satisfy its obligations under the agreement between Liberty Water Company and the City of Elizabeth.⁴⁴⁰

- ◆ *E'town Services, LLC (ETS)* – ETS is a non-regulated affiliate of NJAW that operates, maintains, and repairs the sewer system owned by the City of Elizabeth under a wastewater services agreement for the City of Elizabeth's wastewater system by and among the City of Elizabeth, the Union County Improvement Authority, and E'town Corporation. ETS was created for the sole purpose of fulfilling the obligations under this agreement and has no other activities. NJAW provides all labor, equipment and other items necessary for ETS to satisfy its obligations under the agreement.⁴⁴¹
- ◆ *American Water Enterprises, Inc. (AWE)* – AWE is part of American Water's non-regulated businesses, including contract operations and maintenance of various water and wastewater systems. NJAW provided all labor and oversight needed for AWE to fulfill its obligations to the Borough of Avalon under a contract dated December 31, 2001, and which expired as of June 30, 2011.⁴⁴²
- ◆ *E'town Properties, Inc.* – E'town Properties was a real estate affiliate of the former Elizabethtown Water Company. E'town Properties is currently dormant. NJAW had nominal management responsibilities over E'town Properties.⁴⁴³
- ◆ *American Water Operations and Maintenance, LLC (AWO&M)* – AWO&M is a non-regulated affiliate of NJAW that operates and maintains the water system owned by the Township of South Orange Village under an operation and maintenance agreement dated as of July 11, 2016. NJAW provides to AWO&M all labor, equipment, and other items necessary for AWO&M to satisfy its obligations under the agreement between AWO&M and the Township. AWO&M provided emergency licensed operations and management services to the City of New Brunswick pursuant to a one-year operations support and management services agreement dated as of September 17, 2014. NJAW provided to AWO&M the necessary labor for AWO&M to satisfy its support and management obligations under the agreement between AWO&M and the City.⁴⁴⁴

Level and Nature of Affiliate Transactions

O&M Expenses

Exhibit V-4 displays the level and nature of operations and maintenance (O&M) affiliated transactions from/to NJAW's operations and affiliates during the past six (6) years, including a breakdown by: from/affiliate; type of transaction; and time period. Although we asked for the past eight (8) years, NJAW indicates that 2011 and 2012 data is not readily available and would be too time consuming to produce.⁴⁴⁵

**Exhibit V-4
Level and Nature of AWWSC Affiliate Transactions
O&M Expenses
2013 – 2018**

	2013		2014		2015		2016		2017		2018	
	Direct Charges	Allocations	Direct Charges	Allocations	Direct Charges	Allocations	Direct Charges	Allocations	Direct Charges	Allocations	Direct Charges	Allocations
Audit	\$86,182	\$767,650	\$24,482	\$519,289	\$0	\$381,778	\$0	\$377,106				
BT-Controls/Organization Integration	\$0	\$0	\$0	\$72								
Business Development	\$0	\$369,653	\$80,747	\$373,289	-\$2,076	\$569,847	\$0	\$590,361	\$265	\$662,945	\$733,996	\$470,291
Business Services	\$10,930	\$787,994	\$11,050	\$564,954								
Business Transformation	\$55,179	\$48,839	\$11,403	-\$6,094								
Central Lab	\$800,796	\$263,629	\$595,235	\$196,094	\$519,685	\$196,403	\$576,525	\$132,083	\$791,635	\$143,513	\$702,606	\$126,227
Corp Admin	\$0	\$587,445	\$0	\$877,789	\$0	\$1,163,611	\$4,512,775	\$2,483,873	\$0	\$3,316,787	\$7,951	\$6,318,766
Customer Service Center	\$4,681,098	\$3,680,170	\$5,384,621	\$2,244,434	\$5,745,386	\$1,835,972	\$5,540,167	\$1,461,007	\$5,279,591	\$2,088,153	\$4,464,339	\$2,471,318
Engineering	\$18,205	\$147,425	\$7,956	\$184,407	\$2,982	\$204,656	\$67,701	\$209,426	\$72,479	\$350,401	\$74,102	\$403,204
External Affairs & Public Policy	\$76,744	\$739,524	\$63,430	\$1,073,677	\$80,569	\$1,116,524	\$105,581	\$1,189,907	\$320,781	\$1,179,889	\$247,652	\$1,100,214
Facilities					\$0	\$946,618	\$0	\$747,623	\$323,901	\$482,409	\$0	\$956,519
Finance	\$706,218	\$3,695,458	\$879,490	\$3,300,251	\$468,105	\$4,162,630	\$172,896	\$4,083,560	\$92,282	\$4,683,902	\$389,460	\$4,771,616
Health and Safety/Safety & Environment Compliance			\$154,812	\$270,427	\$92,891	\$184,824	\$46,406	\$171,910	\$26,514	\$354,484	\$33,158	\$331,510
Hire to Retire Services	\$98,006	\$636,173										
HR Services			\$44,963	\$491,246	\$34,345	\$510,157	\$33,875	\$389,008				
Human Resources	\$452	\$1,321,737	\$0	\$1,393,818	\$24,353	\$2,357,176	\$120,513	\$2,580,955	\$66,448	\$3,376,933	\$9,459	\$3,113,540
Information Technology Services	\$255,644	\$13,930,335	\$282,772	\$13,956,128	\$458,835	\$12,577,642	\$413,197	\$8,120,976				
Innov & Env Stewardship	\$2,314	\$396,059	\$2,998	\$338,891	\$3,055	\$338,077	\$3,351	\$391,499				
Investor Relations	\$0	\$285,228	\$0	\$90,404	\$0	\$86,248	\$0	\$141,488	\$0	\$149,404	\$0	\$143,424
Legal	\$827,177	\$1,534,382	\$816,689	\$1,500,173	\$696,468	\$1,558,547	\$523,038	\$2,281,299	\$539,589	\$2,575,857	\$320,546	\$2,995,480
Operational Education	\$5,352	\$325,995	\$18,693	\$301,731								
Operational Risk Management	\$119,461	\$563,290										
Operations Excellence							\$0	\$79,884				
Operations Security			\$274	\$286,782								
Physical and Cyber Security/Corporate Security					\$27,584	\$304,734	\$31,975	\$439,831	\$62,707	\$545,019	\$53,153	\$1,036,057
Procure to Pay Services	\$27,705	\$1,422,423	-\$51,248	\$708,338								
Property	\$0	\$1,173,379	\$0	\$1,103,875								
Record to Report Services	\$338,336	\$532,114	\$373,240	\$732,331								
Regulated Ops	\$0	\$1,677,051	\$0	\$1,253,604	\$101,571	\$1,648,357	\$77,152	\$2,184,474	\$569,974	\$2,463,631	\$178,943	\$2,634,616
Regulatory	\$0	\$96,709										
Supply Chain	\$110,319	\$446,139	\$6,521	\$460,446	\$2,601	\$439,233	\$8,512	\$403,664	\$1,017	\$484,616	\$173,444	\$582,771
Technology & Innovation Organization					\$0		\$0	\$78,562	\$463,790	\$8,530,797	\$404,281	\$7,696,677
Total	\$8,220,118	\$35,428,803	\$8,708,128	\$32,216,356	\$8,256,356	\$30,583,033	\$12,233,662	\$28,538,497	\$8,610,973	\$31,388,739	\$7,793,090	\$35,152,232
	2013	2014	2015	2016	2017	2018						
	\$43,648,922	\$40,924,484	\$38,839,389	\$40,772,160	\$39,999,712	\$42,945,322						

Source: Information Response 26 Attachment (Grey cells include no budgeting)

NJAW’s only subsidiary is Environmental Disposal Corporation (EDC). EDC has one full-time equivalent employee (FTE) in the wastewater service functional category, with a one-half FTE vacancy in the same functional category. The average annual salary for the FTE is \$94,268.⁴⁴⁶

Capital Expenditures

Exhibit V-5 displays the level and nature of capital expenditures affiliated transactions from/to NJAW’s operations and affiliates during the past six (6) years, including a breakdown by: from/affiliate; type of transaction; and time period. Although we asked for the past eight (8) years, NJAW indicates that 2011 and 2012 data is not readily available due to a software upgrade in 2012 and would be too time consuming to produce.⁴⁴⁷

Exhibit V-5
Level and Nature of AWWSC Affiliate Transactions
Capital Expenditures
2013 – 2018

	2013		2014		2015		2016		2017		2018	
	Direct Charges	Allocations	Direct Charges	Allocations	Direct Charges	Allocations	Direct Charges	Allocations	Direct Charges	Allocations	Direct Charges	Allocations
Audit	\$0	\$729	\$0	\$1,426	\$0	\$692	\$0	\$209				
BT-Controls/Organization Integration	\$0	\$661,538	\$0	\$324								
Business Development	\$0	\$405	\$0	\$1,321	\$0	\$5,708	\$0	\$4,528	\$0	\$5,925	\$0	\$7,922
Business Services	\$0	\$158,685	\$0	\$68,030								
Business Transformation	\$0	\$10,100,152	\$0	\$1,599,377								
Central Lab	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Corp Admin	\$0	\$6,617	\$0	\$13,812	\$0	-\$124,984	\$33,013	\$1,061	\$0	-\$1,499	\$1,463	-\$19,950
Customer Service Center	\$0	\$2,927	\$196,814	\$6,112	\$143,071	\$20,485	\$237,308	\$78,739	\$285,660	\$126,855	\$246,090	\$126,099
Engineering	\$1,244,579	\$743,098	\$1,041,452	\$777,302	\$1,019,867	\$1,004,629	\$973,480	\$1,075,540	\$909,231	\$879,027	\$924,030	\$904,307
External Affairs & Public Policy	\$0	\$534	\$0	\$180	\$1,296	\$2,446	\$0	\$1,526	\$0	\$1,740	\$0	\$8,884
Facilities					\$0	\$120,190	\$0	\$79,898	\$0	\$97,342	\$0	\$127,154
Finance	\$39,144	\$17,567	\$213,986	\$19,479	\$102,180	\$67,802	-\$2,357	\$48,007	\$84,289	\$74,828	\$26,077	\$237,783
Health and Safety/Safety & Environment Compliance			\$65,121	\$27,203	-\$2,314	\$3,630	\$4,343	\$7,897	\$0	\$16,061	\$0	\$21,617
Hire to Retire Services	\$0	\$5,774										
HR Services			\$0	\$1,123	\$0	\$1,465	\$0	\$946				
Human Resources	\$0	\$971	\$0	\$1,334	\$0	\$49,415	\$0	\$26,665	0	\$21,142	\$0	\$55,776
Information Technology Services	\$19,507	\$1,292,979	\$89,837	\$6,408,076	\$52,692	\$6,466,998	\$89,240	\$7,137,640				
Innov & Env Stewardship	\$26,173	\$156,419	\$43,657	\$140,778	\$109,801	\$104,092	\$57,680	\$90,956				
Investor Relations	\$0	\$142	\$0	\$357	\$0	\$478	\$0	\$228	\$0	\$393	\$0	\$1,459
Legal	\$7,213	\$357	\$34,144	\$779	\$3,181	\$4,041	\$0	\$28,336	\$181,178	\$13,577	\$91,755	\$12,559
Operational Education	\$0	\$173	\$0	\$94								
Operational Risk Management	\$40,302	\$23,192										
Operations Excellence							\$0	\$57,837				
Operations Security			\$0	\$1,033								
Physical and Cyber Security/Corporate Security					\$85,862	\$30,179	\$111,974	\$65,436	\$109,244	\$55,381	\$76,320	\$99,988
Procure to Pay Services	\$0	-\$824	\$0	\$210								
Property	\$0	\$171,053	\$0	\$178,652								
Record to Report Services	\$0	-\$918	\$0	\$1,233								
Regulatory Ops	\$0	\$3,289	\$0	\$113,277	-\$465	\$157,861	\$0	\$55,356	\$0	\$70,866	\$1,560	\$75,651
Regulatory	\$0	\$79										
Supply Chain	\$80	\$331,350	\$1,827	\$382,630	\$9,146	\$349,927	\$4,461	\$342,983	\$2,606	\$311,799	\$321,355	\$360,566
Technology & Innovation Organization							\$0	\$279	\$118,931	\$8,620,556	\$28,915	\$14,129,926
Total	\$1,376,998	\$13,676,288	\$1,686,837	\$9,743,495	\$1,524,317	\$8,265,054	\$1,509,141	\$9,104,069	\$1,691,139	\$10,293,992	\$1,717,565	\$16,149,740
	2013	2014	2015	2016	2017	2018						
	\$15,053,286	\$11,430,332	\$9,789,370	\$10,613,210	\$11,985,130	\$17,867,304						

Source: Information Response 28 Attachment 1 (Grey cells include no budgeting)

Cost Allocation Manual Documentation

The Billing and Accounting Manual, discussed in *Chapter IV – Purchasing and Procurement*, includes information requested when Schumaker & Company asked for the cost allocation manual documentation.⁴⁴⁸ Also provided was a listing of 2018 formula allocations, which are based on the 2017 year-end factors.⁴⁴⁹

Internal Controls of NJAW's relationship with American Water, and its affiliates, especially involving (a) purchases on behalf of NJAW and (b) protection against irregular, illegal, and/or improper transactions

Internal controls related to transactions between NJAW and its affiliates are outlined in the agreement between American Water Works Service Company, Inc. (AWWSC) and NJAW and AWWSC's Billing and Accounting Manual (BAM). Additionally, NJAW is required to adhere to the Sarbanes-Oxley (SOx) controls of American Water Works Company, Inc., where applicable and is subject to review/audit of its processes and related operational or SOx related controls by AWWSC's Internal Audit Department.⁴⁵⁰

A listing of key SOx controls includes controls performed within NJAW, the AWWSC Eastern Division (that includes NJAW along with New York, Virginia, and Maryland), as well as controls performed by AWWSC functional areas that provides support to NJAW (i.e. Treasury, Billing, Cash, Accounts Payable Supply Chain, etc.). The controls range from manual interactions or automated system generated interactions based on the nature of the transactions.⁴⁵¹

Further, AWWSC conducts numerous controls around the AWWSC billing process to protect against irregular, illegal, and/or improper transactions. In connection with the production of AWWSC's monthly invoice to NJAW, according to AWWSC management, the following processes are performed:⁴⁵²

- ◆ All overhead pools are validated.
- ◆ Overhead assessment cycles for the period are established.
- ◆ All active cost centers are verified to have overhead counterparts.
- ◆ All cost centers and overhead cost centers are verified to exist within an overhead pool.
- ◆ All cost elements to be billed-out are verified to exist within the billing.
- ◆ Work Breakdown Structure (WBS) settlement receivers are updated with current percentages, where applicable.

After all expected entries are posted during the close, AWWSC reviews actual expenditures for the month compared to its plan for the month and compared to its prior month's expenditures to confirm that the amounts to be billed are accurate. If necessary, adjusting entries are made.⁴⁵³

Finally, the AWWSC monthly invoice is provided to NJAW. Each month, the Service Company provides information to NJAW to support the AWWSC bill and NJAW has an opportunity to review the content of the bill. As the BAM states, "Affiliates have the ability to view (via a drill down functionality in SAP) cost posting source detail such as originating Service Company Cost Center, associated WBS element details, and other data to provide transparency to Service Company originating costs." Other data includes (a) a monthly report showing actual and plan year-to-date amounts that identifies the primary drivers for variances between actual and plan; and (b) a monthly labor report that identifies the hours billed to NJAW by Service Company employees for the month.⁴⁵⁴

Charges come through AWWSC, so NJAW can review any charges. Both Accounting and BIRS groups are involved in billing process. Spreadsheets in response equals prices of high, medium, and low numbers. For example, one of the invoices is reviewed monthly by a Senior Manager Rates and Regulatory, but she also quarterly goes to SAP to sign that she has completely done monthly reviews.⁴⁵⁵

NJAW can use this supporting information to review the charges, and request additional details or challenge the charges. If NJAW identifies a cost billed by AWWSC that it contested, NJAW would contact the Manager of Budgeting and Internal Reporting at AWWSC to determine if it is a valid charge. If not a valid charge, it would be removed from the NJAW billing through an adjustment during a subsequent period.⁴⁵⁶

As previously discussed in *Chapter IV*, in April 1, 2019 the BAM was updated again, but no separate sessions for *Service Company Budgeting and Planning* plus for *Service Company Reporting* was included.⁴⁵⁷



Correspondence between NJAW Board of Directors and Officers

Written and verbal correspondence between NJAW directors and officers takes place in connection with the regularly scheduled Board of Directors meetings,⁴⁵⁸ which in practice NJAW holds quarterly Board meetings and one additional meeting (five meetings per year).⁴⁵⁹

For example, *Exhibit V-6* illustrates some key information included in an email message sent on January 15, 2019 as a meeting notice regarding the upcoming February 12, 2019 Board of Directors meeting. It also indicates that meeting materials would be available for review on Diligent™ no later than February 5, 2019.⁴⁶⁰

Exhibit V-6
Sample Board of Directors Agenda Notice

Agenda Item	Title	Action Required
Opening Comments/Safety	[REDACTED] reporting	Discussion
[REDACTED]	1 Material provided in Diligent [REDACTED] reporting	Approval
[REDACTED]	2 Material provided in Diligent [REDACTED] reporting	Discussion
[REDACTED]	3 Material provided in Diligent [REDACTED] reporting	Approval
[REDACTED]	4 Material provided in Diligent [REDACTED] reporting	Approval

Source: Information Response 31 Attachment

B. Findings & Conclusions

Finding V-1 Minimal information and data was provided for affiliate transactions other than AWWSC to NJAW.

AWWSC does not prepare affiliate transaction reports that indicate all transactions between NJAW and affiliate shown previously in the *Products and Services Provided From/To Regulated or Unregulated Affiliates* section of this chapter. According to AWWSC management, as previously discussed, most affiliate costs run through AWWSC, with the only exception being those that are extraordinary in nature, meaning if an emergency occurs, costs could come through NJAW financials from other affiliates.⁴⁶¹ However, they indicate that intra-company transactions between and among NJAW and its affiliates show in the following AWWSC accounts:⁴⁶²

14510000 A/R Assoc Cos - Miscellaneous
14510100 A/R Assoc Cos - Reconciliation Account
14511001 A/R Assoc Cos - Service Company Bill
14511054 A/R Assoc Cos - Service Settlement Edison
14511055 A/R Assoc Cos - Service Settlement Liberty
14511056 A/R Assoc Cos - Service Settlement E'Town Services
14573000 A/R Assoc Cos - Dividend Equivalents

As previously shown in *Exhibit V-4 (OPEX) and Exhibit V-5 (CAPEX)*, when NJAW was asked to provide the level and nature of affiliated transactions (actual and budget dollars) from/to NJAW's operations and affiliates during the past eight (8) years, including a breakdown by: from/affiliate; type of transaction; and time period, only charges from AWWSC to NJAW were provided. No other type of charges were provided.⁴⁶³

Although charges come through AWWSC, NJAW can review any charges. Both Accounting and BIRS groups are involved in billing process. Spreadsheets in response equals prices of high, medium, and low numbers. For example, RC37 (monthly rate validation report for customer rate changes) is reviewed monthly by a Senior Manager Rates and Regulatory in AWWSC, but she also quarterly goes to SAP to sign that she has completely done monthly reviews.⁴⁶⁴ However, according to NJAW management, it doesn't seem to relate to affiliate charges.

Finding V-2 Pricing of direct charges and allocations in American Water are appropriately done at cost, but AWWSC allocations to NJAW are primarily based on the number of customers.

All costs are moved from AWWSC to affiliates, and no costs are held at AWWSC. When AWWSC employees work on an activity that addresses only one American Water subsidiary, like NJAW, a direct charge is made using the employee time reporting system, currently called *MyTime*. However, for work that applies to multiple states, an allocation mechanism occurs.⁴⁶⁵



The AWWSC costs have been compared in years 2011, 2015, and 2017 to market costs by an outside consultant, which has Baryenbruch & Company, LLC.⁴⁶⁶ See *Chapter IX – Affiliate Cost Allocation Methodologies* for detail information about these studies and associated findings/conclusions and recommendations.

The use of allocations is controlled by work breakdown structure (WBS) grouping in SAP. All charges allocated to states at the end of a month is based on the WBS assigned, unless direct charge.⁴⁶⁷

The percentage allocation for all WBSs is determined by various factors (depending on the cost being allocated) at December for the next year allocations, although customer count is primarily used. These are not changed during a year unless a significant/material event occurs. For example, during one year three (3) divestitures led to changes in customer count that were significant enough to redo allocations three times in year. It is unusual to have it happen at all as the customer count has to change a great deal to make an impact on allocations.⁴⁶⁸

Two TIERS exist. TIER1 includes between regulatory and MBB companies and also cost affiliates, which has multiple factors, including revenues; property, plant, and equipment (PP&E); and employees or a combination of some of these. TIER2 includes regulatory only, which is based on customers only. Employees get training sessions for use on TIERS' WBS#s as to which WBS# to use and when.⁴⁶⁹ The allocation percentages seem to be appropriately calculated and applied to NJAW by AWWSC.

The use of number of customers is based on all regulated water or wastewater customers, which counts as one (1); however, if a customer is served by both water and wastewater, it is not two (2), but an additional .05% of wastewater customers is added to the number of water customers.⁴⁷⁰ Therefore, AWWSC no longer double counts the number of customers, which was done during the prior audit.

Regarding apartment building billings, the bill can have one meter serving many tenants but still counts as only one (1) customer.⁴⁷¹ The adjustment for dual customers began in 2014.⁴⁷²

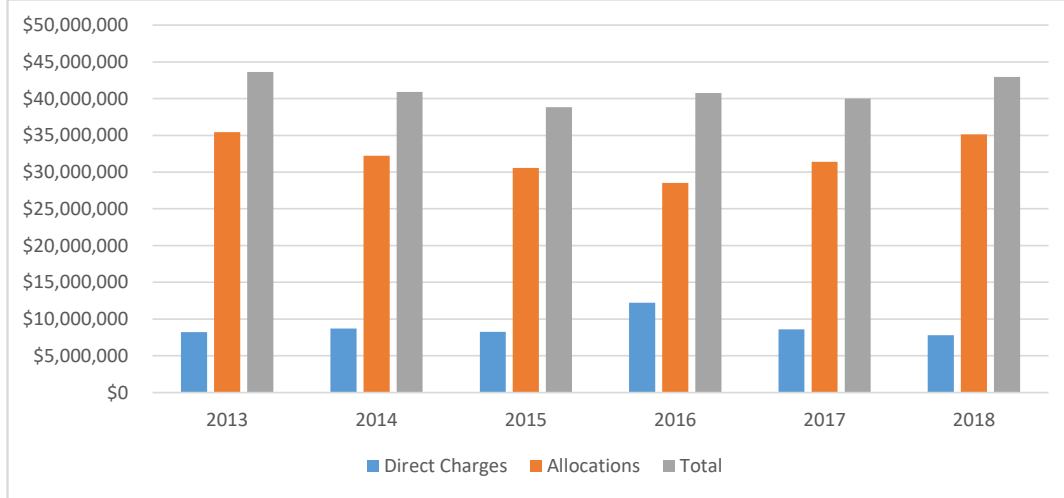
States such as New Jersey can choose where to buy services, which does not have to be through AWWSC.⁴⁷³

Finding V-3 A reasonable percentage of direct charges from AWWSC to NJAW occurred from 2013 to 2018.

Exhibit V-7 displays in summary the dollars and percentage of affiliate charges by direct charges versus allocations for operations expenses.⁴⁷⁴

**Exhibit V-7
AWWSC Affiliate Charges to NJAW – Operations Expenses (Dollars)**

	2013	2014	2015	2016	2017	2018
Direct Charges	\$8,220,118	\$8,708,128	\$8,256,356	\$12,233,662	\$8,610,973	\$7,793,090
Allocations	\$35,428,803	\$32,216,356	\$30,583,033	\$28,538,497	\$31,388,739	\$35,152,232
Total	\$43,648,922	\$40,924,484	\$38,839,389	\$40,772,160	\$39,999,712	\$42,945,322

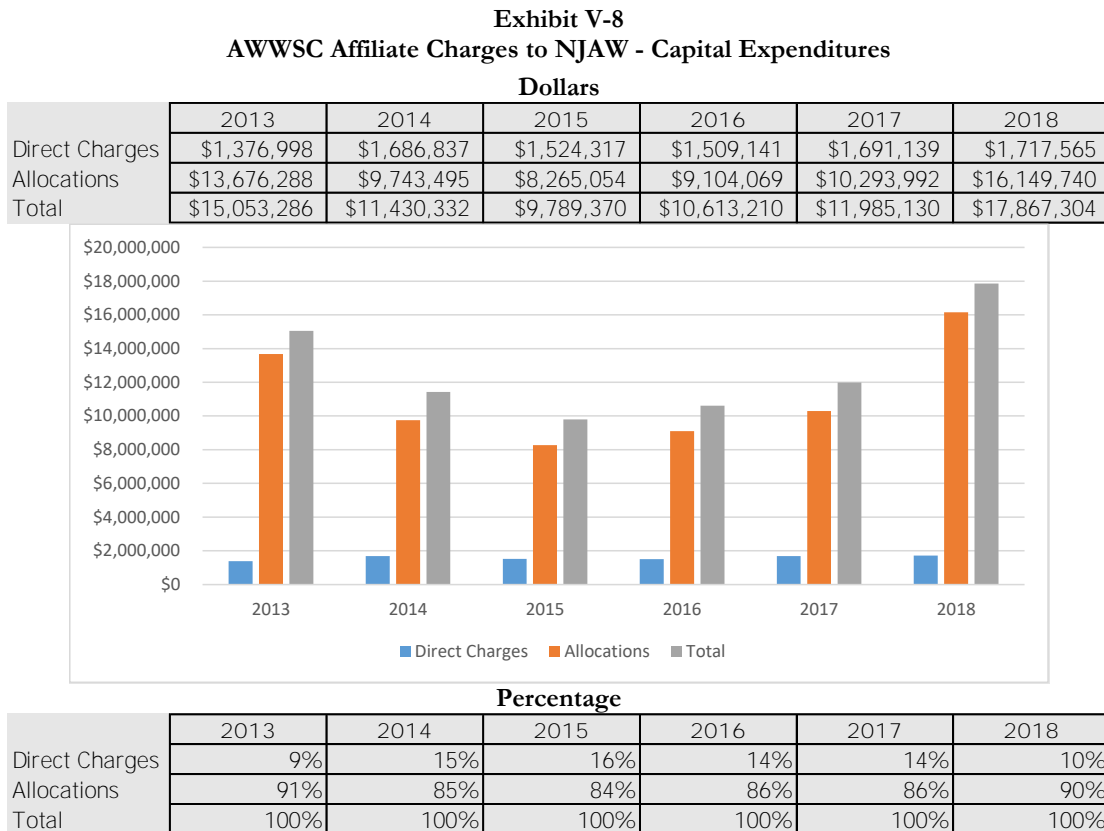


Percentage

	2013	2014	2015	2016	2017	2018
Direct Charges	19%	21%	21%	30%	22%	18%
Allocations	81%	79%	79%	70%	78%	82%
Total	100%	100%	100%	100%	100%	100%

Source: Information Response 26 Attachment

Exhibit V-8 displays affiliate charges by direct charges versus allocations for capital expenditures.⁴⁷⁵



Source: Information Response 28 Attachment

The percentage of direct charges seems to have increased substantially from what appeared in the prior audit report. For example, as then less than 7% of hours charged to NJAW were direct charges, as indicated in the Northstar audit report, in which 4% of expense charges and 1% of capital project charges were direct charges.

C. Recommendations

Recommendation V-1 Develop monthly affiliate transaction reports. (Refer to Finding V-1.)

Although NJAW can review affiliate charges from billing, regular monthly detailed reports should be developed that identify affiliate transactions between NJAW and each of its affiliates shown previously in the *Products and Services Provided From/To Regulated or Unregulated Affiliates* section of this chapter, or any other affiliates that begin occurring in the future.

Recommendation V-2 Perform a study to determine if affiliate transactions between AWWSC and regulated utilities should be done with other causal factors. (Refer to Finding V-2.)

Most utility organizations where Schumaker & Company has performed a management and operations audit of affiliate transactions, the Service Company has not used just number of customers for allocating charges when direct charges are not applicable. Many have used approximately 20 different causal factors. As an example, one of the companies used the following causal factors:

- ◆ Circuit miles of electric transmission lines
- ◆ Construction expenditures
- ◆ Electric peak load
- ◆ Generating unit MW capability/maximum dependable capacity (MDC)
- ◆ Gross margin
- ◆ Inventory
- ◆ Labor dollars
- ◆ Miles of distribution lines
- ◆ Millions of instructions per second (MIPS) (previously number of central processing unit (CPU) seconds used)
- ◆ Number of customers
- ◆ Number of employees
- ◆ Number of information systems servers
- ◆ Number of meters
- ◆ Number of personal computer (PC) work stations
- ◆ O&M expenditures
- ◆ Procurement spending
- ◆ Revenues
- ◆ Sales
- ◆ Square footage
- ◆ Total property, plant, and equipment

NJAW and AWWSC should perform a study to see if the dollars allocated by increasing the number of causal factors would be more appropriate for allocating costs.



VI. Internal Controls

A. Background & Perspective

We examined and determined New Jersey American Water Company (NJAW) has an internal system to provide assurance that its goals and objectives are accomplished at the lowest possible cost and maximum benefit to its ratepayers. Internal controls and a system to monitor internal controls is in place and operating. Internal controls give a true and accurate account of NJAW and its affiliates transactions and show transactions have been carried out with integrity, according to standards consistent with regulatory and legal requirements. In addition, Schumaker & Company reviewed the following:

- ◆ Sarbanes-Oxley (SOx) audit reports from the external auditors
- ◆ Correspondence between directors and officers and determined discussions are conducted:
- ◆ Internal controls and flow of information between NJAW and its affiliates.

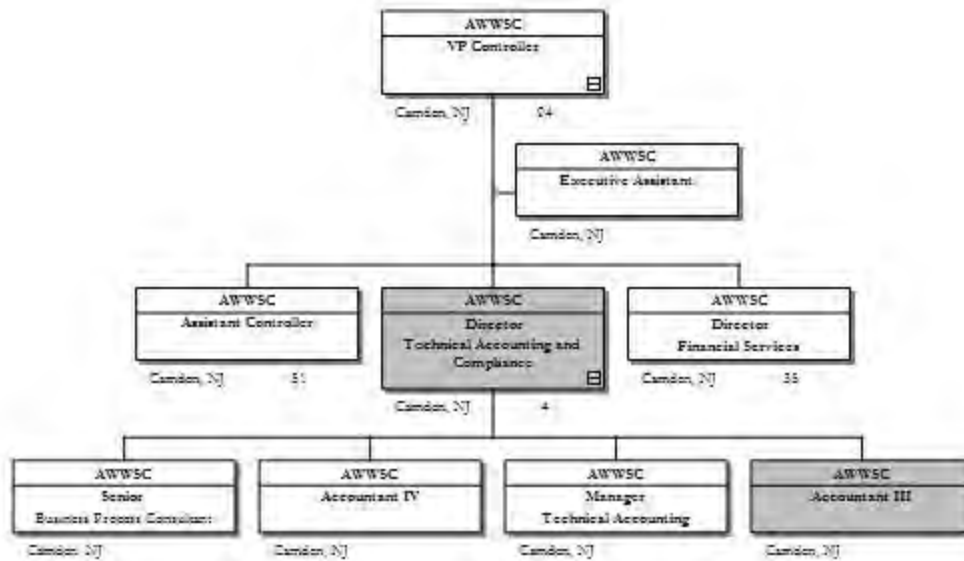
Note that internal controls are covered in this task area, while affiliate relationships and affiliate transactions are primarily covered in *Chapter V-Affiliate Relationships* and *Chapter IX-Affiliate Cost Methodologies*.

Compliance in the Controller's Organization

Internal controls are governed and monitored at the corporate level. However, each control point is maintained and in use at the business unit level throughout the American Water (AW) companies, including NJAW and the Service Company, American Water Works Service Company (AWWSC). Many internal controls are used and a subset of these are designated as SOx controls. The SOx controls are monitored and reviewed on a quarterly basis. They are monitored by the respective business process control owners as well as IT and Business Process Compliance groups as well as the Internal Audit Department (IA). The monitoring effort for the Accounting SOx controls is coordinated in the Controller's Organization, specifically with the Director of Technical Accounting & Compliance and an Accountant. This organization is shown in *Exhibit VI-1*.⁴⁷⁶



**Exhibit VI-1
Controller's Organization
as of April 2019**



Source: Information Response 52

The Director of Technical Accounting & Compliance and the associated Accountant III in (shown in *Exhibit VI-1*) coordinate SOx review and reporting for AW, with support from the business process control owners as well as IT and Business Process Compliance groups and the Internal Audit Department.⁴⁷⁷ The Director of Technical Accounting & Compliance reports to the AW VP Controller and has a department of 5 (1 position vacant) reporting to her. This area is responsible for the Financial SOx controls as mentioned, but also responsible for Technical Accounting Research, Rule Set for Segregation of Standards and etc., and business systems support specific software such as the software that supports the account reconciliation process. This chapter will focus on the Financial SOx controls' responsibilities in this area.⁴⁷⁸

SOx Controls at NJAW

AW uses three lines of defense in monitoring its key SOx controls; The Director of Technical Accounting and Compliance describes the SOx review and reporting as the 2nd line of defense for SOx and internal controls, the 1st line of defense being appropriately the operating controls maintained by the business process owners. The business owner of the control, such as VP Controller, is responsible for the operation and oversight of the control. The Compliance department (IT or Business) monitors those efforts and becomes involved when issues develop that need to be addressed. The 3rd line of defense for AW is IA. With these three lines of defense in place and operating effectively, there is assurance that the controls are operating appropriately, and as a result, material errors to AW's financial statements will be mitigated.⁴⁷⁹

As mentioned, the internal control owner is responsible for the maintenance and operation of the internal control. Some internal controls are specifically designated as SOx internal controls, and those controls number 162 throughout AW at the end of 2018. These are the controls that are monitored and reported through the SOx reporting process. The number of SOx controls actively monitored numbered 400 controls when SOx controls were initially put into place at AW in the early 2000s.¹ As AW has matured, the number of SOx internal controls has been reduced to the current number of 162 through an ongoing process of “control rationalization”. This is the process through which the key controls are determined and other controls, such as duplicative or operational controls, are eliminated from the SOx review and reporting process. The internal control itself was not necessarily eliminated.⁴⁸⁰

SOx Monitoring Process

To monitor the operation of a SOx controls, an automated email is sent regularly (monthly or quarterly for example) to all control owners regarding their specific control, to remind them of the control action needed and the need to report the status or results of that control action and result. On the quarter, responses are received from control owners regarding the operation of the control and a report compiled with those results. The results are documented in a system specific to housing SOx control information, referred to as the Governance, Risk Management and Compliance (GRC) system, a component of SAP.⁴⁸¹ The 302 Certification, the quarterly internal controls certification, is put together from the SOx control data residing in the GRC system. However, the GRC system does not follow up non responders automatically. This task is performed by the Accountant III in the Compliance organization. SOx control follow up takes the form of the Accountant III, accessing the GRC system to confirm receipts and noting missing receipts. The missing receipts are followed up manually by the Accountant III.⁴⁸²

Other internal controls that are not deemed SOx controls also exist and are utilized by a department but not relied upon as a SOx control for the 302 Certification purposes. If it is not a SOx control, it is not tracked through the SOx process but is still a valuable tool to verify and confirm data on an ongoing basis. An example of such a control is a daily cash account reconciliation in Treasury. The reconciliation is performed daily but is not deemed a key SOx control. The monthly cash reconciliation is tracked as a key SOx control and relied on for the 302 Certification. The daily cash reconciliation facilitates the monthly cash reconciliation but is not needed or tracked for SOx purposes itself.⁴⁸³

Listing of SOx controls

Of the 162 SOx controls currently tracked, those controls by area, are shown in *Exhibit VI-2*. SOx controls exist in 23 different areas around NJAW and AW.⁴⁸⁴

¹ / The Sarbanes-Oxley Act governing internal control reporting, passed in 2002.



Exhibit VI-2
SOx Controls by Area
April, 2019

#	SOX Abbrev	# of Ctrl's	Area/Subject
1	ACQ	3	Acquistion
2	AP	10	Accounts Payable
3	CC	3	Comptuer Control
4	COL	5	Collections
5	CON	9	Consolidation
6	CPB	4	Capital
7	CTX	8	Corp tax
8	CUS	2	Customer
9	EL	17	Exec Leadership
10	FR	12	Fnd Reporting
11	FSC	19	Financial Statement Control
12	HRA	3	HR
13	INV	3	Inventory
14	OM	1	Ops and Maint
15	OPS	3	Operations
16	PAY	5	Payroll
17	PCA	3	Project Capitle Asset
18	PRO	7	Purchasing
19	RC	14	Reg
20	SEC	5	Security
21	TM	2	Tresaurry Management
22	TR	18	Treasury
23	UPA	6	Utility Plant Accounting
		162	

Source: Information Response 30

This listing of the 162 controls shows the highest number of SOx controls are in the Financial Statement Control (FSC) area, totaling 19. Next is the Treasury area with 18 SOx controls, followed by the Executive Leadership area, totaling 17. Other areas with 10 or more controls are Accounts Payable (10), Financial Reporting (12), and Regulatory (with 14).⁴⁸⁵

SOx Controls throughout AW

Throughout the interview process, interviewees were asked about the specific SOx controls maintained and used in their area. That information was compared to the SOx listing received and the control noted to exist, and the interviewees knowledge of the control reflected the documented control. The

details of those conversations are described below in three sections, designated by area. Although this is not the type of review that would allow us to draw a conclusion with a percentage reliability, it can be stated that all interviewees spoke knowledgeably of the SOx controls in their area, the controls' function, and the process to validate the control for the SOx review process. All interviewees also understood that the SOx control was their responsibility to maintain and apply to task over which the SOx control had oversight.⁴⁸⁶ The next sections are those interview excerpts, specific to the SOx control.

SOx Controls – from Payroll

The Manager Payroll Time and Attendance discussed specific SOx control Pay.C05 where changes to the Master File are supported by signature of authorized person and date of change. A list of all of these changes is created and sent along with supporting documentation of the performance of the control to the GRC system.⁴⁸⁷

SOx Controls – from Accounts Payable

The Manager Accounting Operations, responsible for Accounts Payable referred to an automatic SOx control in the AP system called the 3-way match and is the 3-way match of Invoice, Purchase Order, and Receiving documents. Review of the SOx control listing shows this control to be AP.C21. The Manager Accounting Operations noted that nothing progresses past this point in the AP system until the 3-way match is completed.⁴⁸⁸

Another SOx control in the AP area mentioned by the Manager Accounting Operations was the Delegation of Authority control. This control monitors invoices without purchase orders. Those invoices are monitored specifically to determine that they are approved by the appropriate personnel before processing for payment. In the SOx listing, this control was noted as AP.C27.⁴⁸⁹

SOx Controls – from Plant and Regulatory Services

The Manager of Plant accounting noted that the Allowance for Funds Used During Construction (AFUDC) rate is confirmed with Regulatory Services monthly and monitored quarterly as specified by a SOx control. Review of the SOx listing shows this control to be UPA.C07.⁴⁹⁰

The Regulatory Services Group also mentioned this control in their interview. The Senior Manager Rates and Regulatory Services noted the Manager of Plant confirms the AFUDC rate and whether any changes have been made.⁴⁹¹

PwC Reports pertaining to Internal Controls over Financial Reporting

As a part of the year-end financial audit, the public accounting firm rendered an unqualified opinion on the internal controls of AW, stating in the first paragraph of their opinion statement, excerpted from the 2017 AW Annual Report:⁴⁹²



We also have audited the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control—Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO)

And in the second paragraph:⁴⁹³

Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control—Integrated Framework* (2013) issued by the COSO

The Report of Independent Registered Public Accounting Firm as reported in the Annual Report goes on to define and explain the limitations of internal controls in two paragraphs as shown in *Exhibit VI-3*, again excerpted from 2017 Annual Report.⁴⁹⁴

Exhibit VI-3
Report of Independent Registered Public Accounting Firm, Excerpt regarding Internal Controls
2017

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Source: Information Response 337

Although the language varies slightly from year to year, the intent is essentially the same during all the years of the audit period.⁴⁹⁵ That internal controls provide reasonable assurance, only, that all financial data is recorded appropriately and without material error, and that it is possible that the controls will fail given certain situations.

Outsourced SOx Testing

From 2011 – 2014 management testing of the SOx controls was performed in-house by an AW department called the Internal Controls Group. Eventually this group was incorporated into the Internal Audit Group. In 2014, a decision was made to outsource this SOx control testing work as IA was spending its time on internal controls testing and not fulfilling other traditional IA responsibilities.

The number of total audit reports produced by IA in 2011 – 2014 is substantially lower than reports produced 2015 – 2018 reflecting this move away from performing internal controls testing internally. In 2015, EY was selected as the vendor to perform management’s SOx testing. They have been performing this work since that time.⁴⁹⁶

Correspondence and Communication between Directors and Officers

The written and verbal correspondence between NJAWC directors and officers takes place in connection with the regularly scheduled Board Meetings. The written documentation was reviewed and noted to be appropriate.⁴⁹⁷ Interviews were held with various directors and officers and they were knowledgeable.⁴⁹⁸

Affiliate Internal Controls

The details regarding internal controls specific to affiliates and affiliate transactions is discussed elsewhere in this report. This Internal Controls section focused on the internal controls that are functioning in the AW environment and the effect on the NJAW operating company. For more details see affiliate billing section, allocations of costs and overheads and etc.

B. Finding & Conclusions

Finding VI-1 **An internal control process exists at AW Corporate and NJAW that minimizes the opportunity for irregular, illegal, and / or improper transactions.**

The internal control process at AW / NJAW was reviewed in detail and noted to be comprehensive with an understanding among all the control owners that was appropriate with maintaining an environment where controls exist, are used and maintained, and monitored.

Finding VI-2 **SOx control audits were performed by Internal Audit from 2011 through 2015 and then outsourced to a public accounting firm Ernst and Young in 2016, who is currently performing that work.**

The internal control review work has been performed both internally and externally over this 8-year management audit period. The work was performed internally by a dedicated group that was eventually incorporated into the Internal Audit Department. In 2015, this work was outsourced to EY.⁴⁹⁹ There has never been a material deficiency discovered during this process.⁵⁰⁰



Finding VI-3 Planning and SOx internal controls testing memos resulting from the annual SOx internal control audit work conducted by Ernst & Young is available to AW and maintained by Internal Audit.

During field work, which concluded mid-2019, it was learned in interviews that from 2011 to 2018, internal controls, specifically SOx controls, had been tested and evaluated in the earlier years by AW IA and then by Ernst & Young (EY) in the later years and through to today. Documentation of this work was requested in interviews but we were informed that IA has no records of the testing performed by IA or by EY. We were also informed that EY does not share any of the documentation created in the process of their work but communicates directly with the Audit Committee.⁵⁰¹

However, in the fact verification portion of the S&C engagement, the client provided annual planning memos from 2013 through 2019 documenting the SOx internal controls testing strategy for the corresponding years. These planning memos are precisely the type of document that is appropriate in this situation with sections in the planning memos specific to Materiality, Control Overview, Testing Overview, and Sampling Methodology as examples of the areas described. The planning memo is thorough and appropriate to the task. Also, provided was an example of specific control test memos for one control tested in each of the years 2013 through 2019. The company described that all SOx controls tested have similar control test memos created that document the audit work and findings of that specific control being tested. We have not verified test memos of other SOx controls, but the test memo format is standardized and could easily be applied to other SOx controls tested. This, along with the company's assertion that other SOx controls are similarly documented, leads us to believe that test memos exist for other SOx controls tested as well.⁵⁰²

So, with the provided 2013 through 2019 Planning Memos and the sample Internal Control SOx Testing Memos, as examples of other SOx control testing memos, appropriate documentation of the SOx internal control testing and results is and has been available to AW areas, as needed.⁵⁰³

C. Recommendations

Recommendation VI-1 Continue the process whereby documented planning and results of the EY SOx testing is shared with AW and documented results maintained by the Internal Audit Group. (Refer to Finding VI-3.)

As described in Finding VI-3, it was not clear initially that the SOx internal control planning and testing, currently outsourced to EY, was shared with AW, except at the Audit Committee level. However, subsequent to field work, information was received showing that in the 2013 through 2019 time-frame, planning memos for the SOx control testing did exist and are made available to AW annually. These were provided to S&C for review, post fieldwork, as well as an example of one SOx internal control test memo for a specific SOx control from each year 2013 through 2019. The planning memo summarizes the business process and technology internal controls testing program and includes information regarding Materiality, Control Overview, Testing Overview, and Sampling Methodology. This

information enables AW management to evaluate the operating effectiveness of key internal SOx controls and supports management's assessment of the control environment in accordance with the requirements of the Sarbanes-Oxley Act of 2002. The planning and test memorandums are maintained by IA and shared during weekly meetings with participation from PwC, EY, IA, and the Business and TI compliance groups. Control testing results and status are reported to the Disclosure and Audit, Finance & Risk Committees quarterly. Exceptions in the control performance are tracked in a Summary of Aggregated Deficiencies file.⁵⁰⁴

The planning and testing results documentation, as well as the process as described, are appropriate to maintaining and overseeing the outsourced AW SOx internal control program. The process and resulting documentation should be continued and improved, as is possible, going forward.⁵⁰⁵

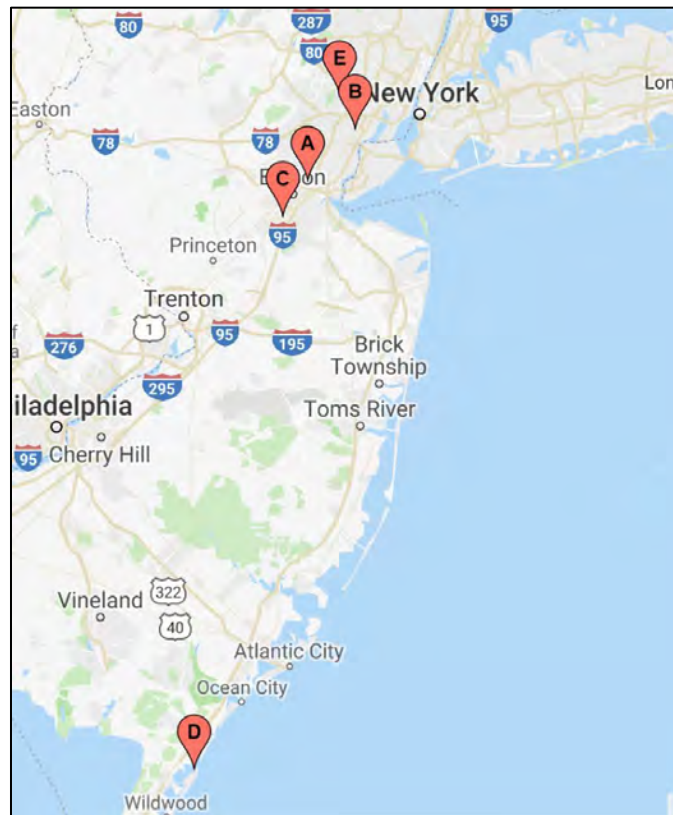


VII. Market Conditions

A. Background & Perspective

NJAW's customer growth strategy is primarily focused on growing its regulated customer base to promote long-term cost savings for customers through the ability to spread fixed costs over a larger group and further enhance the economies of scale in its supply chain.⁵⁰⁶

Exhibit VII-1
Location of American Water Market Based Ventures
Supported by NJAW Regulated Business
Map Prepared July, 2019



Source: Information Response 34 and BatchGeo Maps

NJAW has supported certain market-based ventures with the intent to grow and improve the regulated business. In past years, NJAW's regulated business has supported (with appropriate measures to allocate the regulated business costs to the market-based entity) the following market-based ventures, locations of which are shown above in *Exhibit VII-1*.⁵⁰⁷



- ◆ **(A) Edison Township**---The Township entered into a 20 year Operations and Maintenance Agreement with the Edison Water Company, a subsidiary of American Water Enterprises, LLC (AWE), in 1997. The Agreement between Edison Township and Edison Water Company was extended a second time to accommodate the Township’s procurement timeline for alternative operations. The Agreement then formally expired on 12/31/19. The Township has since brought water utility operations in-house. New Jersey American Water is no longer involved in operations of the Township’s water system;
- ◆ **(B) City of Elizabeth**---The City entered into a 40 year Operations and Maintenance Agreement with Liberty Water Company, a subsidiary of AWE, in 1998. Additionally, the City entered into a 20 year Operations and Maintenance Agreement with E’Town Services, LLC, a subsidiary of AWE;
- ◆ **(C) City of New Brunswick**---American Water Operations and Maintenance, Inc. (AWO&M), a subsidiary of AWE, contracted with the City for approximately one year in 2014 / 2015. This agreement was not renewed;
- ◆ **(D) Borough of Avalon**---American Water Services, Inc., a subsidiary of AWE, operated and maintained the Borough’s water, wastewater and storm water system from 2002 to 2011. The Borough now contracts with Middlesex Water Company for Operations and Maintenance services; and
- ◆ **(E) Village of South Orange Township**---AWO&M entered into a 10 year agreement with the Village that commenced on January 1, 2017. When the Village decided to part ways with their then current water supplier and contract operator, the East Orange Water Commission, American Water offered a full service solution of NJAW providing bulk-water sales service via a 30 year Agreement, and the market-based business, AWO&M, providing operations and maintenance services.

B. Findings & Conclusions

²Finding VII-1 NJAW’s strategy to expand its regulated business by adding new customers in its existing service territory or by adding additional customers through the acquisition of assets of other entities, when the opportunity occurs, is sound.

NJAW has included its strategy for growth in its Company’s Growth Vision as shown in *Exhibit VII-2* below.⁵⁰⁸

**Exhibit VII-2
NJAW's Growth Vision
as of May, 2019**

Growth | Everyone's Responsibility

Capital investment | Organic Customer Growth | Growth by Acquisition

- Prudent capital investment in aging infrastructure
- Meeting the water supply and delivery needs of growing communities
- Acquisition of municipal and private water & wastewater utilities



Benefits of Growth

- Attracts Low-Cost Financing
- Opportunities for Employee Advancement
- Leverage Existing Resources & Supply
- More customers over which to spread fixed costs

Source: Interview 2

C. Recommendations

None



VIII. Recommendations from Prior Audit

We reviewed the prior audit report and comments on the continued viability of recommendations resulting from the previous management and operations audit of NJAW conducted by NorthStar Consulting Group (NorthStar) in Docket No. WA09070510.

E. Background & Perspective

In the Order of Implementation Docket NO. WA09070510 it indicates that:⁵⁰⁹

The Company expressed serious concerns with many of the findings, conclusions and recommendations in the Final Report, noting that it was unable to fact-check the document due to a lack of citation or attribution in the report. The Company felt that NorthStar's commentary in the report was unfair; that in many cases the findings were simply inaccurate; and that the Executive Summary of the report, in particular, was "highly critical and unfairly negative" in a way that is not reflective of the actual, substantive recommendations made by NorthStar. However, the Company stated that despite its serious concerns with the factual basis of the report and its "unfairly negative and unbalanced" presentation, the Company elected to forego further comments on the specific findings and conclusions that were not tied to a specific recommendation.

The Company responded to the specific recommendations made by NorthStar and provided further commentary on various statements made within the Final Report. The Company concurred with the majority of the 55 recommendations contained in the Final Report, and indicated that it had, in fact, already complied with or otherwise implemented several of the suggested measures and procedures, and had begun implementing many others. As summarized in the Audit Recommendation and the Party Position section of this Order, the Company ultimately agreed to implement, in whole or in part, 52 of the 55 recommendations.

With respect to three of the recommendations -- 111-3, 111-6 and VIII-4 -- NJBPU Staff agrees with the Company and does not recommend implementation by the Company at this time. Staff recommends implementation of the any of the remaining 52 recommendations, not already implemented subject to the specific modifications described above.



Below is a detailed discussion of the comments previously filed by the Company and Rate Counsel as they relate to specific NorthStar recommendations. Additionally, the position of Staff is stated with respect to each of the audit recommendations that the Company did not initially agree to implement.

Section III Executive Management and Corporate Governance

Recommendation 111-1/Revise AWK’s (“American Water Works Company”) and NJAWC’s long-term corporate objectives and strategies to make them more explicit relative to their responsibilities to meet the future needs of NJAWC ratepayers relative to the cost of water. (Refers to Findings 111-1, VI-3, VI-6, and VI-7)

The Company conceptually accepted this recommendation in part as it applies to NJAWC, and *rejected this recommendation as it applies to AWK* stating that the companies are two separate corporate entities and as such, have separate corporate objectives and strategies.

NorthStar found that the corporate level mission statement and associated strategies and goals are appropriate to both its regulated subsidiaries and its non-regulated operations. According to NorthStar, there is no conflict between regulated and unregulated operations at the mission/vision goal level.

Staff agrees with NorthStar’s finding that NJAWC’s mission of creating sustainable water solutions and its strategies made no mention of cost, even value of service, to the customers. Also none of the ten “Key Elements” supporting NJAWC’s new strategic initiatives specifically address cost to the customer. Staff agrees with the Company that this recommendation should be implemented only as it applies to NJAWC. Rate Counsel did not take a position on this specific recommendation.

Recommendation 111-2/Expand the number of KPIs (key performance indicators) to track performance and to address all NJAWC corporate goals. (Refers to Finding 111-2)

NJAWC conceptually accepted this recommendation, stating that it is in the process of refining and aligning its goals, measures, and targets across the business with corporate strategies and objectives.

Recommendation 111-3/Expedite the requirement that all independent AWK board of directors (“BOD”) members own a minimal number of AWK shares within a reasonable period of their joining the BOD. (Refers to Finding 111-5)

The Company rejected this recommendation, stating that it does not apply to NJAWC and that this recommendation is not properly within the scope of the Audit as it recommends structural changes within the parent company that have no bearing on the operation or governance of the Company. NJAWC went on to state that the report fails to recognize that NJAWC and the parent company AWK (American Water) are two distinct and separate entities.

Staff agrees with NJAWC that this recommendation does not apply. Rate Counsel did not take a position on this specific recommendation.

Recommendation 111-4/Add a member to AWK’s Board of Directors who has extensive experience in operating a utility in New Jersey or extensive experience in New Jersey utility regulation who would represent the interests of NJAWC ratepayers. (Refers to Finding 111-6)

NJAWC rejected this recommendation because the Company believes both its board and the AWK board are made up of members who have knowledge, experience, and skills to provide high quality corporate governance. The Company also believes the recommendation is inconsistent with applicable securities laws and in conflict with a Board member’s legal and fiduciary duties to the parent company shareholders.

NorthStar finds that none of the members of AWK’s BOD has extensive utility regulatory or utility operating experience in New Jersey. Since NJAWC provides about 25 percent of AWK’s operation revenues, Staff agrees with NorthStar that NJAWC ratepayers should have at least one member of the AWK 800 who is knowledgeable about operating a utility in New Jersey and can serve as an advocate, and Staff recommends that NorthStar’s recommendation be taken into consideration.

Rate Counsel did not take a position on this specific recommendation.

Recommendation 111-5/Consider adding a second member of senior management to the AWK BOD. (Refers to Finding 111-6)

NJAWC accepts the concept of this recommendation, despite the fact that adding company management to the board of directors of a publicly traded company is contrary to best practices and in opposition to the direction most corporations are heading, and despite the fact that Company believes that this recommendation, directed as it is at AWK, is not properly within the scope of the Audit. The Company disagrees with the premise of NorthStar’s Finding 111-6, relating to the composition of the AWK BOD, that only a person who has worked for a New Jersey utility can bring the appropriate perspective and experience to the AWK Board.

The CEO is the only member of senior management on the AWK BOD. Staff agrees with NorthStar that the BOD may benefit from having a second member of senior management in its membership to assure that it has the input from two members of senior management on strategic issues and can be useful in the planning for management succession. Rate Counsel did not take a position on this specific recommendation.

Recommendation 111-6/Conduct the quarterly Business Performance Report meetings and the NJAWC quarterly Board of Directors Meeting simultaneously. (Refers to Finding 111-8)

The Company rejected this recommendation. The Company states that it continually looks to conduct critical business meetings in the most efficient manner possible. However, the two meetings referred to in the above recommendation are each substantial time commitments in their own right. The meeting agendas are typically full with little commonality. The Company noted that implementation of this recommendation was a physical impossibility.



Staff agrees with the Company's position in terms of possible disruption to the business and difficulty in coordinating the schedules of such a large number of senior management on a regular basis. Rate Counsel did not take a position on this specific recommendation.

Recommendation 111-7/Develop effective service level agreements to cover services provided by affiliates to NJAWC. (Refers to Findings 111-9, IV-7, V-1, X-1 and XIII-6)

NJAWC conceptually accepted this recommendation. It is the Company's position that NJAWC has agreements with affiliates, and those agreements have been reviewed and approved by the BPU as required by statute. Those agreements include the BPU-approved agreement between NJAWC and AWWSC.³ NJAWC accepts the concept of using service measures and targets to track and measure whether appropriate value is received.

Rate Counsel found significant merit in NorthStar's recommendation that NJAWC develop effective service level agreements for services provided by affiliates to NJAWC. NorthStar notes that NJAWC has the highest water rates among the Class A water utilities in New Jersey. While several possible causes for this are suggested in the Audit, Rate Counsel believes that the Audit identified several areas where affiliate relationships may not afford proper protection to New Jersey ratepayers. This appears to be a significant issue with regard to the American Water Works Service Company ("AWWSC"). NorthStar in its findings reported that NJAWC did not have effective service level agreements to ensure that it has control of the costs and quality of services it receives from AVVWSC. Also, NorthStar found that NJAWC did not make effective challenges to AVVWSC budgets or the costs of AVVWSC services. Additionally, there are apparently limited opportunities for NJAWC to "push back" on services or cost assignments from AWWSC. Rate Counsel agrees with the various recommendations NorthStar has made to reduce costs. Rate Counsel recommends that the Board adopt NorthStar's recommendations and order the Company to determine the value of services received from AWWSC, and optimize and control costs.

NorthStar found that NJAWC did not have effective service level agreements ("SLAs") to ensure that the Company has control over costs and quality of services from affiliates like AWWSC. NorthStar also found that SLAs do not exist or are lacking in necessary detail for most support services being provided to NJAWC by AVVWSC. Where an agreement does exist, the agreement for support services doesn't cover all of the services normally identified as support services.

The Company adopted a new Business and Accounting Manual in 2014 that the Company maintains reflects the many enhancements achieved by the business since 2010, as well as the benefits of the Company's new SAP system. The Company's current policies and practices are adequate, and the recovery of Service Company costs is always subject to Board scrutiny in base rate proceedings. Staff believes that no further action is required to achieve the objectives of this recommendation.

³ / The Service Company Agreement is the subject of a pending petition for reapproval by the Board, in DocketNo. W01B050474.

Section IV - Organization Structure

Recommendation IV-1/Develop a clear and consistent policy for defining the administrative and functional responsibilities of NJAWC and AWWSC officers and senior management. (Refers to Finding IV-2)

The Company disagrees with NorthStar's finding which states that AWK does not have a clear and consistent policy for defining the administrative and functional responsibilities of NJAWC and AWWSC officers and senior management. The Company states that it has undertaken a number of structural and organizational changes since 2010 that have enhanced the effectiveness of its management structure.

NorthStar found that while NJAWC is a separate legal entity, certain of its organizational resources and managerial positions of responsibility are integrated with AWWSC. Also, while most of the NJAWC senior management report administratively and functionally to the NJAWC president, some report only functionally to him and administratively to an AWWSC officer.

The Company has undertaken a number of structural and organizational changes since 2010 that the Company maintains have enhanced the effectiveness of its management structure. Staff has determined, based on its review of the additional information that the Company's current structure, policies and practices are adequate and no further action is required to achieve the objectives of this recommendation. Therefore, Staff supports the Company's position. Rate Counsel did not take a position on this specific recommendation.

Recommendation IV-2/Develop policies and procedures that address affiliate relationships covering topics that include:

- ◆ Compliance with regulatory requirements
- ◆ Tariff transactions between affiliates
- ◆ Discriminatory practices among affiliated and non-affiliated companies
- ◆ Confidential information transfers between NJAWC and its affiliates
- ◆ Contracts for products and services between NJAWC and its affiliates (Refers to Findings IV-3 and VIII-17)

NJAWC conceptually accepts the general intent, but does not accept the exact wording or scope of the recommendation. Based on the Company's interpretation of the above recommendation, in most cases there are specific policies and procedures in place already that cover the activities described above.

Rate Counsel addressed this recommendation and agrees with NorthStar that the legal entitlement and nature of NJAWC's affiliate relationships are prescribed by N.J.S.A 48:3-7 which mandates generally that contracts involving the expenditures of a sum exceeding twenty- five thousand dollars, made by any public utility and an affiliate owning, holding, controlling five percent or more of the capital stock of the utility shall be submitted to the Board for approval. To the extent affiliate relationships exist but the Board either has not approved an agreement, or the agreement has been deemed by NorthStar to be



inadequate, Rate Counsel recommends that the Board order NJAWC to submit adequate affiliate agreements for review as soon as possible.

NorthStar found that NJAWC did not have policies and procedures that dealt with affiliate relationships or transactions. NorthStar identified nine agreements between NJAWC and its affiliates which may have required BPU approval but found the Company only had actual records of approvals or dates of approvals for only two of the nine contracts. N.J.S.A 48:37.1 requires Board approval of certain contracts between a public utility and its parent or affiliates to ensure that the contracts conform to the law and that the prices charged are fair.

The Company has undertaken a number of structural and organizational changes since 2010 that the Company maintains have enhanced the effectiveness of its management structure. The Company also convened a Policy Review Project, which was made up of a team of business leaders from across the enterprise and led by the General Counsel for the Northeast Division of AWK, which includes NJAWC. The Policy Review Project team updated and streamlined many policy and practice documents, and the Company asserts that the improvements to the policy and practice review recommended by the Project team are embedded in the business. Staff agrees that based on these changes, the Company's current structure, policies and practices are adequate and no further action is required to achieve the objectives of this recommendation.

Recommendation IV-3/Obtain any required BPU approvals of all contract agreements between NJAWC and affiliate entities. (Refers to Finding IV-4)

NJAWC believes it has obtained timely BPU approval, as needed, for contracts between NJAWC and other affiliate entities. NJAWC believes it complies with all statutory and regulatory laws and rules relating to agreements with its affiliate entities.

NorthStar found a number of functions performed by AWWSC for the regulated business segments were not specifically identified within the contract agreement. The services are not specifically identified in the NJAWC/AWWSC contract and are provided as "such other services as Water Company and Service Company may agree."⁴ Rate Counsel agrees with NorthStar that the BPU has not approved provision of these additional services. Rate Counsel agrees that NorthStar's recommendation be implemented as written.

Subject to the Board's review of the Company's pending petition for approval of its Service Company Agreement in Docket No. W013050474, Staff has concluded that no other agreements between NJAWC and any affiliate require any further action by the Board. Staff believes that no further action is required for this recommendation at this time.

⁴ / NorthStar's NJAW Final Audit Report, December 12, 2010, Findings and Conclusions IV-4.

Recommendation IV-4/Obtain competitive bids for services provided by AWWSC. (Refers to Findings IV-5, IV-6, and XIII-7)

NJAWC rejects this recommendation to the extent it calls for competitive bidding for the entire AWWSC contract, or alternatively for every function and service provided by the Service Company to be separately bid competitively. According to the Company, an attempt to competitively bid a majority of the AWWVSC activities would not be feasible or cost-effective.

The Company asserts that it utilizes competitive bidding when appropriate and when required by statute, regulation or other governmental mandate.

NorthStar found that NJAWC did not obtain competitive bids for services provided by AVVWSC, and NJAWC did not make effective challenges to AWWSC budgets or charges for services. Most of the service contracts between NJAWC and its affiliates did not have termination dates and no term limit was indicated. NorthStar determined that the services provided via AVVWSC agreements were not competitive in terms of “market conditions and a potential for “cross- subsidization” between NJAWC and its affiliates exists.

Rate Counsel agrees with NorthStar’s recommendation that NJAWC obtain competitive bids for affiliate service activity. In addition Rate Counsel agrees with the approach but also thinks it is important to consider the size of NJAWC and evaluate the benefit of providing some of the services internally. Staff agrees with NJAWC that it would not be cost effective to obtain competitive bids for all service company activities. Staff recommends that the Company continues, as it claims to be currently doing, to utilize competitive bidding when appropriate or required by statute, regulation or other governmental mandate.

The Company has undertaken a number of structural and organizational changes since 2010 that the Company maintains have enhanced the effectiveness of its management structure. Staff has concluded that the Company’s current structure, policies and practices are adequate to ensure that customers are receiving cost effective service. All of the costs associated with the services provided by the AWWSC are subject to the ongoing review and approval of the Board in base rate proceedings. The Company currently utilizes competitive bidding effectively, where appropriate. Based on these changes, Staff has determined that no further action is required to achieve the objectives of this recommendation.

Recommendation IV-5/Have the Internal Audit director report administratively to a senior officer other than the CFO and strengthen the Internal Audit function. (Refers to Findings IV.S, IV-9 and IV-10)

NJAWC partially accepts and partially rejects this recommendation, in part because the Company believes the recommendation fails to draw the distinction between NJAWC and the parent company.



NJAWC disagrees with NorthStar's Finding IV-8, which states that the administrative reporting relationship of the AWK Internal Audit director to AWK's chief financial officer is not appropriate. The Company respectfully declined to make any changes to the existing reporting relationship.

NorthStar's concern was that the Internal Audit function reports administratively to AWK's chief financial officer ("CFO") who performs the annual performance review of the Internal Audit director. The Internal Audit function is therefore not independent of its major audit focus areas of finance and accounting. A potential conflict of interest exists because the internal audit director cannot be expected to perform independent reviews of operations that report to the person responsible for performing his performance review."⁵

The Company has undertaken a number of structural and organizational changes since 2010 that the Company maintains have enhanced the effectiveness of its management structure, including the effectiveness of the Internal Audit function. *Based on its review, Staff has determined that there is no basis for the Board to require the Company to change the administrative reporting relationship between the Internal Audit function and the CFO, so that portion of the recommendation is rejected.* The Company's current structure, policies, and practices appear to be adequate, and Staff has concluded that no further action is required to achieve the objectives of this recommendation.

Rate Counsel did not take a position on this specific recommendation.

Recommendation IV-6/Determine if NJAWC ratepayers have paid for the Sarbanes-Oxley Act of 2002 ("SOX") compliance and testing that was disallowed as a condition of the RWE Rate Order. (Refers to Finding IV-13)

NJAWC accepts this recommendation and believes the determination that customers have not paid any inappropriate SOX costs has been made in prior rate proceedings.

SOX is a piece of legislation created for the purpose of protecting investors from accounting fraud, specifically those that are related to shares sold by publicly traded companies. SOX mandates strict reforms with regards to how corporations make financial declarations. The law mandates increased vigilance with regards to disclosures related to the financial state of a company, particularly when it comes to earnings and profitability.

NorthStar found that "the initial development and implementation of the SOX compliance program were not part of the revenue requirements and thereby were not funded by ratepayers of NJAWC. NJAWC could not explain how the internal control and remediation initiatives were determined to be complete. Given the high level of urgency during 2009 to achieve year-one compliance, these costs appear to be initial internal control and remediation activities."⁶

⁵ / NorthStar's NJAW Final Audit Report, December 12, 2010, Findings and Conclusions, IV-8.

⁶ / Audit Report, December 12, 2010, Findings and Conclusions IV-13

The Company states that it has not sought recovery of any SOX startup costs in any rate proceeding or other proceeding. Consistent with the Board's Order,⁷ NJAWC represents that it will not request recovery of any of these costs from customers. NJAWC performed a review of all rate case documents and orders entered since the above captioned Board Order showing that the Company has not requested recovery of these costs, nor have any of these costs been included in the revenue requirement calculation supporting the rates charged to customers pursuant to the BPU Orders in its base rate proceedings.

Rate Counsel agrees with NorthStar that if it is determined that NJAWC customers paid for SOX compliance and testing expenses that were disallowed by the Board in the RWE divestiture proceeding, the Company should be directed by the Board to determine the exact amount of SOX expenses paid by customers and refund to customers any amounts improperly included in rates in Docket WR08050210 or any subsequent proceedings.

Board Staff agrees with Rate Counsel's position that if NorthStar's claim that NJAWC customers may have paid for SOX compliance and testing expenses that were disallowed by the Board in the RWE divestiture are determined to be true, the Company should be directed by the Board to determine the exact amount of SOX expenses paid by customers and refund to customers any amounts improperly included in rates in Docket WR08050210 or any subsequent rate proceeding.

Section V - Human Resources

Recommendation V-1/Continue to negotiate the elimination of substantial sick banks which have accrued under prior union employee benefits programs and replace them with short-term disability insurance. (Refers to Finding V-7)

The Company accepts this recommendation, but notes that it is required to bargain in good faith with its collective bargaining units. Good faith requires that the Company approach the negotiations without pre-judging any particular issue or outcome. In recent negotiations, the Company and two of its unions have agreed to replace sick banks with an alternative. This was done prior to the start of the Audit, and the Company intends to continue to approach the ongoing negotiations in good faith.

Rate Counsel did not take a position on this specific recommendation. Staff recognizes the Company's obligation to negotiate in good faith with its unions but supports NorthStar's recommendation to the extent that this would result in cost savings for ratepayers.

⁷ / Board's Order in WM06050388, In the Matter of the Joint Petition of Thames Water Aqua Holdings on Behalf of Itself and its Parent Company. RWE Thames Water Aqua US Holdings, Inc. Thames Water Holdings, Inc.. American Water Works, Inc. Thames Water Holdings, Inc., E-Town Corporation, NJ-American Water Company. The Mount Holly Water Company. and Applied Wastewater Management Inc. for Approval of a Proposed Transaction Involving, Among other Things, the Sale by Thames Aqua Holdings of Up to 100% of the Shares of the Common Stock of American Water Works Company, Inc. in One or More Public Offerings - Proposed Settlement and Stipulation, June 14, 2007.



Recommendation V-2/Continue steps to improve succession planning, professional development and performance review processes. (Refers to Finding V-9 and V-10)

The Company accepted this recommendation. Rate Counsel did not provide specific comments on this section. Staff supports NorthStar's recommendation as written.

Recommendation V-3 Develop and implement processes for determining appropriate staffing requirements, spans of control and layers of management. (Refers to Finding V- 11)

The Company accepted this recommendation. Rate Counsel did not provide specific comments on this section. Staff supports NorthStar's recommendation as written.

Section VI - Strategic Planning

Recommendation VI-1/Continue the implementation of the Value Delivery Strategy ("VOS") process, including completing the risk and gap analysis, developing a prioritization process, building action plans and fully linking the VOS to the budgeting process, KPIs and performance goals for NJAWC. (Refers to Findings VI-1, VI-4, VI-5 and VI-8)

The Company accepted this recommendation. The Company reported that it began the development of its Value Delivery Strategy approximately six months or more prior to the commencement of the Audit. The Company represents that it has invested a significant amount of time and effort into the development and implementation of the VOS. This effort includes extensive stakeholder outreach, which commenced at the start of the process and will be repeated periodically in the future. The level of effort and cost involved in developing and implementing a successful corporate strategy is not "nominal" in any sense. The Company states it has a substantial process in place to ensure that the VOS is comprehensive, that all functions are involved, and that goals, objectives, measures and performance indicators are aligned throughout the organization and consistent with corporate goals and the needs of the business. A key element of the VOS is ensuring the delivery of high value water and wastewater service to customers.

Rate Counsel's comments on this issue agree with NorthStar's Statement that "NJAWC is aware that rates will be increasing, but nowhere is there evidence of a focus on consideration of rate impacts in decision making, or a drive to mitigate rate impacts."⁸Rate Counsel finds this is a core issue with this Company, and it is paramount to customers that a focus on rates must be incorporated into every level of planning and operations throughout the organization. While there is no specific recommendation regarding this issue, Rate Counsel also believes this must be part of the recommendations regarding the VOS process and in particular, implementation of Recommendations 1, 3 and 5 on page VI-17 of the Final Report. Staff supports NorthStar's recommendation as written.

⁸ / Rate Counsel's Comments, March 11, 2011, at 9.

Recommendation VI 2/Link New Jersey consumer and public education messages to align with VOS goals. (Refers to Finding VI-9)

The Company accepted this recommendation.

Recommendation VI 3/Link employee engagement and training, and other human resources activities with the VOS goals. (Refers to Finding VI-10)

The Company accepted this recommendation.

Recommendation VI-4/Revise the AWK treatment of Business Development (BD) costs to an “as requested/fee” basis, and consider using non AWK providers of training and other Business Development services. (Refers to Finding VI-11)

The Company conceptually accepted this recommendation.

The Company represents that it will investigate alternatives to its current approach of allocating Business Development (“BO”) costs. The Company notes, however, that its current approach to allocating SD costs was selected because it is highly conservative and because much of the work associated with developing new business precedes a determination as to whether or not the ultimate customer is served by the regulated utility business or the nonregulated side of the business. The Company feels its existing approach provides customers with ample assurance that such costs are being fairly apportioned. NJAWC will continue to use outside vendors for training, education and other services when appropriate and cost effective, consistent with this part of the recommendation.

NorthStar found that AWK business development efforts are of minimal value to NJAWC ratepayers; therefore, Staff supports the Company’s position. Rate Counsel did not provide specific comments on this section.

Recommendation VI-5/Modify the KPIs for NJAWC to reduce redundancies, focus on controllable activities and clearly link with the VOS process and develop action plans for achieving performance improvements. (Refers to Findings VI-12 and VI-13)

The Company conceptually accepted this recommendation.

The Company represents that it will continue the process of optimizing its key performance indicators to ensure success across the business. The Company states that part of the VOS process, which was begun in 2009, includes reducing redundancies, emphasizing activities that provide results, and aligning performance Indicators with other aspects of the VOS. Action plans will be developed where appropriate and the effort involved is commensurate with achieving measureable performance improvements.



Recommendation VI-6/Install a process to ensure that SSC provides low cost, efficient, competitive, and valuable support services to NJAWC (Refers to Finding VI 15)

The Company conceptually accepted this recommendation.

According to the Company, the Shared Services Center (“SSC”) has a cost-effective process in place to help ensure that the SSC provides appropriate support services to the affiliates it serves, including NJAWC. The Company accepts the concept of this recommendation because the description of the desirable support services in the recommendation, - “low-cost, efficient, competitive, and valuable”-- is a verbatim quote from the materials used by the SSC and provided to NorthStar at the conclusion of the audit process. The goals described in the recommendation are the goals the SSC aspires to as described in the SSC “vision statement”

NorthStar cites from. The Company asserts that such an aspiration should not be reduced to a legal requirement. Staff supports the Company’s position. Rate Counsel did not provide specific comments on this section.

Recommendation VI-7/Implement the Business Transformation project within budget and on schedule. (Refers to Findings VI-16, V-2, VI-8, VIII-5, VIII-10, VIII-24, X-10 and XII-3)

The Company accepted this recommendation in concept to the extent it applies to NJAWC.

The Business Transformation (“BT”) project is subject to the Capital Investment Management Committee policy. As such, the Company asserts that the BT project budget and timeline is scrutinized regularly, and any changes must meet the requirements of the policy. The project is currently in the “blueprint” stage, with considerable work ahead to finalize the business requirements and refine the project scope and timeline. Staff supports the Company’s position. Rate Counsel did not provide specific comments on this section.

Section VII - System Operations**Recommendation VII-1/Take steps to improve the asset management systems, tools and processes. (Refers to Finding VII-1)**

The Company accepts this recommendation and represents that it will continue to refine and improve its processes which relate to asset management. Staff supports NorthStar’s recommendation as written. Rate Counsel did not provide specific comments on this section.

Recommendation VII-2/Revise the models which NJAWC uses to evaluate and prioritize projects and programs to give additional consideration to asset condition. (Refers to Finding VII-2)

The Company accepts the concept behind this recommendation. The Company believes that asset condition is a key component of its prioritization model, and NJAWC's model is balanced appropriately. However, if further weight needs to be given to asset condition, the Company will make the appropriate adjustments when necessary. Such adjustments are likely to be considered within the scope of an Enterprise Asset Management implementation, which is part of the scope of the Business Transformation Project, a large, high priority, enterprise-wide effort.

Staff supports the Company's position. Rate Counsel did not provide specific comments on this section.

Recommendation VII-3/Implement a computerized design tool that includes at a minimum: a compatible units feature; and interfaces with materials, Power Plant and graphical design and mapping software. (Refers to Finding VII-3)

The Company accepts the concept behind this recommendation. During the audit process, the Company was in the process of updating its design tools as part of the overall BT process. Additionally, the Company states that it has periodically upgraded its design tools when appropriate and cost justified in the past without necessarily waiting for an enterprise-wide solution to be developed. The Company expects its design tool to continue to include appropriate features, including those described in this recommendation if appropriate. The Company believes this recommendation is already being met. The Company notes aspects of recommendations that fall within the scope of the BT project should be considered part of that large, high priority, enterprise-wide effort.

Staff supports the Company's approach. Rate Counsel did not provide specific comments on this section.

Recommendation VII-4/Implement systems to enable NJAWC to capture and compare actual work units completed to those designed and budgeted. (Refers to Finding VII-4)

The Company conceptually accepted this recommendation. The ability to implement an integrated enterprise level system that captures and compares actual work units completed to those planned and budgeted is expected to be part of the BT project.

Staff supports the Company's approach. Rate Counsel did not provide specific comments on this section.



Recommendation VII-5/Benchmark detailed work performance metrics against other AWK companies and other water companies. (Refers to Finding VII-5)

The Company accepts this recommendation. The Company represents that adoption of BT will help to support this recommendation in the future as the ability to compare defined units of “work and associated cost will be enhanced in detail and in definition.

Staff supports the Company’s approach. Rate Counsel did not provide specific comments on this section.

Section VIII - Customer Service

Recommendation VIII-1 Perform an analysis of the relative costs of in-house versus outsourced call center operations for NJAWC. (Refers to Finding VIII-6)

The Company accepts this recommendation and will work with Staff to develop the appropriate analysis. The Company states that American Water Customer Service Center provides many functions besides call center services, and comparable comprehensive services may be difficult to benchmark in the marketplace.

Staff supports NorthStar's recommendation, and will work with the Company to develop the appropriate analysis. Rate Counsel did not provide specific comments on this section.

Recommendation VIII-2/Discontinue 24/7 operation of the call center. Determine the system/staff necessary to transition after hours' emergency calls to the local level. (Refers to Finding VIII-7)

The Company disagrees with NorthStar's assertion that operations of the call center 24 hours per day, seven days per week is unnecessary. *The Company therefore rejects the first part of this recommendation.* The Company conceptually accepts the second part of the recommendation and will review its systems and staff as part of its ongoing effort to optimize its operations and provide high-value, cost-effective service. The Company notes, however, that specifically studying one discrete issue such as transitioning emergency calls to the local level could generate costs substantially in excess of potential savings.

Rate Counsel generally supported the recommendations in this section. Rate Counsel specifically noted that the Final Report recommended further analysis of the continued operation of a 2417 call center, and recommended that the Board revisit" the economic analysis of the "costly proposition" that the Board's current meter testing requirements impose on water utilities and their ratepayers. Staff agrees with NorthStar's recommendation to determine the staff necessary to transition after hours' emergency calls to the local level.

Recommendation VIII-3 Determine whether call center staffing levels could be reduced while maintaining the overall average speed of answer (ASA) target and consider changing the ASA target. (Refers to Findings VIII-8 and VIII-9)

NJAWC accepted this recommendation.

Recommendation VIII-4/Shorten the window between meter read and billing. (Refers to Finding VIII-12)

The Company rejected this recommendation. The Company disagrees with NorthStar's finding that the window between meter read and billing is too long. The Company maintains that the window between the meter read and billing is approximately three days. The first day is required for quality control before



the meter read data is transmitted, the second day is required for data to be transmitted. Data transmittal times are lengthy due to the requirements of current business systems and current information technology.

The Company maintains that the third day is required for quality control when the billing data is received. NJAWC asserts that it is not currently feasible to compress this time period further without the risk of increased billing errors, regardless of the level of effort or incremental cost expended. The Company notes that its current practice complies with all existing BPU regulations with regard to metering and billing.

Staff agrees with the Company's position. Rate Counsel did not provide specific comments on this recommendation.

Recommendation VIII-5/Implement a system that integrates the customer information system with the scheduling, monitoring and performance of new service work. (Refers to Finding VIII-16)

The Company accepts this recommendation. The Company expects this functionality to become available as part of the Customer Information System ("CIS") implementation phase of the BT project. A CIS implementation is a high priority for the business, and would entail a significant effort and cost even if it were not part of the existing BT project. Staff supports NorthStar's recommendation as written. Rate Counsel did not provide specific comments on this section.

Recommendation VIII-6/Take steps to improve nonpay disconnect performance. (Refers to Finding VIII-20)

The Company accepts this recommendation; however, it notes that the collections process performance (getting customers to pay on time), is related to many factors and not simply shut Offs. In fact, with the approval of the BPU, NJAWC recommended and implemented a late fee for commercial and industrial customers who do not pay on time in its last rate case. Current regulations prohibit late fees for residential customers; however, this only provides a disincentive for prompt payment encourages late payment behavior and imposes extra costs on the utility and its customers who pay on time due to the time and effort to track and process these customers through the collections process.

Staff supports NorthStar's recommendation as written. Rate Counsel did not provide specific comments on this section.

Recommendation VIII-7/Implement programs to track and increase the theft of service revenue recovered. (Refers to Finding VIII-23)

The Company accepted this recommendation. Staff agrees that NorthStar's recommendation should be implemented and a detailed action plan be included in NJA\NC's implementation plan.

Section IX - External Relations

Recommendation IX-1/Assign administrative responsibility for the state external relations to the NJAWC president. (Refers to Finding IX-1)

The Company states that it will review the recommendation in the context of its overall organizational structure. NorthStar found that the state external affairs are managed administratively and functionally by the AWK senior vice president when all the work is actually performed for the NJAWC president.

Rate Counsel did not provide specific comments. Staff recommends that NorthStar's recommendation be implemented as written.

Recommendation IX-2/ Take steps to improve communicating with customers including making better use of bill inserts. (Refers to Finding XI-2)

The Company accepted this recommendation.



Section X - Support Services

Recommendation X-1/Periodically benchmark IT costs against similar utilities. (Refers to Finding X-16)

The Company conceptually accepts this recommendation but notes that there is a limited universe of comparison companies of similar size and geographic reach. NJAWC represents that an appropriate benchmarking study would entail a substantial level of effort and associated costs and could not be done with existing resources. Staff supports the Company's position.

Rate Counsel did not provide specific comments on this section.

Recommendation X-2/Formalize the IT disaster recovery plan. (Refers to Finding X-17)

The Company accepted this recommendation.

Recommendation X-3/Conduct periodic reviews of records retention practices to ensure that policies are being adhered to. (Refers to Finding X-18)

The Company accepted this recommendation.

Section XI - Finance and Cash Management

Recommendation XI-1/Update the tax sharing agreement policies and procedures. (Refers to Finding XI-19)

The Company accepted this recommendation.

Section XII - Accounting, Property Records and Budgeting

Recommendation XII-1/Document the process for developing the five-year business plan. (Refers to Finding XII-8)

The Company accepted this recommendation.

Recommendation XII-2/Take steps to improve controls over the scope and cost of support provided NJAWC by AWWSC. (Refers to Finding XII-18)

NJAWC accepted this recommendation.

Section XIII - Affiliate Cost Allocations and Relationships

Recommendation XIII-1/Develop for NJAWC a monthly affiliate transaction financial report which lists and totals intercompany and affiliate transactions throughout AWK. The report should include product or service, cost quantity, and associate contract numbers as necessary. (Refers to Finding XIII-1)

The Company accepts the concept of this recommendation in that the report described therein is a report that can be run. However, the Company maintains that the specifics described above do not help to analyze company financial information. There are other separate affiliate transaction reports and other queries that can be run utilizing the AWWSC transaction database. The Company asserts that it already engages in the reporting and monitoring activities necessary to ensure compliance with appropriate corporate governance requirements, such as eliminating intercompany transactions on its financial statements.

NorthStar found that NJAWC could not provide the costs from 2007 through 2009 for a contract between Applied Water management and AWWSC to provide engineering services to NJAWC. Also NJAWC had financial records for eleven contracts but had only copies of five of the contracts. NJAWC did not have copies of the six contracts associated with services from NJAWC to its affiliates. While



NJAWC included all of its transactions in its financial statements, it did not prepare separate intercompany or affiliate transaction reports.⁹

Rate Counsel agrees with NorthStar that a monthly affiliate report which lists and totals NJAWC intercompany and affiliate transactions throughout AWK should be developed. Rate Counsel also agrees with NorthStar's finding that these are critical issues for ratepayers that directly relate to ensuring that NJAWC has control of its costs and quality of services it receives from affiliates. Staff at Counsel supports NorthStar's recommendation as written.

Recommendation XIII-2/Expand the use of direct charging of AWWSC employee time where feasible. Use causal factors to justify cost allocations. (Refers to Findings XIII-2, XIII-3, and XIII-5)

The Company accepts the concept of using direct charging where feasible, while noting that NJAWC's total costs are unlikely to show a dramatic change. The Company represents that AWWSC uses appropriate factors to support and justify cost allocations, including (for example) causal factors and customer counts. Staff Rate Counsel supports NorthStar's recommendation as written.

Recommendation XIII-3/Assess the practice of applying two allocation factors for a single cost. If Tier_1 allocations are utilized, utilize them for the entire allocation of the cost. (Refers to Finding XIII-5)

The Company rejects this recommendation contending that it is based on a flawed interpretation of cost of service principles and an inaccurate finding. The Company believes that the way it charges costs is appropriate. The Company asserts that the above recommendation does not accurately describe the way costs are charged, and the associated sections of the report misconstrue the current AWWSC charging methodologies. NorthStar did not provide any analysis or discussion of a reasonable or appropriate alternative; rather, NorthStar recommends changes without consideration of the potential impact on the business or on customers, and without any attempt to assess the level or effort or costs associated with making such changes.

NorthStar in its findings pointed out that AWWSC utilized one set of drivers at the Tier 1 level and then switched the customer count as a driver at the Tier 2 allocation level. NorthStar is critical of the application of this allocation methodology, stating "the switch from Tier 1 drivers to customer count raises the question as to which driver is valid and underscores the fact that the allocation factors are not based on causal factors."¹⁰ NorthStar recommends that NJAWC assess the practice of applying two allocation factors for a single cost. If Tier 1 allocations are utilized, they should be utilized for the entire allocation of cost.

⁹ / NorthStar's NJAW Final Audit Report, December 12, 2010, Findings and Conclusions XHI-1

¹⁰ / Id., at XIII-5

Rate Counsel supported this recommendation, and provided specific comments on the Company's use of two allocation factors and the proportion of AWWSC expense that results from direct charging versus allocated charges. The Company informed Staff, that NJAWC assessed its application of cost-causative and allocation factors to costs in developing the current Business and Accounting Manual, which was updated and put into use in the second quarter of 2014. Staff will follow-up and examine the manual during the implementation review.

Recommendation XIII-4/Execute a lease for AWWSC's use of space at the Delran Water Treatment Plant. (Refers to Finding XIII-8)

The Company accepts this recommendation. NJAWC believes a lease exists although the records may have been mislaid. Since the completion of the audit, the Company has informed Staff that SSC no longer occupies any space in the Delran facility.

Recommendation XIII-5/Discontinue counting customers that receive both water and wastewater service as two customers when determining allocation factors. (Refers to Finding XIII-9)

The Company at first rejected this recommendation then revisited its approach to customer counts as part of the development of the new Business and Accounting Manual. Effective in 2014, wastewater customers who are also water customers will no longer be counted as a completely separate, incremental customer. Customers receiving both water and wastewater service from the Company will count as 1.05 customers for the purpose of allocating costs on a "per customer" basis.

Staff agrees with the Company position.

Recommendation XIII-6/Complete documentation of affiliate contract files. (Refers to Finding XIII-13)

The Company accepted this recommendation.

Section XIV - Company Contractor Performance

Recommendation XIV-1 Modify the mark-out process and practices to ensure compliance with NJ regulations. (Refers to Findings XIV-1 and XIV-4)

The Company is currently a party to a docketed matter before the Board regarding the "One Call" regulations. Due to the pending nature of this matter, the Company believes that there are no modifications to make at this time. The Company conditionally accepts this recommendation, subject to the results of the ongoing proceeding before the Board and as otherwise described above.

NorthStar found that the "Company did not comply with certain provisions of the New Jersey one-call regulations. On October 15, 2007, certain amendments to the BPU's rules regarding Underground



facilities: One-Call Damage Prevention System, N.J.A.C. 14:2 et seq., went into effect NJAWC sought a waiver of certain of the amendments and a stay of the effectiveness of the regulations.¹¹

Rate Counsel commented that the first recommendation in this section was inappropriate because there was an “open Docket before the Board on the scope of the mark out rule.” Rate Counsel also believes that since the Company has petitioned the Board for relief from the rule, the Audit should not prejudge the action the Board may or may not take on the Company’s petition.

Staff believes the Company should comply with all provisions of the New Jersey one call regulations. Staff supports NorthStar’s recommendation as written.

Recommendation XIV-2/Evaluate the actual costs of using the mark out contractor versus using in-house resources. (Refers to Finding XIV-2)

The Company accepted this recommendation.

Recommendation XIV-3/Develop a program for inspecting mark-out work rather than relying on contractor self-inspection. (Refers to Finding XIV-3)

The Company accepts the concept of this recommendation. The Company will review its approach to inspecting mark-out work performed by contractors and make changes if appropriate.

Recommendation XIV-4/Collect and retain appropriate information on the mark-out work rather than relying on contractor self-inspection. (Refers to Finding XIV-4)

NJAWC accepted this recommendation. The Company believes it collects and retains the appropriate information required by the regulations, subject to the outcome of the “One Call” mark-out proceeding currently open before the Board. The Company also believes that it appropriately allocates resources and does not unreasonably rely on contractor inspections where appropriate.

Recommendation XIV-5/Develop a quality control and inspection process for main and service contractors. (Refers to Finding XIV-7)

The Company accepted this recommendation.

Recommendation XIV-6/Incorporate contractor work into the work management systems to identify the actual costs and resources required to do individual tasks. (Refers to Findings XIV-5 and XIV-6)

The Company conceptually accepted this recommendation. Currently, NJAWC maintains that it is not feasible to incorporate outside contractor work into the work management system. However, in the future the Company may revise business processes or systems, and upgrade information technology, to allow such integration to take place. Of course, such integration would need to be subject to

¹¹ / Id. at XIV-1

appropriate safeguards regarding the integrity of the Company's systems and data, including customer data. At such time that it becomes feasible and practical to implement this recommendation, the Company expects that such a step will be part of a future work management system. Staff accepts the Company's position.



F. Summary Table of Review by Schumaker & Company Consultants

Section III Executive Management and Corporate Governance		
Recommendation	NJAW Response	Current Situation
Recommendation 111-1/Revise AWK's ("American Water Works Company") and NJAWC's long-term corporate objectives and strategies to make them more explicit relative to their responsibilities to meet the future needs of NJAWC ratepayers relative to the cost of water. (Refers to Findings 111-1, VI-3, VI-6, and VI-7)	Accepted Recommendation, as it applies to NJAW, but Rejected Recommendation as it applies to AWK. NJBPU Staff agreed with NJAW that this recommendation should be implemented only as it applies to NJAW.	Current Situation OK. AW has a number of cost containment objectives/goals that apply throughout the organization. We don't see any explicit goals related to New Jersey rates, but it could be implied from cost containment efforts. Note: in response to an information request, AW does not formally track rates for similar NJ water utilities, although NJAW regularly monitors and is aware of the rates for other water utilities.
Recommendation 111-2/Expand the number of KPIs (key performance indicators) to track performance and to address all NJAWC corporate goals. (Refers to Finding 111-2)	Accepted Recommendation	Current Situation OK. AW/NJAW have a wide variety of KPIs, so we think they've met the intent of this recommendation. We're commenting on tying these KPIs to specific objectives/goals in a Strategic Planning document as part of a recommendation in the Strategic Planning chapter.
Recommendation 111-3/Expedite the requirement that all independent AWK board of directors ("BOD") members own a minimal number of AWK shares within a reasonable period of their joining the BOD. (Refers to Finding 111-5)	Rejected Recommendation and NJBPU agreed with NJAW that this recommendation did not apply.	Current Situation OK. A good portion of Director compensation is now in the form of stock. According to the latest 10K, all Directors have significant stock ownership or are heading in that direction (3 new directors were just added). So, in our opinion, AW has met the intent of this recommendation and we are not going to gig them on this issue. The only question on our mind was to what extent directors can sell off their stock; however NJAW indicated that "Directors are required to hold shares equaling five (5) times their annual cash retainer by the fifth anniversary of the

		<p>commencement of service as a director.”⁵¹⁰</p> <p>Corporate Guidelines lay out the expectation that Directors will have meaningful stock ownership positions. As per 10K Directors have significant stock positions or are heading in that direction, so no wholesale selling that we can see as of now.</p>
<p>Recommendation 111-4/Add a member to AWK’s Board of Directors who has extensive experience in operating a utility in New Jersey or extensive experience in New Jersey utility regulation who would represent the interests of NJAWC ratepayers. (Refers to Finding 111-6)</p>	<p>Rejected Recommendation</p>	<p>Current Situation OK.</p> <p>Two Board members have experience with FirstEnergy, so there is NJ utility experience there. Also, a Director added in the past few years has experience as a Commissioner at the Florida PUC, so there is good regulatory experience on AW’s Board. The three new Directors who recently came on the Board have senior level utility experience.</p>
<p>Recommendation 111-5/Consider adding a second member of senior management to the AWK BOD. (Refers to Finding 111-6)</p>	<p>Accepted Recommendation</p>	<p>Current Situation OK.</p> <p>AW has not acted on this recommendation (although the recommendation just says “consider”, whatever that means), nor do we think they should. There is no need, nor do we consider it advisable for additional senior management on the corporate Board beyond the CEO.</p>
<p>Recommendation 111-6/Conduct the quarterly Business Performance Report meetings and the NJAWC quarterly Board of Directors Meeting simultaneously. (Refers to Finding 111-8)</p>	<p>Rejected Recommendation and the NJBPU did not order NJAW to implement this recommendation.</p>	<p>Current Situation OK.</p> <p>The company has not acted on this recommendation. They rejected it, because these reports relate mainly to ELT meetings and logistically; it was too onerous to schedule these meetings to coincide with NJAW Board meetings.</p>
<p>Recommendation 111-7/Develop effective service level agreements to cover services provided by affiliates to NJAWC. (Refers to Findings 111-9, IV-7, V-1, X-1 and XIII-6)</p>	<p>Accepted Recommendation</p>	<p>Current Situation OK.</p> <p>See <i>Chapter V – Affiliate Relationships</i> for discussion of products and services provided by affiliates to NJAW, including American Water Works Service Company (AWWSC), American Water Capital Corporation (AWCC), Applied Water Management (AWM), AAEMR, L.P., and AWI, Inc., plus others who NJAW provided services to.</p>



Section IV - Organization Structure		
Recommendation	NJAW Response	Current Situation
Recommendation IV-1/Develop a clear and consistent policy for defining the administrative and functional responsibilities of NJAWC and AWWSC officers and senior management. (Refers to Finding IV-2)	Accepted Recommendation	Current Situation OK. The position descriptions we've seen for senior management on down through the ranks are quite detailed, so AW has met the intent of this recommendation. We have made a recommendation in the scope of this audit related to the extent to which there is any periodic, systemic organization review performed. From the Story/Norton Board interviews, we found there are no formal organization reviews. Document responses so far do not indicate any organizational review (changes done on an ad-hoc basis). We will be addressing this issue in our Organization Structure chapter.
Recommendation IV-2/Develop policies and procedures that address affiliate relationships covering topics that include: <ul style="list-style-type: none"> ◆ Compliance with regulatory requirements ◆ Tariff transactions between affiliates ◆ Discriminatory practices among affiliated and non-affiliated companies ◆ Confidential information transfers between NJAWC and its affiliates ◆ Contracts for products and services between NJAWC and its affiliates (Refers to Findings IV-3 and VIII-17) 	Accepted Recommendation	Current Situation NOT OK. Although NJAW developed policies and procedures as required under the Implementation Order, policies were all reviewed and approved in 2009-2011 time periods. NJBPU Staff agreed with the changes made and found no further action was needed. We are noting in our report that policies and procedures should be reviewed and updated every 3 to 5 years (AW's own criteria) and, in most cases, this has not been done. We've been told in interviews that all policies are currently being reviewed, but this will be one of our report recommendations, as the process should be performed more frequently than every 8-10 years.
Recommendation IV-3/Obtain any required BPU approvals of all contract agreements between NJAWC and affiliate entities. (Refers to Finding IV-4)	Accepted Recommendation	Current Situation OK. NJBPU Staff found that this issue was being addressed in a docket and that no further action was required.
Recommendation IV-4/Obtain competitive bids for services provided by AWWSC. (Refers to Findings IV-5, IV-6, and XIII-7)	Accepted Recommendation	Current Situation OK. AW actually disagreed with this recommendation as it implied every service must go through a

		<p>bidding process and that was unreasonably burdensome. NJBPU Staff agreed that AW's current processes were adequate and no further action was needed.</p>
<p>Recommendation IV-5/Have the Internal Audit director report administratively to a senior officer other than the CFO and strengthen the Internal Audit function. (Refers to Findings IV.S, IV-9 and IV-10) <i>Rejected in part because the Company believes the recommendation fails to draw the distinction between NJAWC and the parent company. Based on its review, Staff has determined that there is no basis for the Board to require the Company to change the administrative reporting relationship between the Internal Audit function and the CFO, so that portion of the recommendation is rejected.</i></p>	<p>Partially Accepted and Partially Rejected Recommendation.</p>	<p>Current Situation NOT OK. Although the Implementation Order did not require NJAW to change the Internal Audit reporting structure, as NJBPU Staff agreed with the Company on this issue, it is going to raise it again. This has not been implemented yet and it resulted in a finding and recommendation in our Corporate Governance chapter.</p>
<p>Recommendation IV-6/Determine if NJAWC ratepayers have paid for the Sarbanes-Oxley Act of 2002 ("SOx") compliance and testing that was disallowed as a condition of the RWE Rate Order. (Refers to Finding IV-13)</p>	<p>Accepted Recommendation</p>	<p>Current Situation OK. The way we read the NorthStar finding, NJAW agreed not to seek reimbursement from ratepayers for initial SOx compliance activities, but were granted recovery for their share of ongoing SOx activities, mainly PwC costs. NorthStar speculates that initial SOx costs and ongoing SOx costs might have been mingled or wrongly accounted for, but we don't see any evidence of that. NJAW says they did a thorough rate case and order document review and that nothing is amiss. If the NJBPU is still concerned about this, then an independent document/analysis review would have to be conducted. But we think AW has met its burden here.</p>



Section VI - Strategic Planning		
Recommendation	NJAW Response	Current Situation
Recommendation VI-1/Continue the implementation of the Value Delivery Strategy (“VDS”) process, including completing the risk and gap analysis, developing a prioritization process, building action plans and fully linking the VDS to the budgeting process, KPIs and performance goals for NJAWC. (Refers to Findings VI-1,VI-4, VI-5 and VI-8)	Accepted Recommendation	Current Situation OK. We’ve seen no reference to VDS in our document responses or interviews. The NorthStar report suggests this should have led to an integrated strategic planning process and we don’t see that now. Susan Story in her interview said the VDS process is no longer formally in place (hasn’t been in many years) and that these efforts have morphed into all of the current process improvement activities going on throughout the company. Note: Business Transformation is one of these processes focused on process improvement (particularly through IT application).
Recommendation VI 2/Link New Jersey consumer and public education messages to align with VDS goals. (Refers to Finding VI-9)	Accepted Recommendation	See above response, the VDS process is no longer formally in place (hasn’t been in many years) and that these efforts have morphed into all of the current process improvement activities going on throughout the company
Recommendation VI 3/Link employee engagement and training, and other human resources activities with the VDS goals. (Refers to Finding VI-10)	Accepted Recommendation	Current Situation OK. There are considerable online employee training and instructions on employees setting their own goals.
Recommendation VI-4/Revise the AWK treatment of Business Development (BD) costs to an “as requested/fee” basis, and consider using non AWK providers of training and other Business Development services. (Refers to Finding VI-11)	Accepted Recommendation	Current Situation OK. NJBPU Staff accepted AW’s position that its BD costs were allocated properly and were done in line with benefiting AW and costs to regulatory companies as a whole. AW accepted this recommendation, but said they weren’t going to change anything. However, the Company conceptually accepted this recommendation and said it would “investigate alternatives” to the current approach to allocating BD costs. It noted that its current approach of allocating BD costs was selected because it is highly conservative and much of the work associated

		with developing new business precedes a determination as to whether or not the ultimate customer is served by the regulated utility business or the nonregulated side of the business. Existing approach provides customers with ample assurance that such costs are being fairly apportioned. NorthStar found that AWK's BD efforts are of minimal value to NJAW ratepayers; therefore, NJBPU Staff supported its position.
IRecommendation VI-5/Modify the KPIs for NJAWC to reduce redundancies, focus on controllable activities and clearly link with the VDS process and develop action plans for achieving performance improvements. (Refers to Findings VI-12 and VI-13)	Accepted Recommendation	Current Situation OK. The VDS program is gone as we mentioned earlier. KPIs are indirectly linked to annual goals set forth by the ELT. We are addressing this issue in the Strategic Planning chapter.
Recommendation VI-6/Install a process to ensure that SSC provides low cost, efficient, competitive, and valuable support services to NJAWC (Refers to Finding VI 15)	Accepted Recommendation	Current Situation OK. NorthStar's recommendation is somewhat vague and NJBPU Staff agreed AW current efforts were OK. This process is in place and is reflected in goals we've seen for the Supply Chain area.
Recommendation VI-7/Implement the Business Transformation project within budget and on schedule. (Refers to Findings VI-16, V-2, VI-8, VIII-5, VIII-10, VIII-24, X-10 and XII-3)	Accepted Recommendation	Current Situation OK. Business Transformation is still somewhat underway in the Supply Chain area with add-ons to the Enterprise system. This recommendation involves other functional areas of the corporation too.

Section VII - System Operations		
Recommendation	NJAW Response	Current Situation
Recommendation VII-1/Take steps to improve the asset management systems, tools and processes. (Refers to Finding VII-1)	Accepted Recommendation	Current Situation NOT OK. Although NJAW took steps to improve the asset management systems, tools and processes as required under the Implementation Order, as it now has a complete set of tools incorporated into GIS and Infomaster to manage assets; improvements can be made in their use and reporting. See Schumaker & Company Recommendation XVIII-4 and Recommendation XVIII-5.
Recommendation VII-2/Revise the models which NJAWC uses to evaluate and prioritize projects and programs to give additional consideration to asset condition. (Refers to Finding VII-2)	Accepted Recommendation	Current Situation OK. Asset condition is currently used in their Infomaster system for both inside plant and outside plant when evaluating assets
Recommendation VII-3/Implement a computerized design tool that includes at a minimum: a compatible units feature; and interfaces with materials, Power Plant and graphical design and mapping software. (Refers to Finding VII-3)	Accepted Recommendation	The current situation does not use compatible units for work performed by NJAW personnel. No additional recommendation was made. Contractor performed work which is substantial has unit costs associated with work and planned versus actual costs are reviewed on a contract by contract basis and managed in the Power Plan program.
Recommendation VII-4/Implement systems to enable NJAWC to capture and compare actual work units completed to those designed and budgeted. (Refers to Finding VII-4)	Accepted Recommendation	The current situation does not use compatible units for work performed by NJAW personnel. No additional recommendation was made. Contractor performed work which is substantial has unit costs associated with work and planned versus actual costs are reviewed on a contract by contract basis and managed in the Power Plan program.
Recommendation VII-5/Benchmark detailed work performance metrics against other AWK comparis and other water companies. (Refers to Finding VII-5)	Accepted Recommendation	Did not review current status.



Section VIII - Customer Service		
Recommendation	NJAW Response	Current Situation
Recommendation VIII-1 Perform an analysis of the relative costs of in-house versus outsourced call center operations for NJAWC. (Refers to Finding VIII-6)	Accepted Recommendation	Current Situation OK. Even though AW may have performed this analysis, as part of Baryenbruch's projects involving market cost comparison of Service Company charges to NJAW, which compared AWWSC costs to other service companies and outside sources, it does not have any outsourced call center operations, which would have been more money.
Recommendation VIII-2/Discontinue 24/7 operation of the call center. Determine the system/staff necessary to transition after hours' emergency calls to the local level. (Refers to Finding VIII-7)	Accepted Recommendation	Current Situation OK. Customers can call 24 hours/7 days a week. Starting in August 2018 many call handlers work at home rather than just at the call center, including all Overnight Supervisors and staff.
Recommendation VIII-3 Determine whether call center staffing levels could be reduced while maintaining the overall average speed of answer (ASA) target and consider changing the ASA target. (Refers to Findings VIII-8 and VIII-9)	Accepted Recommendation	Current Situation OK. The ASA target is 60 seconds and recently has been frequently addressed.
Recommendation VIII-4/Shorten the window between meter read and billing. (Refers to Finding VIII-12)	Rejected Recommendation and NJBPU agreed with the Company's position.	Current Situation is OK.
Recommendation VIII-5/Implement a system that integrates the customer information system with the scheduling, monitoring and performance of new service work. (Refers to Finding VIII-16)	Accepted Recommendation	Current Situation OK.. In May 2018 AW was out of Calabrio and refined reporting in Cisco, but the Operations and Performance Manager uses Calabrio (a customer experience intelligence system) for scheduling and pay time out (PTO) information and data.
Recommendation VIII-6/Take steps to improve nonpay disconnect performance. (Refers to Finding VIII-20)	Accepted Recommendation	Current Situation OK.
Recommendation VIII-7/Implement programs to track and increase the theft of service revenue recovered. (Refers to Finding VIII-23)	Accepted Recommendation	Current Situation OK.

Section IX - External Relations		
Recommendation	NJAW Response	Current Situation
Recommendation IX-1/Assign administrative responsibility for the state external relations to the NJAWC president. (Refers to Finding IX-1)	Accepted Recommendation	Current Situation is OK. Administrative responsibility is within External Relations, but acceptable.
Recommendation IX-2/ Take steps to improve communicating with customers including making better use of bill inserts. (Refers to Finding XI-2)	Accepted Recommendation	Current Situation is OK. Bill inserts used sufficiently.
Section X - Support Services		
Recommendation	NJAW Response	Current Situation
Recommendation X-1/Periodically benchmark IT costs against similar utilities. (Refers to Finding X-16)	Accepted Recommendation	Current Situation OK. As we don't know if AWWSC periodically benchmarks IT costs against similar utilities, we generally like the T&I organization activities.
Recommendation X-2/Formalize the IT disaster recovery plan. (Refers to Finding X-17)	Accepted Recommendation	Current Situation OK. It is in progress. As of mid-September 2019, the DR Runbook is currently being developed and tested, with the first Site-A Production Disaster Recovery Test Runbook in Site-B on August 15, 2019; however, the results of that test are currently under review.
Recommendation X-3/Conduct periodic reviews of records retention practices to ensure that policies are being adhered to. (Refers to Finding X-18)	Accepted Recommendation	Current Situation NOT OK. Insufficient activities are being performed to ensure employees comply with records retention requirements (<i>Finding XXI-8</i>), so we recommended that AW provide formal training sessions frequently for employees involving records retention requirements (<i>Recommendation XXI-4</i>).
Section XI - Finance and Cash Management		
Recommendation	NJAW Response	Current Situation
Recommendation XI-1/Update the tax sharing agreement policies and procedures. (Refers to Finding XI-19)	Accepted Recommendation	Current Situation NOT OK. Although NJAW updated the Tax Sharing Agreement Policy documentation in 2011, it needs to be reviewed and updated again. (<i>Recommendation XXII-1</i>).



Section XII - Accounting, Property Records and Budgeting		
Recommendation	NJAW Response	Current Situation
Recommendation XII-1/Document the process for developing the five-year business plan. (Refers to Finding XII-8)	Accepted Recommendation	Current Situation NOT OK. Although in response to the Recommendation NJAW created a cross-functional planning process improvement team, and the team developed a series of recommendations that were implemented in compliance with the Implementation Order, currently, a Policy and Practice document does not exist for this process, (<i>Recommendation XXIV-2</i>).
Recommendation XII-2/Take steps to improve controls over the scope and cost of support provided NJAWC by AWWSC. (Refers to Finding XII-18)	Accepted Recommendation	Current Situation OK. Internal controls related to transactions between NJAW and its affiliates are outlined in the agreement between American Water Service Company (AWWSC) and NJAW and AWWSC's Billing and Accounting Manual (BAM).
Section XIII - Affiliate Cost Allocations and Relationships		
Recommendation	NJAW Response	Current Situation
Recommendation XIII-1/Develop for NJAWC a monthly affiliate transaction financial report which lists and totals intercompany and affiliate transactions throughout AWK. The report should include product or service, cost quantity, and associate contract numbers as necessary. (Refers to Finding XIII-1)	Accepted Recommendation	Current Situation NOT OK. Although a monthly affiliate transaction report was created in accordance with the Implementation Order in which NJAW can review affiliate charges from billing, regular monthly detailed reports should be developed that identify affiliate transactions between NJAW and each of its affiliates (<i>Finding V-1</i>), we have recommended that AWWSC develop monthly affiliate transactions reports (<i>Recommendation V-1</i>).
Recommendation XIII-2/Expand the use of direct charging of AWWSC employee time where feasible. Use causal factors to justify cost allocations. (Refers to Findings XIII-2, XIII-3, and XIII-5)	Accepted Recommendation	Current Situation OK. Regarding use of direct charging of AWWSC employee time when feasible, as a reasonable percentage of direct charges have occurred from 2013 to 2018 (unknown at this time for 2019) (<i>Finding V-3</i>). Current Situation NOT OK.

		<p>Regarding use of causal factors to justify cost allocations.</p> <p>Pricing of direct charges and allocations in AW are appropriately done at cost, but AWWSC allocations to NJAW are only based on the number of customers (<i>Finding V-2</i>), so we have recommended that AWWSC perform a study to determine if affiliate transactions between AWWSC and regulated utilities should be done with other causal factors other than just number of customers. (<i>Recommendation V-2</i>).</p>
<p>Recommendation XIII-3/Assess the practice of applying two allocation factors for a single cost. If Tier_1 allocations are utilized, utilize them for the entire allocation of the cost. (Refers to Finding XIII-5)</p>	<p>Accepted Recommendation</p>	<p>Current Situation OK.</p> <p>Two TIERS exist. TIER1 includes regulatory and MBB companies, which has multiple factors, including revenues; property, plant, and equipment (PP&E); and employees or a combination of some of these. TIER2 includes regulatory only, which is based on customers only. Employees get training sessions for use on TIERS' WBS#s as to which WBS# to use and when.</p> <p>Current Situation NOT OK.</p> <p>As discussed above that causal factors are not used, but only customers.</p>
<p>Recommendation XIII-4/Execute a tease for AWWSC's use of space at the Delran Water Treatment Plant. (Refers to Finding XIII-8)</p>	<p>Accepted Recommendation</p>	<p>Current Situation OK.</p> <p>It is our understanding that all AWWSC use of space is at 1 Water in Camden, NJ.</p>
<p>Recommendation XIII-5/Discontinue counting customers that receive both water and wastewater service as two customers when determining allocation factors. (Refers to Finding XIII-9)</p>	<p>Initially Rejected Recommendation Then Accepted</p>	<p>Current Situation OK.</p> <p>The use of number of customers is based on all regulated water or wastewater customers, which counts as one (1); however, if a customer is served by both water and wastewater, it is not two (2), but an additional .05% of wastewater customers is added to the number of water customers.⁵¹¹ Therefore, AWWSC no longer double counts the number of customers, which was done during the prior audit.</p>
<p>Recommendation XIII-6/Complete documentation of affiliate contract files. (Refers to Finding XIII-13)</p>	<p>Accepted Recommendation</p>	<p>Three (3) affiliate agreements exist between NJAW and other</p>



		<p>American Water Works Company affiliates, which include the following with substantial information:</p> <ul style="list-style-type: none">◆ AWWSC and NJAW for services provided by AWWSC.◆ AWCC and NJAW for financial services provided by AWCC.◆ AWR and NJAW.
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Section XIV - Company Contractor Performance		
Recommendation	NJAW Response	Current Situation
Recommendation XIV-1 Modify the mark-out process and practices to ensure compliance with NJ regulations. (Refers to Findings XIV-1and XIV-4)	Accepted Recommendation	Current Situation OK.
Recommendation XIV-2/Evaluate the actual costs of using the mark out contractor versus using in-house resources. (Refers to Finding XIV-2)	Accepted Recommendation	Current Situation OK.
Recommendation XIV-3/Develop a program for inspecting mark-out work rather than relying on contractor self-inspection. (Refers to Finding XIV-3)	Accepted Recommendation	Current Situation OK.
Recommendation XIV-4/Collect and retain appropriate information on the mark-out work rather than relying on contractor self-inspection. (Refers to Finding XIV-4)	Accepted Recommendation	Current Situation OK.
Recommendation XIV-5/Develop a quality control and inspection process for main and service contractors. (Refers to Finding XIV-7)	Accepted Recommendation	Current Situation OK.
Recommendation XIV-6/Incorporate contractor work into the work management systems to identify the actual costs and resources required to do individual tasks. (Refers to Findings XIV-5 and XIV-6)	Accepted Recommendation	Current Situation OK.



IX. Affiliate Cost Allocation Methodologies

Schumaker & Company reviewed and described the cost allocation methods among NJAW and its affiliates, and determined whether the cost allocation methods are the result of arms-length negotiations and whether costs are allocated on a direct assignment basis insofar as possible. In any event, we explained the allocations and rationale for the allocation methods, and make recommendations for adjustments, if appropriate, and:

- ◆ Identified the accounting and allocation procedures for separating the costs of inter-company transactions of NJAW from affiliates.
- ◆ Determined the accuracy of allocations when allocating joint/common costs between NJAW and its affiliates. Any discrepancies are corrected by providing direct cost allocations when possible and explanations where the costs cannot be directly allocated.
- ◆ Reviewed the time sheet reporting practices of employees with shared responsibilities to determine allocations. Further, determined if the duties of employees who bill time for NJAW and/or its affiliates permit for cross-subsidization.
- ◆ Evaluated competitive and noncompetitive bidding procedures.
- ◆ Identified all of NJAW's lease arrangements with its affiliates, determine if the terms of the arrangements are consistent with lease arrangements in competing local markets, have recommended cost allocations and are set at arms' length. Reviewed affiliate charges and cost allocation methodologies among NJAW and its affiliates for adherence to applicable legal, regulatory, and contractual requirements.
- ◆ Reviewed affiliate charges and cost allocation methodologies among NJAW and its affiliates for adherence to applicable, legal, regulatory, and contractual requirements.

A. Background & Perspective

Cost Accumulation and Assignment Documentation

Any accounting manuals and other documentation describing methodologies, bases, and factors used for direct billing and/or cost allocation, and/or segregating regulated and unregulated costs, including (but not limited to): finance manuals; assignment policies; and cost allocation manuals were mentioned as being the Billing and Accounting Manual.⁵¹² There is not a separate cost allocation manual (CAM), because BAM has everything, and was previously called CAM.⁵¹³

However, when asked for cost accumulation and assignment documentation, no mention of the Billing and Accounting Manual or any other documentation was provided. Instead, only NJAW indicated that its accountants for its costs in accordance with the New Jersey Department of Public Utilities Uniform



System of Accounts (USoA) was adopted effective January 1, 1960. To properly charge and process costs through the SAP system, NJAW management indicated that a cost assignment (WBS element) is attached to each transaction posted to the income statement and that the associated cost assignments (WBS elements) are accumulated and settled to the proper USoA account.⁵¹⁴ In SAP, internal orders are used to track costs for a specific purpose (job, task, project, etc.).⁵¹⁵

Exhibit IX-1 displays a listing of the General Ledger's subsidiary ledgers used for NJAW's accounting.⁵¹⁶

Exhibit IX-1
Listing of General Ledger and Subsidiary Ledgers

Account Type	Account Descriptions	Account Ranges	Subsidiary Ledger
Plant Related Accounts	Utility Plant, Accumulated Depreciation, Utility Plant Adjustments, Non-Utility Plant, Advances for Construction, Contributions in Aid of Construction, Depreciation, Removal Costs, Allowance for Funds Used During Construction, Allowance for Borrowed Funds Used During Construction	101, 106, 107, 108, 114, 121, 122, 252.1-252.8, 271, 272, 680, 683, 705, 850	Power Plant Subsystem
Accounts Receivable Related Accounts	Customer Accounts Receivable, Unbilled Revenue	141, 144	CIS AR Subsystem
Inventory Related Accounts	Materials and Supplies	151	Inventory Subsystem
Treasury Related Accounts	Long-Term Debt, Preferred Stock, Short-Term Debt, Interest Accrued Long-Term Debt, Interest on Long-Term Debt, Amortization of Debt Expense, Preferred Dividends, Common Dividends	221, 215.1, 231.3, 231.1, 231.4, 231.2, 237.2, 222, 215.5, 810, 813, 820, 860.3, 860.2	Treasury Subsystem
Accounts Payable Related Accounts	Accounts Payable	234, 235	Accounts Payable Subsystem
Tax Related Accounts	Accrued Federal Income Tax, Accrued State Income Tax, Other Accrued Taxes, Federal Deferred Income Taxes, State Deferred Income Taxes, Deferred Investment Tax Credits, General Taxes, Current Income Taxes, Deferred Taxes, Amortization of Investment Tax Credits	236.2, 236.3, 236.5, 253.4, 253.5, 253.1, 253.2, 253, 255, 685, 690.1, 690.2, 690.3, 690.4, 690.6, 690.7, 695	OneSource Tax Provision, SABRIX
Revenue Related Accounts	Water Revenues, Wastewater Revenues, Other Revenues	401, 402, 403	CIS AR Subsystem
Payroll Related Accounts	Salaries and Wages, Benefits	501, 506, 505, 504	Payroll Subsystem

Source: Information Response 39 Attachment

Daily Accounting Standards and Recordkeeping Methods and Procedures Supporting Daily Operations between NJAW and Its Affiliates

Exhibit IX-2 is a listing of daily accounting standards and recordkeeping methods and procedures supporting daily operations between NJAW and its affiliates. Also provided were samples of each type of policies and procedures listed.⁵¹⁷

Exhibit IX-2
Policies and Procedures for Daily Accounting Standards

Documentation Description Type
Account Reconciliation Practice
Accounting for Internal-Use Software Costs Practice
Accrual Practice
Allowance for Funds Used During Construction Practice
Capitalization Practice
Financial Reporting Policy
Financial Reporting Practice
General Accounting Policy
Goodwill Impairment Accounting Practice
Indirect Overhead Capitalization Practice
Intangible Asset Accounting Policy
Inventory Count Practice
Journal Entry Practice
Non-utility Asset Depreciable Lives Practice
Payroll Accruals Practice
Regulated Depreciation and Amortization Practice
Regulated Utility Allowance for Doubtful Accounts Practice
Regulatory Accounting Policy
Regulatory Accounting Practice
Revenue and Receivables Policy
Spreadsheet Practice
Utility Plant and Capital Asset Accounting Policy

Source: Information Response 41

Analyses Regarding Use of External Vendors for the Development and Delivery of Services to NJAW and its Operations

For example, an analysis was conducted in 2010 for utility mark-out services, in which mark-out refers to information about hiding lines.⁵¹⁸ It was conducted to determine if it would be beneficial to NJAW to outsource these services versus self-performing these services. After this analysis was completed, it was determined that outsourcing these services was more cost effective than self-performing these services. Since the decision was made to outsource these services, these services have been competitively bid when required.⁵¹⁹

In NJAW's response studies performed by NJAW, American Water, or affiliates to compare amounts charged versus market rates involving goods and services among affiliates over the past eight years indicated that NJAW engages a third-party consultant, which is Patrick Baryenbruch of Baryenbruch & Company, LLC, to perform a Market to Cost Comparison study for the services provided by the American Water Works Service Company, Inc. (AWWSC or Service Company) to NJAW during base rate cases. NJAW engaged this consultant to perform studies for its 2011, 2015, and 2017 base rate



cases,⁵²⁰ which compare AWWSC costs to other utility service company costs, but it also seems to slightly provide information about external vendors usage, especially the 2017 study.⁵²¹

2011 Base Rate Case Questions and Results

This study was undertaken to answer four questions concerning the services provided by Service Company to NJAW:⁵²²

1. Were the Service Company's charges to NJAW during 2010 reasonable?
2. Was NJAW charged the lower of cost or market for managerial and professional services provided by the Service Company during 2010?
3. Were the 2010 costs of the Service Company's customer accounts services, including those of the National Call Centers, comparable to those of other utilities?
4. Are the services NJAW receives from the Service Company necessary?

According to the third-party consultant, the Service Company's 2010 cost per NJAW customer was reasonable compared to cost per customer for electric and combination electric/gas service companies. During 2010, NJAW was charged \$48 per customer for administrative and general (A&G)-related services provided by the Service Company. This compared to an average of \$111 per customer for service companies reporting to the Federal Energy Regulatory Commission (FERC). Only two of the 24 utility service companies that filed a FERC Form 60 for 2010 had a lower per customer A&G cost than NJAW's charges from the Service Company. The following conclusions were drawn from this study:⁵²³

- ◆ NJAW was charged the lower of cost or market for managerial and professional services during the 2010.
- ◆ On average, the hourly rates for outside service providers are 45% higher than the Service Company's hourly rates.
- ◆ The managerial and professional services provided by the Service Company are vital and could not be procured externally by NJAW without careful supervision on the part of NJAW. If these services were contracted entirely to outside providers, NJAW would have to add at least two positions to manage activities of outside firms. These positions would be necessary to ensure the quality and timeliness of services provided.
- ◆ If all the managerial and professional services now provided by the Service Company had been outsourced during the 2010, NJAW and its ratepayers would have incurred more than \$14.3 million in additional expenses. This amount includes the higher cost of outside providers and the cost of two NJAW positions needed to direct the outsourced work.
- ◆ This study's hourly rate comparison actually understates the cost advantages that accrue to NJAW from its use of the Service Company. Outside service providers generally bill for every hour worked. Service Company exempt personnel, on the other hand, charge a maximum of 8

hours per day even when they work more hours. If all overtime hours of Service Company personnel were factored into the hourly rate calculation, the Service Company would have had an even greater annual dollar advantage than the \$14.3 million cited above.

- ◆ It would be difficult for NJAW to find local service providers with the same specialized water industry expertise as that possessed by the Service Company staff. Service Company personnel spend substantially all their time serving operating water companies. This specialization brings with it a unique knowledge of water utility operations and regulation that is most likely unavailable from local service providers.
- ◆ Service Company fees do not include any profit markup. Only its actual cost of service is being recovered from NJAW ratepayers.

The cost of the Service Company's customer accounts services, including those provided by the National Call Centers, is well below the average of the neighboring electric utility comparison group. As will be explained further herein, this group of companies provides a reasonable proxy group for comparison to a regulated utility of the size and scope of the Service Company and NJAW. During 2010, the customer accounts cost for NJAW customers was \$24.32 compared to the 2010 average of \$50.51 for neighboring electric utilities. The highest comparison group per customer cost was \$97.07 and the lowest \$13.30.⁵²⁴

The services that the Service Company provides are necessary and would be required even if NJAW were a stand-alone water utility.⁵²⁵

Furthermore, there is no redundancy or overlap in the services provided by AWWSC to NJAW.⁵²⁶

2015 Base Rate Case Questions and Results

This study was undertaken to answer four questions concerning the services provided by Service Company to NJAW:⁵²⁷

1. Were the Service Company's charges to NJAW during the 12 months ended June 30, 2014 reasonable?
2. Was NJAW charged the lower of cost or market for managerial and professional services provided by the Service Company during the 12 months ended June 30, 2014?
3. Were the 12 months ended June 30, 2014 costs of the Service Company's customer accounts services, including those of the National Call Centers, comparable to those of other utilities?
4. Are the services NJAW receives from the Service Company necessary?

The Service Company's 12 months ended June 30, 2014 cost per NJAW customer is reasonable compared to cost per customer for electric and combination electric/gas service companies. During the 12 months ended June 30, 2014, NJAW was charged \$61 per customer for administrative and general (A&G)-related services provided by the Service Company. This compares to an average of \$120 per customer for service companies reporting to the Federal Energy Regulatory Commission (FERC). Only



4 of the 23 utility service companies that filed a FERC Form 60 for 2013 had a lower per-customer A&G cost than NJAW's charges from the Service Company. The following conclusions were drawn from this study:⁵²⁸

- ◆ NJAW was charged the lower of cost or market for managerial and professional services during the 12 months ended June 30, 2014.
- ◆ On average, the hourly rates for outside service providers are 63% higher than the Service Company's hourly rates.
- ◆ The managerial and professional services provided by the Service Company are vital and could not be procured externally by NJAW without careful supervision on the part of NJAW. If these services were contracted entirely to outside providers, NJAW would have to add at least three positions to manage activities of outside firms. These positions would be necessary to ensure the quality and timeliness of services provided.
- ◆ If all the managerial and professional services now provided by the Service Company had been outsourced during the 12 months ended June 30, 2014, NJAW and its ratepayers would have incurred \$29 million in additional expenses. This amount includes the higher cost of outside providers and the cost of three NJAW positions needed to direct the outsourced work.
- ◆ This study's hourly rate comparison actually understates the cost advantages that accrue to NJAW from its use of the Service Company. Outside service providers generally bill for every hour worked. Service Company exempt personnel, on the other hand, charge a maximum of 8 hours per day even when they work more hours. If all overtime hours of Service Company personnel were factored into the hourly rate calculation, the Service Company would have had an even greater annual dollar advantage than the \$29 million cited above.
- ◆ It would be difficult for NJAW to find local service providers with the same specialized water industry expertise as that possessed by the Service Company staff. Service Company personnel spend substantially all their time serving operating water companies. This specialization brings with it a unique knowledge of water utility operations and regulation that is most likely unavailable from local service providers.
- ◆ Service Company fees do not include any profit markup. Only its actual cost of service is being recovered from NJAW ratepayers.

The cost of the Service Company's customer accounts services, including those provided by the National Call Centers, is well below the average of the neighboring electric utility comparison group. As will be explained further herein, this group of companies provides a reasonable proxy group for comparison to a regulated utility of the size and scope of the Service Company and NJAW. During 12 months ended June 30, 2014, the cost of customer accounts services for NJAW customers was \$24.25 compared to the 2013 average of \$49.36 for neighboring electric utilities. The highest comparison group per customer cost was \$106.24 and the lowest \$3.31. It should be noted that several comparison group utilities had unusually low 2013 costs per customer due to negative pension expenses resulting from improved financial markets and pension fund investment performance.⁵²⁹

The services that the Service Company provides are necessary and would be required even if NJAW were a stand-alone water utility.⁵³⁰

Furthermore, there is no redundancy or overlap in the services provided by the Service Company to NJAW.⁵³¹

2017 Base Rate Case Questions and Results

This study was undertaken to answer four questions concerning the services provided by Service Company to NJAW:⁵³²

5. Were the Service Company's charges to NJAW during the 12 months ended March 31, 2017 reasonable?
6. Was NJAW charged the lower of cost or market for managerial and professional services provided by the Service Company during the 12 months ended March 31, 2017?
7. Were the 12 months ended March 31, 2017 costs of the Service Company's customer accounts services, including those of the National Call Centers, comparable to those of other utilities?
8. Are the services NJAW receives from the Service Company necessary?

The Service Company's 2016 cost per NJAW customer is reasonable compared to costs per customer for electric and combination electric/gas service companies. During the 12 months ended March 31, 2017, NJAW was charged \$58 per customer for administrative and general (A&G)-related services provided by the Service Company. This compares to an average of \$113 per customer for service companies reporting to the Federal Energy Regulatory Commission (FERC). Nineteen of the 25 utility service companies that filed a FERC Form 60 for 2016 had higher per customer A&G costs than NJAW's charges from the Service Company. The following conclusions were drawn from this study:⁵³³

- ◆ NJAW was charged the lower of cost or market for managerial and professional services during the 12 months ended March 31, 2017.
- ◆ On average, the hourly rates for outside service providers are 36% higher than the Service Company's hourly rates.
- ◆ The managerial and professional services provided by the Service Company are vital and could not be procured externally by NJAW without careful supervision on the part of NJAW. If these services were contracted entirely to outside providers, NJAW would have to add at least three positions to manage activities of outside firms. These positions would be necessary to ensure the quality and timeliness of services provided.
- ◆ If all the managerial and professional services now provided by the Service Company had been outsourced during the 12 months ended March 31, 2017, NJAW and its ratepayers would have incurred almost \$16.2 million in additional expenses. This amount includes the higher cost of outside providers and the cost of three NJAW positions needed to direct the outsourced work.



- ◆ This study's hourly rate comparison actually understates the cost advantages that accrue to NJAW from its use of the Service Company. Outside service providers generally bill for every hour worked. Service Company exempt personnel, on the other hand, charge a maximum of 8 hours per day even when they work more hours. If all overtime hours of Service Company personnel were factored into the hourly rate calculation, the Service Company would have had an even greater annual dollar advantage than the \$16.2 million cited above.
- ◆ It would be difficult for NJAW to find local service providers with the same specialized water and wastewater industry expertise as that possessed by the Service Company staff. Service Company personnel spend substantially all their time serving operating water and wastewater companies. This specialization brings with it a unique knowledge of water and wastewater utility operations and regulation that is most likely unavailable from local service providers.
- ◆ Service Company fees do not include any profit markup. Only its actual cost of service is being recovered from NJAW ratepayers.

The cost of the Service Company's customer accounts services, including those provided by the National Call Centers, is well below the average of the neighboring electric utility comparison group. As will be explained further herein, this group of companies provides a reasonable proxy group for comparison to a regulated utility of the size and scope of the Service Company and NJAW. During the 12 months ended March 31, 2017, the cost of customer accounts services for NJAW customers was \$20.92 compared to the 2016 average of \$48.58 for neighboring electric utilities. The highest comparison group per-customer cost was \$103.52 and the lowest \$12.71.⁵³⁴

Service Company costs have been compared to external vendors in the Baryenbruch studies provided in previous rate cases. For example, the 2017 Baryenbruch study was submitted as Schedule PLB-1 in Case WR17090985.⁵³⁵ On Page 13 of the study, which answers Question 2 Provision of Services at the Lower of Cost or Market, the first paragraph of the Methodology section, Page 13, states "The lower-of-cost-or-market comparison is accomplished by comparing the cost per hour for Service Company managerial and professional services to those of outside service providers to whom these duties could be assigned." The study then explains that the Service Company was broken into five categories as follows: Attorneys, Management Consultants, Certified Public Accountants, T&I Professional, and Professional Engineers. Pages 13 through 17 shows the details of the Service Company by category and shows adjustments to ensure the costs compared to outside providers is on an apples-to-apples basis. Pages 18-19 explain how the outside providers hourly rates would be computed. See below for descriptions by category:⁵³⁶

- ◆ *Attorneys* – An estimate of New Jersey attorney rates was developed from a 2016 billing rate survey from National Law Journal. As shown in Exhibit 6 (Pages 20-24), data from this survey has been adjusted for cost-of-living differences between each law firm's location and Trenton, New Jersey. The National Law Review Billing survey hourly rates data is for 2016.
- ◆ *Management Consultants* – The cost per hour for management consultants was developed from a 2016 survey performed by the Association of Management Consulting Firms – an industry trade organization. The survey includes rates that were in effect during 2015 for firms throughout the United States (this is the latest data available). Consultants typically do not limit their practice to

any one region and must travel to a client's location. Thus, in this case, the U.S. national average is appropriate for comparison. See Exhibit 7, Page 25 for the calculation.

- ◆ *Certified Public Accountants* – The average hourly rate for New Jersey CPAs was developed from a 2016 survey performed by the American Institute of Certified Public Accountants (AICPA). See Exhibit 8, Page 26 for the calculation.
- ◆ *Technology and Innovation Professionals* – The average hourly rate for information technology consultants and contractors was developed from T&I industry hourly billing rate data gathered by Baryenbruch & Company, LLC. See Exhibit 9, Page 27 for the calculation.
- ◆ *Professional Engineers* – The company provided hourly rate information for outside engineering firms that provided NJAW with their rate schedules. See Exhibit 10, Page 28 for the calculation. Page 29 shows the five categories in a summary table which compares the Service Company average hourly rate versus the outside provider hourly rate. The rest of the page explains that outsourcing these five categories would cost the customers of the company over \$15 million as opposed to continuing to derive the benefits of lower costs from the Service Company. The report on page 29 also states “that the cost differential associated with using outside providers is even greater because exempt Service Company personnel do not charge more than 8 hours per day even when they work more. Outside providers generally charge clients for all hours worked. Thus, NJAW would have been charged by outside providers for overtime worked by Service Company personnel who are not paid for that time.” The report also states that “If NJAW were to use outside service providers rather than the Service Company for managerial and professional services, it would incur other additional expenses besides those associated with higher hourly rates.” Page 30 shows the calculation that outsourcing these five categories would cause an additional \$447,000 for the hiring of three employees to maintain and supervise the outside firms. Thus, in total, outsourcing the five categories would cost customers an additional expense of over \$16.2 million dollars.

In all three of the Baryenbruch studies, it was indicated that the services that the Service Company provides are necessary and would be required even if NJAW were a stand-alone water and wastewater utility. Furthermore, there is no redundancy or overlap in the services provided by the Service Company to NJAW.⁵³⁷

Time Reporting Regarding NJAW and Its Affiliates

Market-based businesses (MBBs) use ADP for time entry, but all regulatory business in American Water use MyTime for payroll reporting.⁵³⁸ The MyTime system began being used by American Water subsidiaries, including NJAW, in March 2019 for payroll purposes, including pay time off (PTO), which exempt employees enter exception time, such as PTO only, but non-exempt employees enter all time and are expected to enter time daily.⁵³⁹

Both direct charges and cost allocations are used by MyTime by employees using a proper WBS#.⁵⁴⁰



The MyTime system is live but early in this audit in May 2019 not all employees were using as of yet. For some field personnel, there is an assigned data entry person, called timekeepers. This practice was scheduled to end in June 2019, and everyone will be responsible for their own time. Employees can input their time with either a phone application (app) or other technology platforms.⁵⁴¹

There's a default template for all exempt employees in which management employees only have to enter exception time. Non-Exempt employees enter their time daily, although a template can be used. Time is approved by the employee's supervisor. The minimum time for input is each pay cycle (two weeks each), but non-exempt employees are requested to input time on a daily basis. Employees can also go back to correct time up to two prior pay periods, but after that, they must contact Human Resources to make adjustments. Employees can also input time in advance, which is requested in the situation where an employee is going on vacation.⁵⁴²

Policies and procedures documentation regarding time reporting includes:⁵⁴³

- ◆ *Time, Attendance, and Paid Time Off Policy* – This policy provides the requirements regarding attendance, as well as the reporting of time worked, including paid time off. It addresses timing, key methods, approvals, reporting, and roles/responsibilities, and the policy addresses the differences between regulated and market-based businesses (MBB), where applicable.⁵⁴⁴
- ◆ *Time, Attendance, and Paid Time Off Practice* – This practice outlines the key enterprise activities required to report time, attendance, and paid time off, which aligns to the requirements of the Time, Attendance, and Paid Time Off Policy. Variances related to market-based business (MBB), if any, are outlined. Major sections include:⁵⁴⁵
 - Attendance and punctuality
 - Overtime
 - Alternative work schedule
 - Paid time off

Also, regarding time reporting, NJAW Operations cost centers have Supervisors review if OPEX and CAPEX are properly reported by employees. They also must help new employees.⁵⁴⁶

Based on information above, it seems that time reporting policies, procedures, and practices are generally appropriate.⁵⁴⁷

Bidding Procedures

American Water's Procurement and Payment Policy documentation and its Sourcing Practice documentation, which are detailed in *Chapter IV – Procurement and Purchasing*, describes the bidding competitive and non-competitive procedures that NJAW utilizes:⁵⁴⁸

- ◆ The *Procurement and Payment Policy* documentation provides requirements to conduct procurement activities and process payments to suppliers. It addresses timing, key methods, approvals, reporting, and roles/responsibilities. The policy highlights differences between the regulated and market-based businesses, where applicable.⁵⁴⁹
- ◆ The *Sourcing Practice* documentation outlines the key enterprise activity of sourcing, which aligns with the requirements of the *Contract Management Policy* and the *Procurement and Payment Policy* documentation. High level practice variances related to market-based businesses, if any, are outlined in this documentation.⁵⁵⁰

Typically American Water uses competitive bidding, not non-competitive procedures; which is the preferred sourcing method for purchases of goods or services with a one-time cost or total cost over the duration of the agreement that is known or anticipated to exceed \$250,000, or if required for regulatory or government compliance.⁵⁵¹

Arrangements between Affiliates

See *Chapter V – Affiliate Relationships* for discussion of affiliate agreements involving NJAW.

American Water began using its 1 Water Street headquarters building in early 2019, and NJAW entered into a sublease with AWWSC dated as of October 1, 2019 (instead of Voorhees, NJ previously) to occupy a portion of the American Water headquarters building located at 1 Water Street in Camden, New Jersey.⁵⁵²

In the prior audit report, it indicates that it was unclear whether NJAW had a lease with AWWSC for its use of space at the Delran Water Treatment Plant.⁵⁵³ It doesn't seem to be an issue now, as only one AWWSC employee, a Scientist, seems to work at this plant.⁵⁵⁴

B. Findings & Conclusions

Finding IX-1 Policies and Procedures documentation is not reviewed and updated in a timely manner.

Exhibit IX-3 displays the dates associated with policies and procedures documentation for daily accounting standards and *Exhibit IX-4* displays the dates associated with policies and procedures documentation for time reporting. Unfortunately most haven't been reviewed and updated recently, plus the "new review date" sometimes wasn't done or it wasn't shown.⁵⁵⁵



Exhibit IX-3
Policies and Procedures for Daily Accounting Standards Dates

Documentation Description Type	Approval/Effective Date	Next Review Date
Account Reconciliation Practice	December 31, 2016	December 31, 2017
Accounting for Internal-Use Software Costs Practice	December 31, 2016	December 31, 2017
Accrual Practice	December 31, 2016	December 31, 2017
Allowance for Funds Used During Construction Practice	December 31, 2016	December 31, 2017
Capitalization Practice	December 31, 2016	December 31, 2017
Financial Reporting Policy	June 1, 2012/August 1, 2012	August 1, 2015
Financial Reporting Practice	August 1, 2012	March 4, 2016
General Accounting Policy	December 31, 2018	Unknown
Goodwill Impairment Accounting Practice	March 9, 2009	Unknown
Indirect Overhead Capitalization Practice	December 31, 2016	December 31, 2017
Intangible Asset Accounting Policy	December 31, 2016	December 31, 2017
Inventory Count Practice	December 31, 2016	December 31, 2017
Journal Entry Practice	December 31, 2016	December 31, 2017
Non-utility Asset Depreciable Lives Practice	December 31, 2016	December 31, 2017
Payroll Accruals Practice	September 1, 2011	Unknown
Regulated Depreciation and Amortization Practice	December 31, 2016	December 31, 2017
Regulated Utility Allowance for Doubtful Accounts Practice	December 31, 2016	December 31, 2017
Regulatory Accounting Policy	December 1, 2018	December 31, 2021
Regulatory Accounting Practice	December 1, 2018	December 31, 2021
Revenue and Receivables Policy	November 28, 2018/December 31, 2018	December 31, 2021
Spreadsheet Practice	February 1, 2011	Unknown
Utility Plant and Capital Asset Accounting Policy	December 31, 2016	December 31, 2017

Source: Information Response 41

Exhibit IX-4
Policies and Procedures for Time Reporting Dates

Documentation Description Type	Approval/Effective Date	Next Review Date
Time, Attendance, and Paid Time Off Policy	July 30, 2012/January 1, 2015	July 1, 2016
Time, Attendance, and Paid Time Off Practice	November 30, 2012/July 1, 2014	July 1, 2017

Source: Information Response 44

Purchasing and procurement documentation dates are provided in *Chapter IV – Procurement and Purchasing*, which has similar issues.

Finding IX-2 AWWSC reasonably performs services as compared to other utility service company costs, plus external vendors usage.

As previously discussed, the studies performed by Baryenbruch & Company, LLC compare AWWSC costs to other utility service company costs, but it also seems to slightly provide information about external vendors usage, especially the 2017 study.⁵⁵⁶ The results indicate that AWWSC is doing reasonable.

G. Recommendations

Recommendation IX-1 Review and update, as necessary, policies and procedures documentation at least every two years. (Refer to Finding IX-1.)

All of these policies and procedures documentation items should be reviewed at least every two years and updated, as necessary. The documentation should indicate not only the effective date, but also the review date, so you can tell that this happens in a timely manner.



X. Capital Allocation among Subsidiaries

Schumaker & Company described the following:

- ◆ The manner in which capital is allocated among all the units of American Water
- ◆ The manner in which NJAW receives a fair share of this allocation
- ◆ How NJAW's needs for capital are evaluated relative to the other American Water regulated subsidiaries and American Water's unregulated subsidiaries
- ◆ The appropriateness of NJAW's allocations of American Water's capital investment, given NJAW's strong performance and returns

A. Background & Perspective

According to NJAW management, its capital needs are evaluated independently from other American Water regulated and market-based subsidiaries, and they are prioritized by NJAW. The evaluation for NJAW's capital needs at the American Water Work Company level generally focuses on assuring that the following are adequately addressed:⁵⁵⁷

- ◆ Regulatory Compliance
- ◆ Growth/Capacity
- ◆ Efficiency
- ◆ Customer Service
- ◆ Asset Renewal
- ◆ Resiliency/Reliability/Redundancy
- ◆ Administrative and Operational Support
- ◆ Safety and Security

Policies and Procedures

Capital Policy

American Water Works Company, Inc. (American Water or AWWC) and its affiliates, including NJAW, has a *Capital Policy* that provides the requirements for the planning, implementation, and overall management of capital investments. It addresses timing, key methods, approvals, reporting, and roles/responsibilities. It does not apply to the investment of new operating units, or extension of existing service area by acquisition; however, it is applicable to post-acquisition capital investments. With the exception of reporting needs for roll-up to the company level, this policy does not apply to the market-based businesses (MBB). It addresses the strategic objectives to create customer value based on need and benefits and earn a timely and fair return on investment, and it aims to ensure that capital investments efficiently utilize financial resources and minimize cost of service to the customer, while



assuring that the company continues to maintain regulatory compliance, keeps pace with growth and infrastructure renewal, and provides safe, reliable, efficient, and quality service. The Engineering Department monitors for compliance with this policy and analyzes and reports monthly capital program performance at the operating unit and enterprise levels. In coordination with the Finance Department, reporting on the capital program is included in the company's quarterly and annual financial reports.⁵⁵⁸

Asset Planning

Asset planning occurs continually according to the following guidelines:⁵⁵⁹

- ◆ *Asset Investment Strategy* – The Asset Investment Strategy provides strategic guidance for the development of the capital portion of the Business Plan, referred to as Capital Business Plan. It aligns the capital program with the mission and goals of the company. This strategy is developed annually by a cross-functional team, including the Engineering Department, Finance Department, and Operations with input from the Risk Management Committee.
- ◆ *Comprehensive Planning Studies (CPSs)* – CPSs are developed by operating units on an as needed basis, typically within a five to 10 year timeframe, to identify non-recurring capital needs related to water and wastewater infrastructure. The timing of significant projects is coordinated with the Rates Department. The projects recommended in a Comprehensive Planning Study are prioritized by operating units based on operational need.
- ◆ *Emerging Projects* – Project or capital investment needs that arise between CPS cycles are evaluated, scoped, and estimated to the same degree as a CPS project prior to being considered in a Capital Business Plan. The CPS projects identified in prior studies are also re-evaluated as needed prior to inclusion in the Capital Business Plan.

Business Planning

Each year, operating units, including regulated operations and MBB, develop a Capital Business Plan of specific capital needs, which focuses on the upcoming year and extends into outer years, according to company guidelines. The operating unit Presidents obtain approval for their portion of the overall Capital Business Plan from the American Water Board of Directors and obtain approval from NJAW Board of Directors, as necessary to satisfy legal and/or regulatory considerations.⁵⁶⁰ A Capital Business Plan includes:⁵⁶¹

- ◆ *Investment Projects (IPs)* – IPs included in the Capital Business Plan are a combination of specific CPS recommended projects and emerging projects. IPs that begin in the first year of the Capital Business Plan that are not already underway are prioritized within the business planning process.
- ◆ *Recurring Projects (RPs)* – Recurring Projects included in the Capital Business Plan are developed and prioritized within the business planning process in the first year of the plan, at a minimum.
- ◆ *Spend Profiles* – Are addressed in the development of the Capital Business Plan.

- ◆ *Reserves and Contingencies* – Reserves are established for each operating unit for the purpose of funding emerging needs that arise after the Capital Business Plan is approved. Contingencies are applied at the project level as needed to address typical unforeseen events that occur during the delivery of a project.
- ◆ *Business Plan Review and Reallocation* – The Capital Business Plan, including reserves and contingencies, is reviewed by American Water leadership and NJAW (operating unit) Division Leads throughout the calendar year, as defined in the *Capital Investment Management Practice*.

Project Delivery

Once the Capital Business Plan is approved, operating units are responsible for delivering the capital program. Approval of the Capital Business Plan does not constitute approval of individual capital projects which were included in the development of the Capital Business Plan. The release and approval of projects occurs real time through the Capital Investment Management (CIM) meetings in accordance with the Delegation of Authority (DOA) Policy, and the Capital Project Delivery Practice, with appropriate technical and functional input. The multi-year projects are approved in their entirety and not just for the current budget year.⁵⁶²

- ◆ *Functional Review* – At each stage of capital project development, the designated Project Manager obtains review from functional and operating unit employees, Operations or otherwise, that may be affected by the project for appropriate input. Functional personnel may elect to forgo this opportunity, but an inclusive process is used by the Project Manager.
- ◆ *Capital Investment Management (CIM) Meetings* – CIM meetings are held at the operating unit and company levels. The primary purpose of this cross-functional meeting is to assess strategic direction of spend, timing, and status of contingencies and reserves of the capital program, and compliance with company policies and practices. The secondary purpose of the meeting is to approve or re-approve IP projects according to the DOA Policy, or RP Line Items per the Capital Project Delivery Practice and internal controls. Progress reporting and metric updates are prepared prior to meetings.
- ◆ *Project Delivery Models and Methodologies* – Projects are delivered using appropriate project delivery models or methodologies depending on the type of project. These models or methodologies include, but are not limited to the following: Project Delivery Checklist, Design Concept Development and Review, Alternate Project Delivery Methods, Partnering, Strategic Sourcing, Constructability and Bid-ability Review, Value Engineering, and Post Project Review. Capital projects and monthly spend profiles are projected forward monthly, and re-approvals are obtained as necessary for capital projects based on the tolerance limits for scope, schedule, and cost as identified in the Capital Project Delivery Practice.
- ◆ *Communications* – The operating units issue communications to customers and other stakeholders about their capital program, including highlights of the value provided to customers through investments. Communications to customers and other stakeholders are done in coordination



with the Communications and External Affairs Department. The Engineering Department maintains a company-wide program/tool to facilitate knowledge sharing across operating units.

Other related practices include:⁵⁶³

- ◆ Asset Maintenance Management Practice
- ◆ Capital Asset Planning Practice
- ◆ Capital Investment Management Practice
- ◆ Capital Project Delivery Practice
- ◆ Workforce Management Practice

Capital Investment Management Practice

American Water also has a *Capital Investment Management Practice*, which outlines the key enterprise activities required to perform capital business planning and ongoing management of the capital program, which aligns with the *Capital Policy*. High-level practice variances related to market-based business (MBB), if any, are outlined in this documentation.⁵⁶⁴

This documentation covers activities involving capital investment management, which includes maintaining the capital project portfolio, capital business planning, and ongoing capital program management. The following are the major sections covered within the Key Activities area of this practice:⁵⁶⁵

- ◆ *Section 1: Capital Project Portfolio* – It outlines the activities involved in maintaining a portfolio of non-recurring capital projects. These projects may have been identified through Comprehensive Planning, are projects that are not typically encompassed within planning (e.g. an office building), or were emerging projects based on a need that arose between planning cycles.
- ◆ *Section 2: Capital Business Planning* – It outlines the activities involved in the development of the Capital Business Plans, which are ultimately submitted for inclusion in each operating unit's overall Business Plan. Guidance related to the details and timing of the overall Business Plan process, including capital, are identified yearly by Corporate Financial Planning and Analysis (FP&A) and are outside the scope of this practice. If the company's overall Business Plan approval is not granted, operating unit capital program functions are notified for revision and resolution.
- ◆ *Section 3: Capital Program Management* – It outlines the activities involved in the daily management of the Capital Program to assure that it progresses according to plan. Post-budget year review is conducted at the conclusion of each budget year to measure program performance and recommend any necessary changes. If the operating unit capital program is not progressing per plan, issue is addressed in the operating unit CIM meeting for resolution and escalated to the corporate CIM committee if further assistance is needed.

- *Developer Projects (DVs):*

[Redacted]

◆ [Redacted]

◆ [Redacted]

◆ [Redacted]

- [Redacted]



This practice documentation is not relevant for MBB companies, as:⁵⁶⁷

- ◆ MBB uses different tools when creating their portion of the company’s overall business plan.
- ◆ MBB has different forms of capital spending with different requirements for reporting and approvals.

B. Findings & Conclusions

Finding X-1 Development of capital projects is reasonably done.

Based on the policies and procedures documentation and the associated practices, as previously discussed, the development of capital projects is reasonably done.

C. Recommendations

None.



XI. Cost Recovery Mechanisms

In this chapter, we reviewed and reported on New Jersey American Water Company, Inc.'s (NJAW's) various cost recovery mechanisms, and its allocation of costs, such as labor, information technology (IT) systems, and overhead, to each of these mechanisms. We identified specifically what costs are recoverable through each clause mechanism and identified the specific Board Order language, statute(s), or regulation(s) that allows NJAW to recover the cost through the mechanism. We also examined the information technology systems and determined if they are designed in a manner that allows them to be flexible in a cost-effective manner.

A. Background & Perspective

Policies and Procedures

NJAW avails itself of various cost and rate recovery mechanisms pursuant to BPU regulations regarding the Purchased Water Adjustment Clause (PWAC), the Purchased Wastewater Adjustment Clause (PSTAC), and the Distribution System Improvement Charge (DSIC) mechanisms, including.⁵⁶⁸

- ◆ N.J.A.C. 14:9-7 Subchapter *Purchased Water and Wastewater Adjustment Clauses* (Adopted by R.2006 d.367, effective October 16, 2006 and Expires on February 19, 2021) – Provides for New Jersey Board of Public Utilities (NJBPU) approval of purchased water adjustment clauses (PWACs) and purchased wastewater adjustment clauses (PSTACs). A PWAC or PSTAC allows a utility to include in rates the costs of fluctuations in purchased water or purchased wastewater treatment, without the necessity of a full base rate case.⁵⁶⁹
 - To be eligible for a PWAC or PSTAC, a utility shall meet the following requirements, as applicable:
 - For a water utility, the utility's purchased water costs, as defined at [N.J.A.C. 14:9-7.2](#), exceed 10 percent of its total operating and maintenance expenses; and
 - For a wastewater utility, the utility's purchased wastewater treatment costs, as defined at [N.J.A.C. 14:9-7.2](#), exceed 10 percent of its total operating and maintenance expenses.
 - The Board approves a PWAC or PSTAC for one year, based on estimates of a utility's cost of purchased water or purchased wastewater treatment, and expected total volume of water or wastewater.
 - At the end of each year, a utility with an approved PWAC or PSTAC shall:
 - Submit to the Board a year-end true up schedule to reconcile the previous year's actual and estimated costs of purchased water or purchased wastewater treatment; and
 - Submit a petition for an adjusted PWAC or PSTAC for the upcoming year.



- A water or wastewater utility with purchased water costs or wastewater treatment costs may file a petition with the NJBPU for approval of an initial PWAC or PSTAC , provided the utility meets all of the following criteria:
 - The utility’s purchased water cost, or purchased wastewater treatment cost, exceeds 10 percent of the utility’s operating and maintenance expenses;
 - The NJBPU has approved the utility’s base rates through a rate case and order during the three years prior to submittal of the petition for an initial PWAC or PSTAC; and
 - The utility has received notice of an increase or decrease in the cost of purchased water from its water purveyor, or in the cost of purchased wastewater treatment from its wastewater treatment purveyor.
- NJ ADC 14:9-10 Subchapter *Distribution System Improvement Charge* (DSIC) (Adopted by R.2012 d.108, effective June 4, 2012; Amended by R.2017 d.148, effective August 7, 2017; Current through amendments included in the New Jersey Register, Volume 51, Issue 7, dated April 1, 2019; Water and Wastewater, expires on February 19, 2021) – An initiative intended to create a regulatory mechanism that enables the accelerated level of investment needed to promote the timely rehabilitation and replacement of certain non-revenue producing, critical water distribution components that enhance safety, reliability, water quality, system flows and pressure, and/or conservation. Through a DSIC, after approval of the foundational filing, a water utility may charge customers, up to the DSIC cap amount, for the costs of rehabilitating, improving, or replacing water distribution infrastructure in accordance with this subchapter.⁵⁷⁰
- The purpose of DSIC is to provide a rate recovery mechanism that encourages and supports necessary accelerated rehabilitation and replacement. As set forth under this subchapter, such investment would occur in a systematic and sustained way to advance the accelerated rehabilitation and replacement of water distribution infrastructure needed for conservation, continued system safety and reliability, improved water quality, and sustained economic growth in the State of New Jersey.
- The NJBPU shall require frequent and detailed monitoring and reporting of expenditures during all phases of the DSIC, as set forth in this subchapter, in order to ensure prudent investment and compliance with this subchapter.
- All petitions to the NJBPU regarding DSIC activities shall be submitted by the water utility.
- A DSIC rate is interim, subject to refund, until the subsequent base rate case.
- May seek recovery for any of all of the following costs through DSIC:
 - Water main replacement and rehabilitation;
 - Water main cleaning and lining;
 - Valve and hydrant replacement;
 - Service line replacement (from main to curb or meter pit); and/or
 - Un-reimbursed utility relocation costs associated with relocations required by

governmental entities.

All other costs are included in the cost of service and recovered through rates set in NJAW's most recent base rate case, as determined by the NJBPU.⁵⁷¹

There is no listing and description of associated information technology systems associated with cost recovery mechanisms, as all costs associated with IT systems that are being recovered in rates are being recovered through rates set in NJAW's most recent base rate case, as determined by the NJBPU. They are not being recovered via cost recovery mechanisms, or clauses.⁵⁷² Most of the analysis is support using Excel spreadsheets with information pulled from NJAW accounting systems.

B. Findings & Conclusions

Finding XI-1 The application of the Purchased Water Adjustment Clause (PWAC) and the Purchase Wastewater Adjustment Clause (PSTAC) has been appropriately handled.

By an Order dated April 2, 2007 in I/M/O New Jersey American Water Company, Elizabethtown Water Company, and Mount Holly Water Company Docket No. WR06030257, the Board required that all purchased water costs and purchased wastewater treatment costs be removed from base rates and recovered through the PWAC and the PSTAC, as applicable. The PWAC and PSTAC is set on an annual basis via a petition to the New Jersey Board of Public Utilities and has typically been settled via a stipulation on the part of all parties involved.⁵⁷³

NJAW purchases water on a routine basis from seven separate entities and purchases wastewater treatment services from three separate entities, each of which adjusts its rates for service and, in the case of wastewater treatment, the service providers issue sewerage debit/credit adjustments, at different times throughout the year.⁵⁷⁴

We obtained the calculation worksheets (Excel spreadsheets) and followed the calculations in determining both the PWAC and the PSTAC.⁵⁷⁵ The accounting codes that contain the information needed to perform the calculations are shown in *Exhibit XI-1*.⁵⁷⁶



**Exhibit XI-1
PWAC and PSTAC Accounting Codes
as of December 31, 2019**

PWAC/PSTAC Accounts	
25632600	Reg Liab - Purchased Sewer Stabilization
25632700	Reg Liab - Purchased Water Stabilization
40111100	Residential Sales Billed Surcharge
40121100	Commercial Sales Billed Surcharge
40131100	Industrial Sales Billed Surcharge
40145100	Private Fire Billed Surcharge
40151100	Public Authority Billed Surcharge
40161100	Sales for Resale Billed Surcharge
40211100	Domestic WW Service Billed Surcharge
40221100	Commercial WW Service Billed Surcharge
40231100	Industrial WW Service Billed Surcharge
51010000	Purchased Water
51010500	PWAC Differential
51110000	Waste Disposal
51110500	PSTAC Differential

Source: Information Response 721

Therefore, information from these accounts are summarized on an Excel spreadsheet to calculate any over/under collection balance for purchased water on an annual basis. NJAW forecasts the purchased water costs going forward using these numbers.⁵⁷⁷ The PSTAC has been handled in a similar manner where separate accounts have been created in the accounting systems to handle both the revenue and expenses side of those costs.⁵⁷⁸

Finding XI-2 The application of the DSIC has been appropriately handled.

DSIC is a mechanism whereby the utility can begin to recover its capital costs and depreciation expense earning a return on certain capital projects once they have been placed in service in between base rate cases. It essentially serves as an interim measure to reduce regulatory lag prior to the next rate case where new base rates are determined. We reviewed the foundational filings (after the DSIC rate was set to \$0), and a list of projects submitted to form the basis for the new DSIC rate in subsequent filings.⁵⁷⁹ We also reviewed the subsequent filings, or semi-annual filings, where the DSIC level of revenues based on the cumulative capital expenditures is established for an annual period.⁵⁸⁰

The accounting codes that are involved in the calculation of DSIC are shown in *Exhibit XI-2*. Within the DSIC period, the eligible DSIC additions to the respective Utility Plant in Service accounts are the basis for calculating the DSIC rate every six months until the DSIC cap amount is reached.⁵⁸¹

Exhibit XI-2
DSIC Related Accounting Codes
as of December 31, 2019

DSIC Accounts	
10133100	UPIS - Transmission & Distribution Mains
10133300	UPIS - Services
10133500	UPIS - Hydrants
40111200	Residential Sales Billed DSIC
40121200	Commercial Sales Billed DSIC
40131200	Industrial Sales Billed DSIC
40145200	Private Fire Billed DSIC
40151200	Public Authority Billed DSIC
40161200	Sales for Resale Billed DSIC

Source: Information Response 721

C. Recommendations

None



XII. Non-Rate-Related Revenues

A. Background & Perspective

Schumaker & Company examined all gains and revenues, excluding those derived from utility rates, which New Jersey American Water Company, Inc. (NJAW) has recorded since its last rate case. Through review of summary schedules and interviews with accounting personnel, we determined that non-rate related revenues were recorded properly and that ratepayers received the appropriate benefit from these gains and revenues. Included in, and the majority of, the non-rate related revenue is the land and property sales that have occurred since NJAW's last rate case.

Non rate related revenues are accounted for in the following accounts:

- ◆ 59011000 - Gains/Losses Non-Utility Property Disposals
- ◆ 59011500 - Gains/Losses Non-Utility Property Sales
- ◆ 59021000 - Gains/Losses Utility Plant Sales
- ◆ 71511510 - Miscellaneous & Jobbing Revenues - Intercompany
- ◆ 71521000 - Miscellaneous & Jobbing Expenses
- ◆ 71611000 - Miscellaneous Non-Utility Revenue
- ◆ 71712000 - Gains/Losses Other Non-Operating

The details for the activity in these accounts are shown below in *Exhibit XII-1* and *Exhibit XII-2*.⁵⁸²

Exhibit XII-1
Non-Rate Related Revenues
September 2015 through March 2019
(Revenue) / Losses or Expenses

G/L Account	G/L Account Name	9/2015 – 3/2019 Total	Account Activity Explanation
59011000	Gains/Losses Non-Utility Property Disposals	\$147,176	Year End accounting reserve for CWIP in suspense > 2 years
59011500	Gains/Losses NUP Sales	(\$1,128,088)	Gains on sale of non-utility property - see detail below , Schedule A
59021000	Gains/Losses Utility Plant Sales	(\$2,305,626)	Gains on sale of utility property, shared 50% with customers - see detail below , Schedule B
71511510	Misc & Jobbing Revenues - Intercompany	(\$1,060,775)	Fee received from Homeowner Services for billing Protection Programs on NJAW customer bills
71521000	Misc & Jobbing Expenses	\$3,245	Cost of non-utility work performed for 3rd parties, offset by reimbursement
71611000	Misc Non-Utility Revenue	(\$230,748)	Revenues from non-utility services
71712000	Gains/Losses Other Non-Operating	\$102,895	Svc Co allocation: Non-Operating deferred comp investment flux
Total		(\$4,471,921)	

Source: Information Response 51



Examining the accounts and noting the ones with the largest non-rate related revenues for the years 2015 through 2019 are gains from plant sales, both utility and non-utility (accounts 59021000 and 59011500) totaling \$2.3M and \$1.1M respectively. Following closely is the revenue for Miscellaneous and Jobbing revenue account (account 71511510) which are fees received from Homeowner Services for Protection Programs billed to NJAW customers (\$1.1M). The gains from non-utility plant (NUP) sales flow completely to NJAW and no dollars flow to the NJAW customers. This is appropriate as NUP assets are not a part of rate base. However, gains from sales of utility plant are shared with ratepayers 50%. The details of non-utility plant and utility plant sales, gains on the sales, and amounts flowing to customers, if any, are shown in *Exhibit XII-2*.⁵⁸³

Exhibit XII-2
Non-Rate Related Revenues Detail
September 2015 through March 2019

Schedule A Non Utility Property Sales > \$100,000

Date Sold	Address of Property Sold	NBV	Net Proceeds	Gain - Ratepayers	Gain - NJAW	Comment
1/26/2016	124 Thatchers Hill Rd, Flemington NJ	\$27,391.00	\$240,035.50	\$106,322	\$106,322.25	Entry was misposted to NUP Sales, correct acct = 59021000, Gains/Losses Utility Plant
11/9/2017	116 Del Monte Road, Toms River NJ	\$6,052.00	\$617,396.02	-	\$611,344.02	None
11/22/2017	116 San Diego Road, Lavallette NJ	\$1.00	\$388,896.00	-	\$388,895.00	None
					\$21,526.73	Summary activity < \$100,000
Total			<u>\$1,246,327.52</u>		<u>\$1,128,088.00</u>	Account total

Schedule B Utility Property Sales > \$100,000

Date Sold	Address of Property Sold	NBV	Net Proceeds	Gain - Ratepayers	Gain - NJAW	Comment
1/30/2018	100 James Street, Lakewood NJ	\$901,990	\$5,519,362	\$2,308,686	\$2,308,686	None

Source: Information Response 51

B. Findings & Conclusions

Finding XII-1 Non-Rate Related Revenues are recorded properly.

We examined all gains and revenues, excluding those derived from utility rates, which NJAW has recorded since its last rate case. Through review of summary schedules and interviews with accounting personnel, we determined that non-rate related revenues were classified properly and when a recording error was found, it was treated appropriately.

Finding XII-2 Non-Rate Related Revenues are comprised mostly of gains on plant sales, utility and non-utility, and miscellaneous job revenues.

Of the \$4.5 million in non-rate revenues, \$3.4 million comes from gains on plant sales (excludes disposals) and \$1.1 million from miscellaneous job revenues (excludes an offset of \$3,245 of miscellaneous and jobbing expenses). Miscellaneous job revenues are fees received from Homeowner Services for billing protection programs on customer bills. Other Non-Rate Revenues are Miscellaneous Non-Utility Revenue, \$230,748 comprised of revenues from non-utility services and Losses Other Non-

Operating Revenue of \$102,895 which is a Service Company allocation of non-operating deferred compensation investment fluctuations.⁵⁸⁴

Finding XII-3 Gains on sales of utility plant are split evenly with ratepayers.

Over the time period reviewed, September 2015 through March 2019, the period since the last NJAW rate case, all sales of utility plant were split evenly with ratepayers. As shown in *Exhibit XII-2*, the utility property sale in 2018 posted to the utility property sale account was split evenly with customers.⁵⁸⁵

A utility property sale, in January 2016, was misposted to the Non-Utility Property Sale account. The misposting was realized and corrected. The customer's portion of the gain on the sale is currently being returned as approved in NJAW's last base case.⁵⁸⁶

C. Recommendations

None



XIII. Operations Review

This chapter summarizes the evaluation of NJAW's Reliability Programs, including:

- ◆ NJAW's 2010-2018 Inspection and Maintenance Programs (Section A)
- ◆ NJAW's Asset Life-Cycle Maintenance Philosophy and Practices (Section B)

The Schumaker & Company team conducted an extensive review of NJAW's operations function. The team spent 12 days on site, conducted 25 interview sessions often attended by multiple NJAW associates from Vice President to first line Supervisors. The team visited construction sites and inspectors and rode along with a Field Service Representative. NJAW provided 196 responses to information requests by the Schumaker & Company team, which were then evaluated and used to produce this section. NJAW associates were cooperative and forthcoming. The data and information provided was sufficient to conduct the assessment of NJAW's operations.⁵⁸⁷

A. Inspection and Maintenance Programs

Background & Perspective

NJAW's Inspection and Maintenance programs are guided by four factors:

- ◆ NJAW's Vision and Strategy
- ◆ The Water Quality Accountability Act (WQAA)
- ◆ Operating License Requirements
- ◆ NJAW Maintenance Policy and Protocols

Many of the New Jersey State rules governing regulated utilities inspection and maintenance of water plant and waste water systems is contained in N.J.A.C 14. Public Utilities.

It can be seen from its Vision and Strategies, *Exhibit XIII-1*, NJAW strives for operational excellence by being "best in class" in execution of business and operation fundamentals.⁵⁸⁸



Exhibit XIII-1
 Vision and Strategies 2018
 as of December 31, 2018

American Water | Vision & Strategies



Source: Interview 2

The WQAA has many operational and qualitative requirements. It went into effect in 2017. It requires compliance of each Public Water System identified by a unique number (PWSID) within NJAW's operating territory. There are 33 PWSID systems in the NJAW system.⁵⁸⁹

The company treated the compliance effort as a project overseen by a project manager. Its implementation was tracked monthly using a progress report card, a sample of which is shown in *Exhibit XIII-2*. The company met with New Jersey Department of Environmental Protection (NJDEP) to keep them abreast of the project and sought their feedback.⁵⁹⁰

**Exhibit XIII-2
Sample Monthly Report Card
Compliance with WQAA
2017-2018**

Water Quality Accountability Act Report Card				NEW JERSEY AMERICAN WATER												
Report Date:	Due Date	Reoccurrence	Op Centers	NJ3	NJ4	NJ5	NJ6	NJ7	NJ8	EW1	EW2	EW4	LWC	Owner	Data Source	
Asset Management																
7	Asset Management Plans* that include:	4/19/2019		●	●	●	●	●	●	●	●	●	na	na	Engineering - Seelig	TBD
	-Asset Inventory and Condition Assessment	4/19/2019		●	●	●	●	●	●	●	●	●	na	na	Engineering - Seelig	TBD
	-Level of Service Goals	4/19/2019		●	●	●	●	●	●	●	●	●	na	na	Engineering - Seelig	TBD
	-Critical Assets	4/19/2019		●	●	●	●	●	●	●	●	●	na	na	Engineering - Seelig	TBD
	-Life Cycle Costing	4/19/2019		●	●	●	●	●	●	●	●	●	na	na	Engineering - Seelig	TBD
	-LT Funding strategy	4/19/2019		●	●	●	●	●	●	●	●	●	na	na	Engineering - Seelig	TBD
Cyber Security																
4	Cyber Risk Management	12/31/2018	Annually	●	●	●	●	●	●	●	●	●	▲	▲	Santillo / Donoso/TBD	See Matrix
	Situational Awareness	12/31/2018	Quarterly	●	●	●	●	●	●	●	●	●	▲	▲	Santillo / Donoso/TBD	See Matrix
	Incident Reporting	12/31/2018	Each incident	●	●	●	●	●	●	●	●	●	▲	▲	Santillo / Donoso/TBD	See Matrix
	Response and Recovery	12/31/2018	24 months	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Santillo / Donoso/TBD	See Matrix
	Security Awareness and Training	12/31/2018	On boarding /annually	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Santillo / Donoso/TBD	See Matrix
	Implementation	12/31/2018		●	●	●	●	●	●	●	●	●	▲	▲	Santillo / Donoso/TBD	See Matrix
	Accountability & Board Review	12/31/2018	annually	●	●	●	●	●	●	●	●	●	▲	▲	Santillo / Donoso/TBD	See Matrix
NOV's																
5	Mitigation plan 3> NOV's	As required	As required	●	●	●	●	●	●	●	●	●	●	●	Op Center	na
	Mitigation plan 2 NOV's exceedance of MCL	As required	As required	●	●	●	●	●	●	●	●	●	●	●	Op Center	na
Valves																
3	Inspect small valves every 4 years	10/17/2021	4 year cycle	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Op Center	Mapcall
	Inspect large valves every 2 years	10/17/2019	2 year cycle	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Op Center	Mapcall
	Repair all valves	10/17/2017	TBD	●	●	●	●	●	●	●	●	●	●	●	Op Center	Mapcall
	Valves GPS'd within 5m			●	●	▲	▲	●	●	●	●	na	na	Op Center	GPS Dashboard	
Hydrants																
	Inspected Annually	10/17/2018	Annually	●	●	●	●	●	●	●	●	●	●	●	Op Center	Mapcall
	Metal tag installed	10/17/2018	every inspection	●	●	●	●	●	●	●	●	●	▲	▲	Op Center	Mapcall
	Have plan in place for flushing hydrants/dead ends	10/17/2018	Annually	●	●	●	●	●	●	●	●	●	●	●	Op Center	
	Implement plan for flushing hydrants /dead ends	10/17/2018	Annually	●	●	●	●	●	●	●	●	●	●	●	Op Center	
	Hydrants GPS'd within 5m	10/17/2018	Each/replaced asset	●	●	●	●	●	●	●	●	na	na	Op Center	GPS Dashboard	

Source: Interview 58 and Information Response 612

NJAW was certified in compliance in October of 2018.⁵⁹¹ In addition to the primary certification required by the state and signed by the VP of Operations, the company required an internal secondary certification signed by the operating managers of the company.⁵⁹²

Not all aspects of the WQAA are in effect yet. For example, the act required an Asset Management Plan to be submitted in April of 2019. The plan was submitted by NJAW, but will not be audited by the NJDEP until 2022.⁵⁹³

The WQAA mandates that each water purveyor inspect each valve in its public water system to determine the accessibility of the valve for operational purposes and the valve's operating condition. Any valve found to be broken or otherwise not operational shall be repaired. The law also requires that each water purveyor inspect each valve that is 12 or more inches in diameter at least every two years and all other valves with the exception of service connection valves every 4 years.

The law also creates requirements regarding fire hydrant maintenance. Under the law, each water purveyor shall, once a year, test every hydrant in its system in order to determine the hydrant's working condition. Purveyors must also formulate and implement a plan for flushing every fire hydrant in the public water system, and every dead end of a main in the public water system. The plan for flushing

may be combined with the periodic testing of fire hydrants. NJAW's work order management system MapCall (*Chapter XVIII – Systems Operations*) has been programed to issue work orders for valve operations and hydrant flushing and testing in compliance with the WQAA.

The WQAA is still work in progress with the NJDEP working on enforcement and audit protocols. *Exhibit XIII-3*, an excerpt from the N.J.A.C., gives the requirements for a licensed operator. The license requirements spell out the types of plans and procedures required and reporting requirements.⁵⁹⁴

Exhibit XIII-3
License Requirements
as of December 31, 2018

“(a) At a minimum, all licensed operators shall perform the following duties and maintain the following information for each system operated:

- I. Each licensed operator shall have readily available written detailed operations and maintenance (O&M) procedures. The O&M procedures shall be designed to maximize preventive maintenance and operating techniques that will ensure that the system operates in a manner that satisfies all laws, rules, regulations, license conditions and orders relating to this chapter. The written O&M procedures shall be updated within 30 days after any substantial change to the system that warrants a change in the operation and maintenance of the system. The written O&M procedures shall include, at a minimum:
 - i. Standard operating procedures, including a description of each major treatment unit and/or process;
 - ii. A plan for monitoring system process controls;
 - iii. An emergency operations plan, which addresses facility and system security, and includes a list of names and telephone numbers of facility personnel to be contacted in the event of emergency;
 - iv. A schedule of routine inspections and preventive maintenance;
 - v. For a public wastewater collection system (C class) or a public water distribution system (W class), a system map;
 - vi. A sampling and/or water quality monitoring plan, if applicable to the facility;

Source: Information Response 506

The operations organization is organized geographically into four operating areas as shown in *Exhibit XIII-4*.⁵⁹⁵

**Exhibit XIII-4
NJJAW Operating Areas
as of July, 2019**



Source: Interview 13 and Information Response 52

Discussed in more detail in *Chapter XVIII – System Operations*, each operating area is led by a Senior Director who reports to the Vice President Operations. The Senior Director “owns” his/her territory and is responsible for all activities within his/her territory just as if they were running their own company:⁵⁹⁶

- ◆ Profit & Loss
- ◆ Budgets
- ◆ Customers
- ◆ Revenue
- ◆ Plant Operation and Maintenance
- ◆ Piping systems, both water and sewer, operation and maintenance



The Central Operating Area operations is typical of the four operating areas. It has two operations reporting locations, and two water plants.⁵⁹⁷

- ◆ Production employees typically work 7 a.m. to 3:30 p.m. shifts with a rotating shift that provides 24X7 coverage. Normally there are three employees on the rotating shift; one plant operator, one mechanic and one control room operator. Staffing and schedules are unique to each plant depending on operating conditions. Maintenance work in the plants is done by NJAW employees and contract personnel depending on the nature and complexity of the activity.
- ◆ Transmission & Distribution (T&D) utility crews typically work 8 a.m. to 4:30 p.m. Monday through Friday. There is 24X7 coverage provided by a night foreman. A typical T&D crew consists of four employees: a backhoe operator, two mechanics and a foreman. The foreman is a union employee. All crew members can work “in the ditch”. Flexible work rules allow plant and field people to team up and work together when necessary. Typically, a two person crew performs valve maintenance, and a one person crew for fire hydrant inspection and flushing. Schedules provide 24X7 coverage for field emergencies.
- ◆ Inspectors and Field Service Representatives (FSR) work alone. All planned non-FSR work is scheduled through MapCall. It is all loaded into the system in the beginning of the year. There is an operations supervisor assigned to pull planned work out of MapCall and assign it to crews.
- ◆ Emergent work is typically called into the Field Resource Center in Scranton, PA. An investigation order is issued to a FSR through Click (a system used to issue orders to the field from the Resource Center and discussed in *Chapter XVII – System Operations*). The FSR investigates and may ask for a crew or have it scheduled for another day. If scheduled for another day, the FSR investigating creates a work order in MapCall and the person or crew who works the order completes the work order in MapCall.
- ◆ Data entered into MapCall can be done in the field via a tablet.
- ◆ Payroll is done in a system called MyTime that is not linked to the work order systems.

Operation of the Ocean City, *Exhibit XIII-5*, sewer collection system is typical for NJAW sewer collection operations. The collection system serves 15,000 customers in Ocean City, NJ. It is a level 4 system as defined by the NJDEP and requires the operator to have a level four sewer collection license. It does not treat waste, but just transports it. Effluent is transported to the Cape May County Municipal Utility Authority for treatment. It has approximately 400,000 feet of sewer main ranging in size from four inches to 36 inches consisting of both gravity and force mains.⁵⁹⁸

Exhibit XIII-5
Location of Ocean City Sewer System
July, 2019



Source: Google Maps and Consultant Analysis

There are eight lift stations in the system. The lift stations are all Supervisory Control and Data Acquisition (SCADA) controlled and monitored by the Production Department. Each is visited daily by production crews who maintain the stations. The group has two mobile electric generators to provide backup power for the lift stations.⁵⁹⁹

The system is designed to handle summer peak loads which can be 10 times more than the winter load being that the area is primarily a NJ Shore community. The system is staffed with 20 bargaining unit employees. One crew per day seven days a week is the minimal staffing level. The entire system is cleaned once per year. Two crews per day are assigned in the summer season. The crews have two vacuum trucks to perform the cleaning.⁶⁰⁰

Key manholes known as “trouble” manholes are constantly monitored for blockages. The system is monitored by 20 electronic float devices on a 24 by 7 basis that send signals to the MapCall system when the sewage level in the manhole begins to rise. MapCall initiates calls to supervision to investigate and correct the problem. Minor problems with the system and service repairs are handled by combined production and field operations crews.⁶⁰¹

Due to the very high water table, almost all deep excavation work is done by contractors. Should an emergency arise, crews are called out to handle it. There is no standby coverage at this operation. Utility Mechanics have shifts to provide 24X7 coverage. The 12am to 8am shift may not always be filled to cover a single day absence. There is also a Tuesday through Saturday shift and a 11 a.m. to 7 p.m. shift.⁶⁰²

NJAW manages, operates and maintains the following assets in New Jersey⁶⁰³



- ◆ 7 surface water treatment plants with a combined capacity of 360 million gallons per day (MGD)
- ◆ 258 wells with a combined capacity of 155 MGD
- ◆ 20 waste water plants with a combined capacity of 3.6 MGD
- ◆ 9,600 miles of water and sewer pipe
- ◆ 166 water storage tanks
- ◆ 136 water booster pumping stations
- ◆ 60 sewer lift stations

These assets are broken down to over 100 SAP equipment types which are further broken down into over 300 subcategories. Assets range from something as large as a facility (i.e. buildings) to something as small as a level sensing probe, all of which are essential to operations. An internally-developed system called MapCall serves as the customizable end user interface to SAP which is the repository of asset data and work order history. Planned maintenance activities for assets have varying tasks that are based on a combination of manufacturer requirements and/or recommendations, best practices, and regulatory requirements. The frequency of these activities is based on the same factors, with additional care given to the criticality of the asset and its application. As an example, hydrants have yearly planned maintenance based on regulatory requirements. Within asset classes, planned maintenance may vary due to physical size, the application of the asset, and its location. For instance, valves 12 inches and greater have a planned maintenance frequency of two years, while those less than 12 inches are subject to planned maintenance every four years. In all cases, care is given by engineering and local operations to determine the best methods. *Exhibit XIII-6* shows typical equipment classes and inspection and/or preventative maintenance frequencies.⁶⁰⁴

Exhibit XIII-6
Planned Maintenance Activities
as of July, 2019

Equipment Class	Type of Preventative Maintenance Actions	Frequency
Motor	Inspection/Vibration/Lubrication/Rebuild	Varies on Action
Pumps (various)	Inspection/Vibration/Rebuild	Varies on Action
Power Disconnects	Infrared Testing	1 Year
Remote Telemetry Units	Inspection/Testing/Replacement	Varies on Action
Generators	Inspection/Operate	1 Week/1 Month
Plant Valves	Inspection	1 Year
Chemical Piping	Inspection	1 Month
Sensors (Level)	Test/Validate	1 Month
Analyzers	Inspection/Calibration	Varies on Action
Hydrant	Flushing/Inspection	1 Year
Valves	Inspection/Testing	Varies
Compressor	Testing/Replacement	Varies on Action
Filter equipment	Inspection/Replacement	Varies on Action

Source: Information Request 102

There are two types of maintenance, preventative maintenance and corrective maintenance. Preventative maintenance is planned work done on an asset on a regular interval be it based on time or usage. Preventative maintenance is designed to minimize unplanned equipment failures. Corrective Maintenance/unplanned maintenance is initiated when an unscheduled event or equipment problem arises that needs to be addressed such as a leaking pipe, an unscheduled equipment outage or malfunction.⁶⁰⁵

The company's practice for creating maintenance plans is spelled out in Practice Number PRA-OPS05/04, ASSET MAINTENANCE MANAGEMENT PRACTICE Sections 3 and 4, as shown in *Exhibit XIII-7*.⁶⁰⁶

Exhibit XIII-7
Asset Maintenance Management Practice
as of May, 2013

ASSET MAINTENANCE MANAGEMENT PRACTICE	
Practice Number: PRA-OPS05/04	ELT Sponsor: [REDACTED]
Applicability: American Water Works Company, Inc., and its controlled subsidiaries (together "American Water" or the "Company")	Document Approver: [REDACTED]
Effective Date: 05/20/2013	Document Author: [REDACTED]

I. PURPOSE

This practice outlines the key enterprise activities for establishing maintenance activities in the Company's SAP system, creating maintenance plans for assets, and then delivering to these plans which aligns with the Capital Policy. High-level practice variances related to market-based business (MBB), if any, are outlined in section IV of this document.

II. SUMMARY

This document covers maintenance activities related to capital/expensed assets, which includes new asset purchases, creating, updating and retiring assets, maintaining maintenance procedures, maintaining Preventative Maintenance (PM) plans, follow up work, and reporting and analytics. The activities in this practice apply to both Transmission and Distribution (T&D) and Production Maintenance.

The following are the major sections covered within the Key Activities (III) section of this practice.

- Section 1: New Asset Purchases
- Section 2: Create, Update, and Retire Assets
- Section 3: Maintain Maintenance Procedures
- Section 4: Maintain Preventive Maintenance Plans

Source: Information Response 445

Section 3: Maintain Maintenance Procedures

This section outlines the activities involved in the creation and maintenance of procedures, which are standardized for the enterprise and those with local/specific needs. A maintenance procedure describes a sequence of individual maintenance activities that are performed repeatedly. Procedures are used to standardize recurring work activities to enable more effective planning, and are used to reduce the time spent creating maintenance orders and maintenance plans. New maintenance practices or updates to practices, which contain minimum standards



for asset classes, are reviewed and approved by the Enterprise Asset Management (EAM) Service Delivery Council.⁶⁰⁷

Section 4: Maintain Preventive Maintenance (PM) Plans

This section outlines the activities involved in the creation and maintenance of PM plans. A PM plan is created for assets in the company's SAP system in order to ensure the asset functions optimally and is comprised of a procedure, maintenance items and scheduling data. PM plans are written against functional locations and performed against asset records. The company uses a Single Cycle Maintenance Plan that enables users to define a maintenance cycle based on time. The maintenance plan is repeated at a frequency deemed appropriate by local operations and is automatically triggered by the Company's SAP system. New maintenance practices or updates to practices, which set recommended frequencies for PM plans, are reviewed and approved by the EAM Service Delivery Council.⁶⁰⁸

All preventative maintenance activities are planned, scheduled and reported through MapCall, NJAW's work order management system⁶⁰⁹. Each piece of equipment has a detailed, comprehensive maintenance procedure, schedules and protocol to follow as described in their operating practices⁶¹⁰. The cover page of valve maintenance which is 13 pages long covering every aspect of the inspection and maintenance protocol is shown in *Exhibit XIII-8*.⁶¹¹

**Exhibit XIII-8
Valve Maintenance
as of December 31, 2012**

CONFIDENTIAL AND TRADE SECRET

102-OPSR_Attachment 4

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Company Confidential



AMERICAN WATER

Practice Name: Valve Operation, Inspection, and Maintenance Practice
Functional Area: Operations - Service Delivery - Field Operations
Practice Number: ops_svd_net_pr_03_valveo&mrevised_2009_04_23.doc

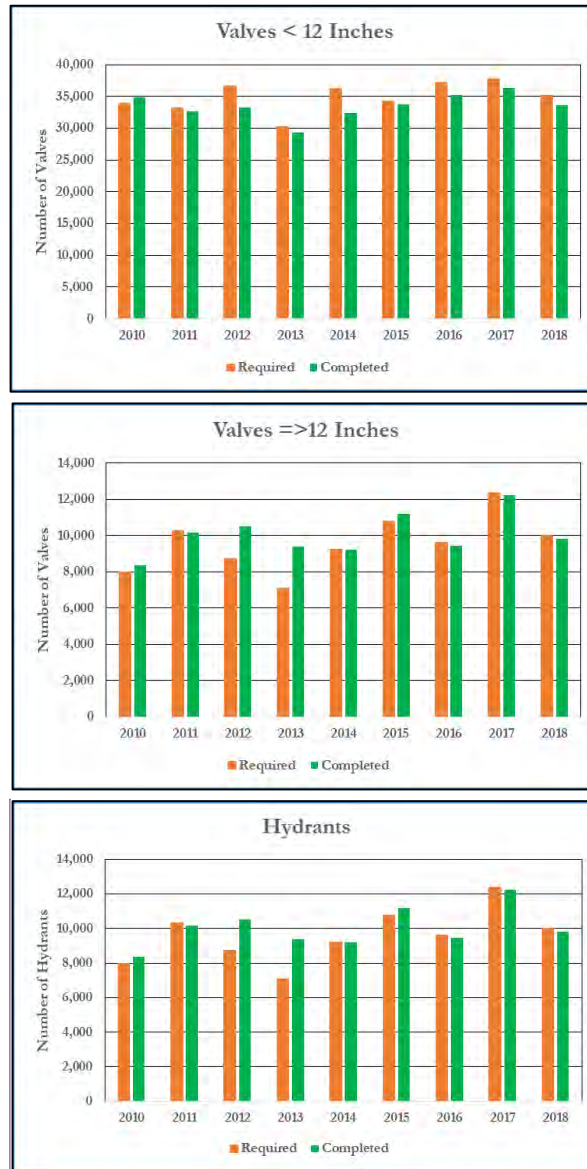
PURPOSE

The objective of this practice (hereinafter the "Practice") is to ensure that American Water Works Company, Inc. and its regulated subsidiaries, including, for purposes of this practice, American Water Works Service Company, Inc. (together "American Water" or the "Company") develop and utilize a consistent program to effectively inspect and maintain valves within its distribution systems in order to ensure the operational integrity of these assets and to optimize the utilization of personnel resources. Effective valve maintenance is important to local operations as a pro-active program may increase valve reliability, reduce valve failure, and extend valve life. The failure of valves as a result of insufficient maintenance may result in extensive damage to infrastructure and/or property loss, extended service interruptions to our customers and can lead to costly repairs or replacement activities.

Source: Information Response 102

Reports are generated monthly for valves and hydrants as part of the Operations Performance, Measures and Results report. *Exhibit XIII-9* below shows the results for valves and hydrant inspections for the last 10 years.⁶¹² Generally, the number of required inspections are completed.⁶¹³

Exhibit XIII-9
Valve and Hydrant Maintenance 2010 to 2018



Source: Information Response 60

Preventative Maintenance for plant equipment is now being scheduled in MapCall. A sample page of Delran Water plant’s preventative maintenance schedule is shown in *Exhibit XIII-10*. A sample of the maintenance plan for Ozone equipment is shown in *Exhibit XIII-11*.⁶¹⁴

**Exhibit XIII-10
Delran Plant Schedule 2018**

Page

Preventative Maintenance Plan Frequencies - DRRWTP

Type	Weekly	Bi-Weekly	Monthly	Bi-Monthly	Every 3 Months	Quarterly	Semi-Annually	Yearly	Every 2 Years	Every 4 Years	Every 5 Years
BFlo VLV-INSP									1		
Check Set Pt CALIB									1		
Chem Sys-INSP							1				
Chem Tk-INSP											1
CL2 BKit-REPL											1
Clean Slurry Tanks					1						
Clean/Insp Ferric Day Tk									1		
Comp-INSP									1		
DBox Drain/Clean CLEAN									1		
Defib-INSP			1								
Diesel Fuel Polishing									1		
DPCC Chem Tank Insp											1
Elec-INSP									11		
Elev-INSP			1		1						
Eight-INSP			1								
ExitIt-INSP			1								
Eyewash-INSP			1								
Ferric Trans Pump INSP			1								
Filter Media-INSP						1					
Fire Ex-INSP			1						1		
FloMet Gen1-INSP									1		
FloMet Gen2-INSP									1		
FloMet Gen3-INSP									1		

Source: Information Response 548

**Exhibit XIII-11
Ozone Equipment Preventative Maintenance
2013**

Ozone Equipment Preventative Maintenance

548-SYSO_Attachment 1
Page 1 of 3

WorkTaskID	EquipmentType	WorkType	Freq	WorkTask	PSM T CPA
15	Ozone Analyzer	Calibration	365	Replace UV lamp and motor gear assembly and perform Zero calibration	Yes
16	Ozone Analyzer	Inspection	30	Take readings of the following parameters: % ozone by weight, ozone pressure in millibars and temperature of the sample stream. Record the readings in the Work Order Notes space below. NOTE: If generator is not in service accurate readings will not	Yes
21	Ozone Destruct Unit	Replacement	1825	Change out Catalyst - Need catalyst spec's.	Yes
22	Ozone Destruct Unit	Inspection	60	Function Check of Destruct Unit Catalyst - Record contactor off gas and destruct unit vent gas readings; record operating temperature of destruct unit. Record readings in the Work Order Notes section below.	Yes
24	Ozone Generator	Inspection	30	Check Signaling Lamps Operation	Yes
146	Ozone Generator	Preventative Maintenance	2190	Replace generator head gaskets and sight glass gaskets. See Maintenance Card # 10	Yes
185	Ozone Analyzer	Replacement	91	Replace the teflon filter disc in the filter on the inlet air sample line. The filters and green plastic filter wrenches are in the ozone room parts storage cabinet.	Yes
186	Ozone Contactor	Inspection	365	Isolate ozone contactor. Drain contactor. Washdown contactor walls and floor. Apply compressed air to ozone distribution piping and laterals. Inspect Ozone Distribution piping and diffusers for leaks and check diffuser air distribution patterns. Tight	Yes
192	Oxygen Monitor	Calibration	365	Calibrate unit, check and replace oxygen sensor if needed Calibrate analyzer. Check UV lamp, air pump, catalyst and motor	Yes

Source: Information Response 548

The current mode of operation is a focus and adherence to regulatory requirements which is included in the Maintenance Plans (MPs) listed above. Also included are best practices and/or recommended schedules provided by the manufacturer and/or the industry. As regulatory items require state reporting, and inspections, further plans and documentations are held and managed by the local operations. In the deployed version of SAP, end users would review their open Maintenance Plans regularly close out work orders that would be deferred or cancelled. Options to denote these actions were not configured in SAP with the ease to extract them. Therefore, in the current system we are not able to pull backlog with this level of detail. All the work orders are listed as closed. However, in the MapCall system provisions were made to have the ability to report with a higher level of granularity⁶¹⁵. In the future it could be expected that MapCall will provide scheduled and completed work orders for all inside plant equipment.⁶¹⁶

The corrective maintenance process is managed through the MapCall Work Management System. Corrective maintenance activities can be initiated by the local management team, field personnel, and customers. Those initiated by customers and field service representatives begin as notifications in SAP. These notifications are reviewed by local back office personnel who will create a corresponding work order in MapCall. All other initiated corrective maintenance orders are entered directly into MapCall by the local management team or field personnel. After an order is created in MapCall, all dependencies such as permits and mark outs, must be satisfied prior to the order being scheduled or dispatched to field personnel for completion. All field completed orders are reviewed and approved by supervisory personnel prior to being closed.⁶¹⁷

Findings & Conclusions

Finding XIII-1 NJAW has a rigorous inspection and maintenance program certified to be in compliance with WQAA and in fact, NJAW implemented a second level of certification requiring operating personnel to certify that the company is in compliance with the regulations

Exhibit XIII-12 provides an example of NJAW’s second level of verification for WQAA compliance certification.⁶¹⁸

**Exhibit XIII-12
Sample WQAA Level 2 Certification
May, 2019**

Nitrates & Atrazine	ITC	Annual (Jan-Mar)	GW POE (1)	Collected 3/7/2019
	Twin Lakes	Annual (anytime)	GW POE (1)	Collected 4/2/2019
Belvidere	Annual (anytime)	GW POE (1)	Collected 5/15/2019 scheduled for qtrly due to result over 1/2 MCL	
Mansfield	Annual (anytime)	GW POE (1)	Sched Aug	
Mansfield	Annual (Jul- Sept)	GW POE (1)	Collected 5/13/2019 - sampling quarterly due to result over 1/2 MCL	
Washington	Annual (anytime)	GW POE (4)	Dale & Vannatta collected 1/8 to 1/16	
Washington Waterbook Atrazine	Annual (Oct-Dec)	GW POE (1)	Sched Oct	
South Orange	Annual (Oct-Dec)	GW POE (1)	Sched Oct	
Roxbury	Annual (anytime)	GW POE (5)	Collected 1/16/2019	

Annual/Triennial/Sexennial/Novennial Samples					
Radiologicals	System	Monitoring Frequency	Location	Year Due	Comments (No Radiologicals required for North Ops in 2019)
RA226, RA228, Uranium, Gross Alpha	Short Hills	Triennial	GW POE (2)	2020	n/a
		Sexennial	SW POE (1)	2020	n/a
		Sexennial	GW POE (4)	2023	n/a
		Novennial	GW POE (2)	2023	n/a
	Four Seasons	Triennial	GW POE (1)	2021	n/a
	West Jersey	Novennial	GW POE (1)	2024	n/a
	Country Oaks	Sexennial	GW POE (1)	2021	n/a
	ITC	Novennial	GW POE (1)	2024	n/a
	Twin Lakes	Novennial	GW POE (1)	2024	n/a
	Belvidere	Novennial	GW POE (1)	2024	n/a
	Mansfield	Novennial	GW POE (2)	2024	n/a
	Washington	Sexennial	GW POE (4)	2023	n/a
	South Orange	Triennial	GW POE (1)	2020	n/a
	Roxbury	Sexennial	GW POE (1)	2023	n/a

584-OPSR_Attachment 1
Page 5 of 5

May 2019 [Redacted] Operations
Drinking Water Compliance Sample Collection Confirmation Form

Samples highlighted in yellow have been collected within the past month.

I confirm that all required drinking water compliance samples listed on the above form have been collected and reported.

Name/Title: [Redacted] WQ Supervisor
Signature: [Redacted]
Date: 5/31/2019

Source: Information Response 584

Finding XIII-2 NJAW has detailed and comprehensive maintenance protocols for preventative maintenance.

Exhibit XIII-7 details NJAW’s maintenance protocols.

Finding XIII-3 There is a substantial backlog of repairs.

There is a substantial backlog of repairs as seen in *Exhibit XIII-13*, which calls into question staffing at the worker level and/or the need to clean up work orders no longer needed or duplicate work orders. While carrying a reasonable backlog of work is normal. There is no estimate of time required to perform this work it most likely amounts to over a year backlog it should be cleaned up and/or reduced.⁶¹⁹

**Exhibit XIII-13
Number Incomplete/Backlog Work Orders
July, 2019**

Incomplete/Backlog Work Orders		Incomplete/Backlog Work Orders		Incomplete/Backlog Work Orders	
Description	Count	Description	Count	Description	Count
Curb and Pit Repair Order	6477	Water Main Installation	227	Sewer Manhole Repair	24
Flow Test	278	Water Main Leak Capital	5	Sewer Manhole Replace	10
Hydrant Installation	5	Water Main Leak Repair	10	Sewer Manhole Installation	0
Hydrant Repair	1473	Water Main Maintenance	21	Sewer Overflow Response	0
Hydrant Replacement	1209	Water Main Retirement	29	Sewer backup- Company side	5
Hydrant Retirement	18	Water Meter Installation	2	Sewer backup- Customer side	1
Inspection	0	Water Meter Replacement	11	Sewer Lateral Repair	61
Interior Setting Repair	4	Water Quality	39	Sewer Investigative	14
Investigative	963	Curb and Pit Replace Order	4777	Service Response Work	23
Leak Detection	76	Sewer Main Repair	0	Relocation	66
Service Installation	0	Sewer Main Replacement	2	Restoration Investigation	133
Service Leak Repair	72	Sewer Main Retirement	0	Sewer Lift Station Repair	0
Service Line Installation	1158	Install new Sewer main	11	Storm/Catch Installation	0
Service Line Replacement	5259	Sewer Main Cleaning	4	Storm/Catch Repair	0
Service Line Retirement	242	Sewer Lateral Installation	523	Storm/Catch Replace	0
Valve Installation	173	Sewer Lateral Leak - Repair	9	Equipment	381
Valve Repair	3335	Sewer Lateral Leak - Replace	173		
Valve Replacement	357	Sewer Lateral Leak - Retire	6		
Valve Retirement	54	Sewer Lateral Leak - Customer side	4		

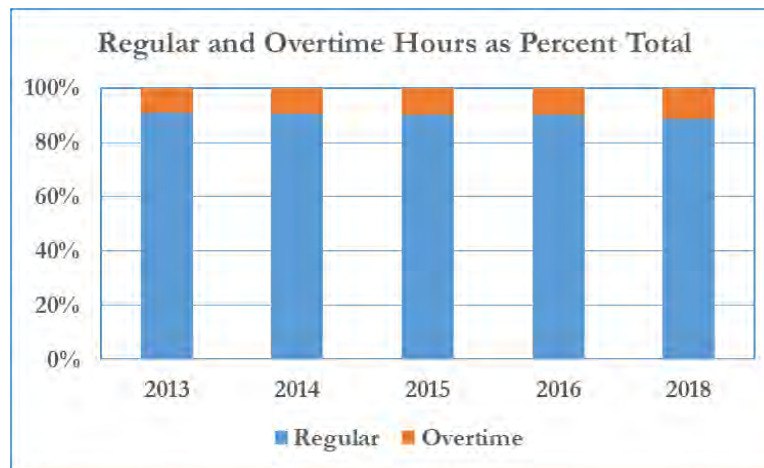
Source: Information Response 87

- ◆ Maintenance work at production facilities is done by NJAW employees and contract personnel depending on the nature and complexity of the activity. Water and sewer employees can work on either water or sewer facilities in the field which gives the Company flexibility and efficiency when making repairs.⁶²⁰

Mostly all construction work and plant maintenance is contracted. Seasonal variations in work load can be handled through overtime and/or variations in contract work. As shown in *Exhibit XIII-14* below, it can be seen that the regular hours worked has stayed relatively constant and overtime has increased slightly since 2013 from 9% to 11.1% in 2013, which is still very reasonable.⁶²¹



Exhibit XIII-14
Regular and Overtime Hours as Percent Total
2013 to 2018



Source: Information Request # 88

Finding XIII-4 Valve and Hydrant maintenance is essentially in compliance with WQAA.

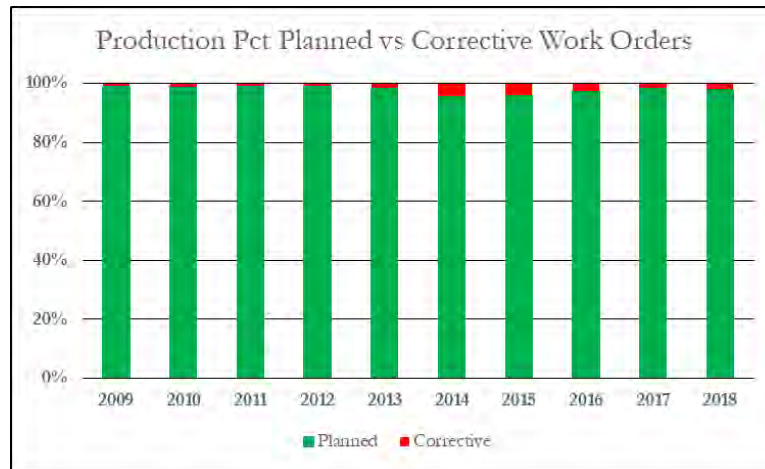
Valve and Hydrant maintenance is essentially current as shown in *Exhibit XIII-8*.

Finding XIII-5 It is not possible to determine if plant maintenance is current.

It is not possible, at present, to determine through data and reports if plant maintenance work is current. There is no reporting of planned vs actual work performed. However, the new MapCall system should provide this reporting capability in the future. More granular reporting and records can be made available from the system which should enable the reporting of the status of planned plant maintenance.⁶²²

The ratio of planned maintenance versus corrective work orders for Production maintenance is an indicator of how effective the planned maintenance protocols are. *Exhibit XIII-15* indicates that there is relatively little corrective maintenance with respect to the planned maintenance in terms of the number of work orders and is indicative that the plant planned maintenance plans and protocols are effective.⁶²³

Exhibit XIII-15
Production Percent Planned vs Corrective Workers
2009 to 2018



Source: Information Responses 104 and 111

Recommendations

Recommendation XIII-1 Confirm work orders in the backlog. (Refer to Finding XIII-3.)

NJAW should confirm work orders in the backlog are required and develop and implement a strategy to maintain the backlog at a reasonable level.

Recommendation XIII-2 Modify the Monthly Performance Report. (Finding XIII-5.)

Include the status of planned plant maintenance versus actual planned maintenance completed in the Monthly Performance Report.



B. Asset Life-Cycle Maintenance Philosophy and Practices

Background & Perspective

NJAW's life cycle and maintenance philosophy and practices, including asset replacement, is guided by four factors:

- ◆ NJAW's Vision and Strategy
- ◆ The company's Asset Lifecycle Philosophy
- ◆ The Water Quality Accountability Act (WQAA)
- ◆ NJAW's Maintenance Policy and Protocols reviews in *Section A* of this chapter

This section focuses on the company's Asset Life Cycle Philosophy.

The company's Vision and Strategy can be seen in *Exhibit XIII-1*. It can be seen from the company's Operational Excellence Vision shown in *Exhibit XIII-16*, which NJAW strives for operational excellence by being "best in class" in execution of business and operation fundamentals.⁶²⁴

Exhibit XIII-16
NJAW's Operational Excellence Vision
May, 2019



Source: Interview 2

The WQAA is a principal driver of the company's asset management and asset life cycle. Specifically its requirement for the company to have an Asset Management Plan (AMP). The background and purpose of the Asset Management Plan is shown in *Exhibit XIII-17*.⁶²⁵

Exhibit XIII-17
Purpose Asset Management Plan NJAW
October 2017

This statewide Asset Management Plan (AMP) has been prepared in response to the New Jersey Water Quality Accountability Act (WQAA), Public Law 2017, Chapter 133, which was enacted on July 21, 2017. This Act established new requirements for public water systems to improve the safety, reliability, and administrative oversight of their water infrastructure. The WQAA became effective on October 19, 2017 and it applies to public water systems with more than 500 service connections.

The Act requires public water systems to create and implement asset management plans designed to inspect, maintain, repair, and renew their infrastructure consistent with standards established by the American Water Works Association (AWWA). In addition, the Act also specifies a methodology for routinely testing valves and fire hydrants. Also, the Act supplements the Safe Drinking Water Act (N.J.S.A. 58:12A- 1 et seq.), by requiring the submittal of a mitigation plan by public water systems that exceed a certain number of violations within any 12-month period. Public water systems regulated by the Act that have internet connected control systems will also need to create cybersecurity programs and join the NJ Cybersecurity and Communications Integration Cell.

Source: Information Response 580

The AMP requirements are shown in *Exhibit XIII-18*.⁶²⁶

Exhibit XIII-18
WQAA Asset Management Plan Requirements
October 2017

Beginning no later than 18 months after the effective date of this act (i.e. April 19, 2019), every public water system shall implement an asset management plan designed to inspect, maintain, repair, and renew its infrastructure consistent with standards established by AWWA. The AMP shall include:

1. a water main renewal program designed to achieve a 150-year replacement cycle, or other appropriate replacement cycle as determined by a detailed engineering analysis of the asset condition and estimated service lives of the water mains serving the public water system;
2. a water supply and treatment program designed to inspect, maintain, repair, renew, and upgrade wells, intakes, pumps, and treatment facilities in accordance with all federal and State regulations, standards established by AWWA, and any mitigation plan required by WQAA; and
3. any other programs, plans, or provisions as may be required by the department pursuant to rules and regulations adopted pursuant to the "Administrative Procedure Act," P.L.1968, c.410 (C.52:14B-1 et seq.).

Source: Information Response 580

Other AMP requirements are shown in *Exhibit XIII-19*.⁶²⁷

Exhibit XIII-19
Other WQAA Asset Management Plan requirements
October 2017

- Certification by the licensed operator or professional engineer of the PWS and the responsible corporate officer of the PWS for privately held water systems
- Consistency with AWWA standards
- Annual dedication of funds to address/remediate the highest priority projects in the AMP
- By April 19, 2022 and every 3 years thereafter, the certification of a report based on the infrastructure improvements taken, and to be taken and the costs of those improvements

Source: Information Request 580



The contents of NJAW's AMP include all of the elements based on the requirements of the WQAA from the NJDEP's website⁶²⁸ and shown in *Exhibit XIII-20*, *Exhibit XIII-21*, and *Exhibit XIII-22*.⁶²⁹

Exhibit XIII-20
Facilities and Asset Groups included in the AMP
as of April 2019

This AMP covers the following Transmission and Distribution (T&D) (i.e. linear) and Production (i.e. vertical) facilities and sub-facilities in the NJAW systems.

1. Surface water intakes
2. Wells
3. Surface water treatment plants
4. Ground water treatment plants
5. Pumping stations
6. Raw water reservoirs
7. Potable water storage tanks
 - a. Elevated tanks
 - b. Ground storage tanks
 - c. Standpipes
8. Transmission and distribution pipes and appurtenances, including PRVs and Interconnections with other systems

Source: Information Response 580

Exhibit XIII-21
Contents of the NJAW AMP
as of April 2019

Based on the requirements of the WQAA and guidance provided at the NJDEP's Asset Management website, the following information is provided in this statewide AMP.

1. Introduction
2. Inventory of water system assets
3. Physical condition and performance of water system assets
4. Risk assessment of water system assets
5. Recommended water main renewal program
6. Recommended production facility inspection, maintenance and renewal and mitigation plan

Source: Information Response 580

Exhibit XIII-22
Supplemental Information Sources Available for Reference
as of April 2019

- SAP PM and Map Call data (equipment lists extracted November 29, 2018)
- NJAW System GIS (map data extracted January 29, 2019)
- Excel databases provided by NJAW Operations and American Water Corporate Engineering
- NJAW Distribution System Improvement Charge (DSIC) DSIC Foundational Filing (2018)
- NJAW Board of Public Utilities Annual Report (2017)
- NJAW 2017 Conservation Plan (Revised April 2017)
- Annual permit applications submitted to NJDEP

Source: Information Response 580

In addition, the following Capital Planning Studies (CPS) and Asset Management Plans (AMP) were included⁶³⁰

- ◆ Raritan System CPS 2017
- ◆ Passaic Basin System CPS 2016
- ◆ Delaware River System CPS 2015
- ◆ Coastal North Water System CPS 2014
- ◆ Mount Holly Water System CPS 2012
- ◆ Harrison Water System CPS 2011
- ◆ Raritan System AMP 2017
- ◆ Coastal North Water System AMP 2013
- ◆ Penns Grove Water System AMP 2012

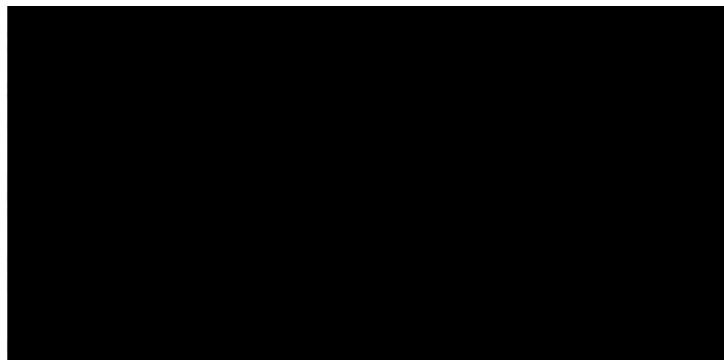
It should be noted that prior to the WQAA taking effect, NJAW had many of the components in place. Some of the key ones are Comprehensive Planning Studies, Asset Management Plans, and Risk Assessment of Water System Assets.

NJAW has funding mechanisms to support operational, maintenance and capital improvement projects. NJAW typically uses internal funding available through its parent company American Water, which is a balance of company issued equity shares and new debt. In addition for some large infrastructure projects, NJAW seeks financing from the New Jersey State – Drinking Water Revolving Fund.⁶³¹

To illustrate the significance of these investments, in less than a three year period NJAW invested more than \$868 million in infrastructure upgrades, including over 1 million feet of water main.⁶³²

Risk Assessment is used by NJAW to prioritize the replacement of its assets. The framework used by NJAW to assess risk associated with asset replacement projects is shown in *Exhibit XIII-23*.⁶³³

Exhibit XIII-23
NJAW Risk Framework
as of April 2019



Source: Information Response 580



The Consequence of Failure (COF) impact on Level of Service (LOS) categories are given in *Exhibit XIII-24*.⁶³⁴

**Exhibit XIII-24
Risk Assessment COF Impact of LOS
as of April, 2019**

Table 4-1 - COF Categories and Impacts on Levels of Service

COF / LOS Category	Impact on Levels of Service
[Redacted Content]	

Source: Information Response 580

Each COF and Likelihood of Failure (LOF) for the asset is scored from one to three with one being low and three being high. Using this ranking system each asset is scored as shown in *Exhibit XIII-25*.⁶³⁵

**Exhibit XIII-25
Derivation of Risk Score
April, 2019**

LOF Score		Risk Score		
High	3	3	6	9
Medium	2	2	4	6
Low	1	1	2	3
	COF Score	1	2	3
		Low	Medium	High

Risk	Score
High	6-9
Medium	3-4
Low	1-2

Source: Information Response 580

The risk assessment scoring shown in *Exhibit XIII-25* is used for all non-pipe distribution and transmission assets.⁶³⁶

NJAW uses a set of tools to prioritize or grade very large data sets of water distribution mains based on LOF and COF. The set of tools is a combination of NJAW’s extensive geographic information system (GIS), traditional GIS spatial analysis tools, hydraulic data, and a specialty suite of tools within GIS named InfoMaster (by Innovyze). The analysis performed is an “all pipe” analysis using standardized, weighted condition, and consequence criteria⁶³⁷.

The InfoMaster LOF categories and factors are shown in *Exhibit XIII-26* below.⁶³⁸

**Exhibit XIII-26
InfoMaster LOF Factors
April, 2019**

LOF Factor	Description

Source: Information Response 580

InfoMaster computes a risk score for each segment of pipe in NJAW’s system using the 5X5 matrix, as shown in *Exhibit XIII-27*⁶³⁹

**Exhibit XIII-27
InfoMaster Risk Matrix
April, 2019**

	LOF - Low	LOF - M. Low	LOF - Medium	LOF - M. High	LOF - High
COF - High	Low	Medium	High	Extreme	Extreme
COF - M. High	Low	Medium	High	Extreme	Extreme
COF - Medium	Negligible	Low	Medium	High	Extreme
COF - M. Low	Negligible	Low	Medium	High	Extreme
COF - Low	Negligible	Low	Medium	High	Extreme

Source: Information Response 501

The final results are presented in the form of intuitive color-coded maps, example of which is shown in *Exhibit XIII-28* where the range is represented by Grade A (green - low risk) to Grade F (red - high risk), as shown in *Exhibit XIII-27*.⁶⁴⁰

Exhibit XIII-28
Example Risk Output Map
April, 2019



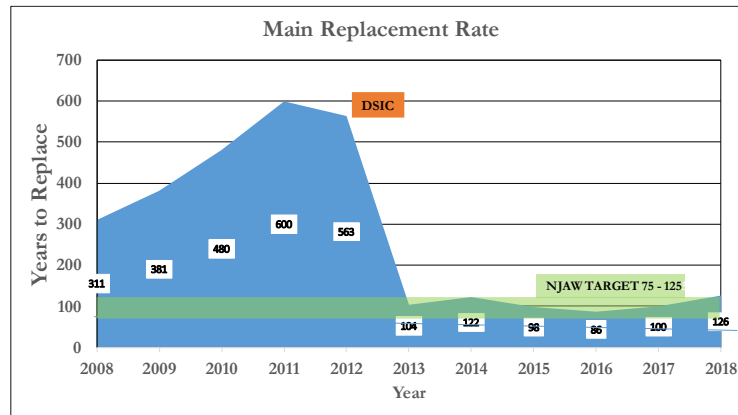
Source: Information Response 501

The Distribution System Improvement Charge (DSIC) for NJAW was approved by the New Jersey Board of Public Utilities (NJBPU) in May 2012. It is a mechanism used to fund the replacement of aging water assets. It is funded by a surcharge on a customer's bill based on meter size. The current program was for a three-year period and needs to be refiled this year.⁶⁴¹

The American Water Works Association recommends replacing mains on a 100-year cycle. The Water Quality Accountability Act, NJ recommends a 150 year replacement. Based on the NJAW's ongoing analysis of the condition of its assets and prioritization modeling, the Company has determined that a 75 to 125 year replacement cycle is more indicative of an appropriate replacement rate for its water distribution system.⁶⁴²

The DSIC program has allowed NJAW to achieve its 75 - 125 year main replacement rate target during the period 2013 – 2018, as shown in *Exhibit XIII-29*.⁶⁴³

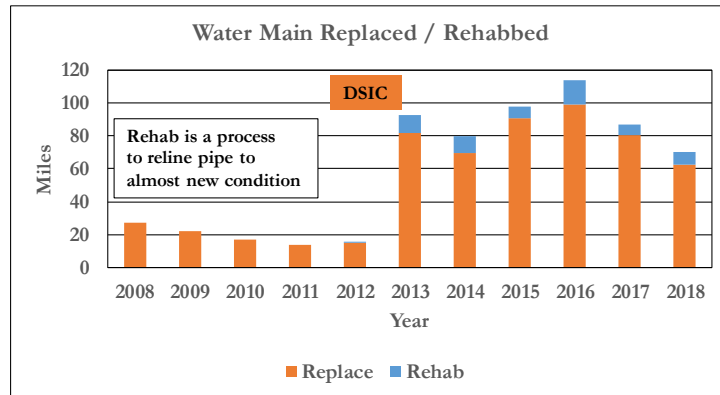
Exhibit XIII-29
NJAW Main Replacement / Rehab Rates
2008 to 2018



Source: Interview 61

Exhibit XIII-30 shows that through the DSIC has significantly accelerated the replacement of mains.⁶⁴⁴

Exhibit XIII-30
NJAW Water Main Replaced / Rehabbed
2008 to 2018

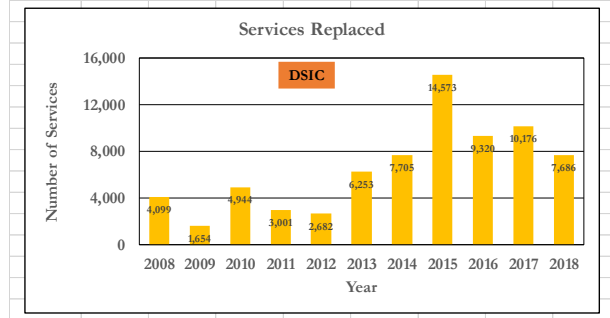
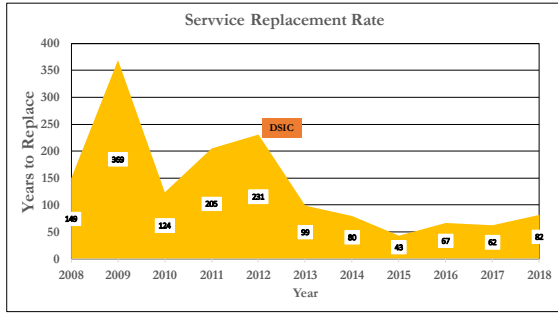


Source: Interview 61

Exhibit XIII-31, Exhibit XIII-32, And Exhibit XIII-33 below indicate that DSIC has significantly lowered the replacement rates of services, hydrants, and valves.⁶⁴⁵

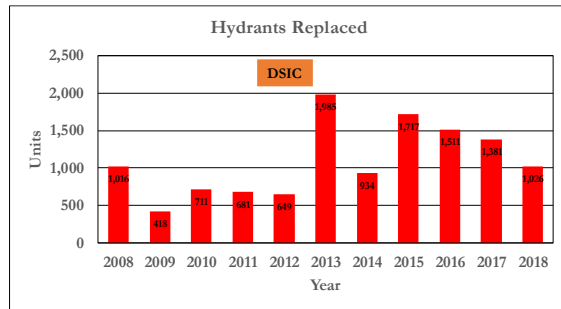
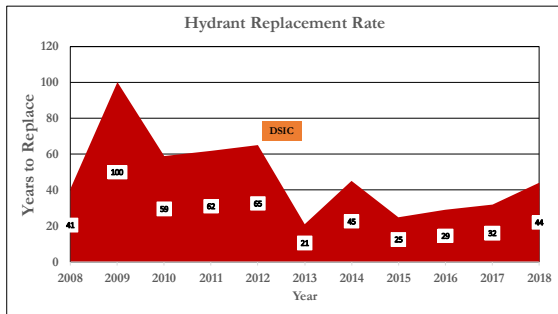


Exhibit XIII-31
NJAW Service Replacement Profile
2008 to 2018



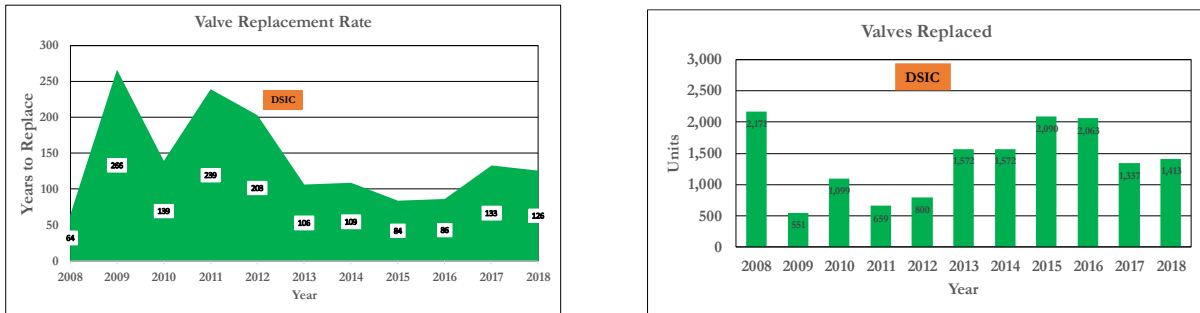
Source: Interview 61

Exhibit XIII-32
NJAW Hydrant Replacement Profile
2008 to 2018



Source: Interview 61

**Exhibit XIII-33
NJAW Valve Replacement Profile
2008 to 2018**



Source: Interview 61

NJAW’s summary of the use of DSIC funds for 2018-2020 is given in *Exhibit XIII-34*.⁶⁴⁶

**Exhibit XIII-34
DSIC Program Summary
for 2017 - 2020**

Current water main renewal projects are listed in the 2018 DSIC Foundational Filing and cover the renewal of water distribution system assets for the period of 2018 through 2020. A total of approximately 5,000 pipe projects have been identified across the state, of which approximately 1,000 have been prioritized for completion between 2018 and 2020. Note that these projects cover all 32 PWSs owned by NJAW (except for Roxbury which was acquired recently), including smaller ones serving less than 500 connections, i.e. PWSs not part of this AMP. These water main renewal projects are distributed among the four regional Operating Areas of NJAW: Southwest, North, Central and Coastal.

The projects include replacement, nonstructural cleaning and lining, and semi to full-structural cleaning and lining projects; an investment totaling approximately \$600 million. Also included in this filing is the renewal of valves, hydrants and service connections. The DSIC report provides details on each project, the reason for the project, the need to accelerate these investments and the estimated costs. The total cost of this program, including these pipeline projects plus the valve, hydrant and service connection renewals, is estimated and expected to be capped at approximately \$356 million, including the base year expenditures of approximately \$27.6 million per year over the next two calendar years. This estimated level of investment represents an acceleration of main renewal work of approximately \$100 million. This level of investment is projected to help NJAW achieve a pipeline renewal interval of approximately 100 years for the period of time covered by this filing. Sustaining a renewal interval of 100 years beyond the time period covered by this filing requires sustained investment levels, such as those envisioned under, and authorized by, the DSIC rules.

Source: Information Response 580

NJAW classifies its leaks as shown in *Exhibit XIII-35*.⁶⁴⁷

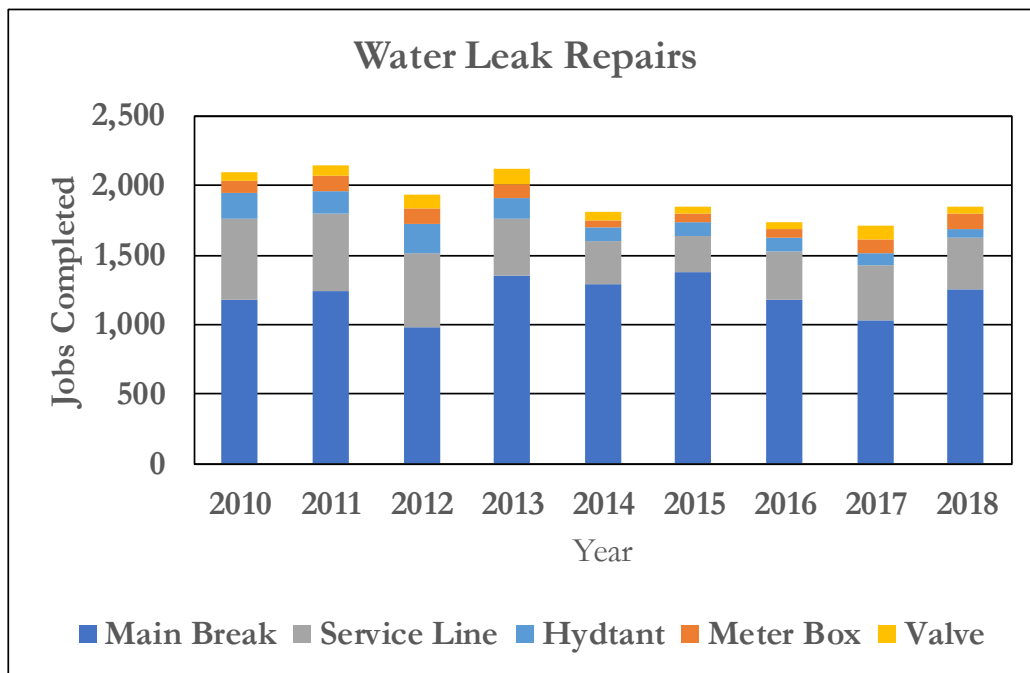
**Exhibit XIII-35
NJAW Leak Classification
July, 2019**

Description
HYDRANT LEAKING
LEAK IN METER BOX, INLET
LEAK IN METER BOX, OUTLET
SERVICE LINE REPAIR
SERVICE LINE/VALVE BOX REPLACE
VALVE LEAKING
WATER MAIN BREAK REPAIR
WATER MAIN BREAK REPLACE

Source: Information Response 457

Exhibit XIII-36 indicates that the DSIC Main Replacement program has resulted in a downward trend in the number of leaks attributable to mains.⁶⁴⁸

**Exhibit XIII-36
Completed Leak Orders by Classification
2010 - 2018**



Source: Information Response 457

The MapCall work management system is the repository for water and sewer main capital projects placed in cue and awaiting to be scheduled for completion. It is reasonable to expect there would be a number of projects in queue awaiting approval, funding and scheduling to provide a predictable and

regular stream of work for Operations. However, upon examination of the MapCall data, in *Exhibit XIII-37*, it was found that there is a total of 3,500 projects valued at over 1.5 billion dollars in the queue. It is noted that the majority of mains in MapCall are water mains, only 41 of the projects totaling 8 miles are sewer mains. At the current spend rate, this backlog represents 17 years of work.⁶⁴⁹

**Exhibit XIII-37
Main Projects in MapCall Backlog
as of July, 2019**

Water and Sewer Mains												
Operating Center	New			Rehab			Replace			Total (New, Replace, and Rehab)		
	Projects	Feet	Est Cost	Projects	Feet	Est Cost	Projects	Feet	Est Cost	Projects	Feet	Est Cost
EW1 - Netherwood	60	55,768	13,772,000	29	417,968	88,199,745	556	883,498	235,358,000	645	1,357,234	337,329,745
EW2 - Belle Mead	57	157,746	48,377,350	1	2,400	600,000	166	221,868	53,588,386	224	382,014	102,565,736
NJ3 - Fire Road	85	156,242	37,393,895	5	20,049	6,950,000	528	701,884	179,412,329	618	878,175	223,756,224
NJ4 - Lakewood	11	20,196	16,602,500				243	267,967	54,610,230	254	288,163	71,212,730
NJ5 - Burlington / Camden	68	50,197	9,723,130	7	53,355	10,285,900	432	1,421,028	294,130,740	507	1,524,580	314,139,770
NJ6 - Short Hills	37	109,713	36,914,345	22	328,049	49,581,400	381	795,814	182,042,917	440	1,233,576	268,538,662
NJ7 - Shrewsbury	21	30,899	20,241,250	3	220,233	4,260,000	743	903,481	181,559,605	767	1,154,613	206,060,855
NJ8 - Washington	6	3,467	733,750				43	52,412	10,717,075	49	55,879	11,450,825
Grand Total	345	584,228	183,758,220	67	1,042,054	\$159,877,045	3,092	5,247,952	\$1,191,419,282	3,504	6,874,234	\$1,535,054,547
Total Miles		111			197			994			1,302	

Source: Information Response 582

Meter replacement is performed in compliance with the N.J.A.C. 14:9-4, as shown in *Exhibit XIII-38*.⁶⁵⁰

**Exhibit XIII-38
NJAW Meter Replacement and Testing
as of July, 2019**

Meter size	Whichever comes first
5/8 inch	10 years or 750,000 gallons
3/4 inch	Eight years or 1,000,000 gallons
One inch	Six years or 2,000,000 gallons
Greater than one inch	4 years-no gallon limit

Source: Information Response 253

Meters less than 3 inches are removed from service according to the schedule above and shipped to the State Meter Shop. The meter shop makes weekly pickups and delivery to the operating locations to deliver new meters and pick up meters to be tested. There are approximately 573,000 5/8 inch meters in service as of July 2018.⁶⁵¹ These meters are removed from service and scraped after 10 years. In 2018, 67,214 of these meters were scheduled to be changed out.⁶⁵²

All large meters, 3 inch and larger, are tested every 4 years per the regulatory requirements above.. Large meters are either tested in-place by NJAWC staff or certified meter testing contractors, or pulled from

service and tested at NJAWC's large meter testing facility in Plainfield or offsite by certified meter testing contractors. If the meter passes (+\ - 1.5% as per N.J.A.C. 14:9-4.1), the large meter shall remain in service (in the case of in-place tests) or is placed back into inventory for re-deployment (for pulled meters), with a new 4-year length of service certification. If a meter fails, the meter may be repaired, tested again and (if passed) placed back into inventory for re-deployment with a new 4-year length of service certification. Meters that cannot be repaired are scrapped. Large meter stock is inventoried annually. Refunds to customers are made for meters found to be running more than 1.5% fast. No collection efforts are made for meters found to be running slow.⁶⁵³

Findings & Conclusions

Finding XIII-6 The NJAW asset management plan is very comprehensive.

The NJAW asset management plan is very comprehensive and incorporates many existing practices and systems for water assets but does not incorporate meter, sewer, and wastewater systems.

Finding XIII-7 NJAW's backlog of water and sewer main capital projects is extremely large.

NJAW's backlog of water and sewer main capital projects is extremely large, as shown previously in *Exhibit XIII-37*. This large backlog calls into question each project's validity and NJAW's ability to fund and execute the projects.

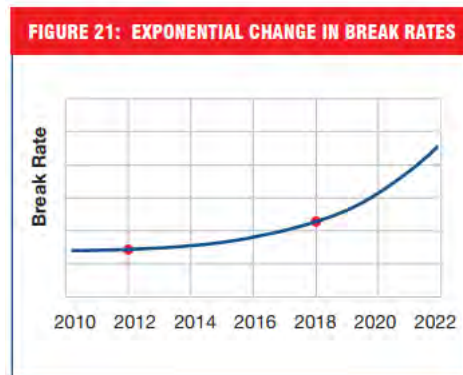
Finding XIII-8 NJAW residential (5/8 inch) meter retirement rates are shorter than it needs to be.

There are a number of states that have varying cycle times ranging from 10 to 20 years. Most states are 15 years. The average for all American Water Companies is 13 years which is heavily weighted by New Jersey's 10 year cycle. When the WQAA was reviewed, NJAW requested that the testing and replacement of residential meters be extended from 10 years to 15 years. The request was based on a study conducted by Utah State that demonstrated that a 15 year cycle was justified. The NJBPU turned down the request⁶⁵⁴.

Finding XIII-9 2018 – 2020 increase in DSIC program funding is justified.

This is borne out by the March, 2018 "Water Main Break Rates in the USA and Canada" study conducted by Utah State University.⁶⁵⁵ The study indicates main breaks are expected to accelerate at an exponential rate, as shown previously in *Exhibit XIII-36*, plus *Exhibit XIII-39* shows potential accelerating main break rates.⁶⁵⁶

Exhibit XIII-39
Potential Accelerating Main Break Rates
as of March, 2018



Source: https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1173&context=mae_facpub (Page 25)

Some of the key conclusions from the study are shown in *Exhibit XIII-40*.⁶⁵⁷

Exhibit XIII-40
University Utah Water Main Break Conclusions
as of December 31, 2012

2. Break Rates Have Increased 27% in the Past Six Years

Between 2012 and this 2018 report, overall water main break rates increased by 27% from 11.0 to 14.0 breaks/(100 miles)/year. Even more concerning is that break rates of cast iron and asbestos cement pipe, which make up 41% of the installed water mains in the US and Canada, have increased by more than 40% over a 6-year period.

3. 82% of Cast Iron Pipes are Over 50 Years Old and Experiencing a 43% Increase in Break Rates

Cast iron (CI) pipes represent the largest pipe material inventory in North America. 82% of all CI pipe is over 50 years old and their break rates have increased significantly by 43% since 2012 and are expected to continue to increase. 27% of asbestos cement (AC) pipe is also over 50 years in age and AC pipe breaks have increased by 46% in that same 6-year period. CI and AC pipe together are mostly responsible for the spike in overall break rates since 2012. Utilities with large amounts of cast iron and/or asbestos cement pipes may need to accelerate their replacement rates. CI and AC pipes are no longer manufactured and many are reaching the end of their expected lives.

Source: https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1173&context=mae_facpub (Page 4)

It is given that the results of the study are general in nature and that each company need to look at its own assets. However, the \$100 million increase in DSIC funding being requested by NJAW, previously in *Exhibit XIII-34*,⁶⁵⁸ is consistent with the need to replace failing assets on a more rapid rate.



Recommendations

Recommendation XIII-3 Develop Asset Management plans for meter, sewer, and waste water systems. (Refer to Finding XIII-6.)

Because the NJAW asset management plan is very comprehensive and incorporates many existing practices and systems for water assets, but does not incorporate meter, sewer, and wastewater systems, NJAW should develop Asset Management plans.

Recommendation XIII-4 Establish a base line threshold, including linkage to approved budgets or 5 and 10 year plans, that a project must meet before it is placed into the MapCall backlog. (Refer to Finding XIII-7.)

As shown previously in *Exhibit XIII-37*, NJAW's backlog of water and sewer main capital projects is extremely large, in which this large backlog calls into question each project's validity and NJAW's ability to fund and execute the projects. Therefore, NJAW should establish a base line threshold, including linkage to approved budgets or 5 and 10 year plans, that a project must meet before it is placed into the MapCall backlog.

Recommendation XIII-5 Review, using the established base line threshold, the backlog of water and sewer main projects for validity and probability of funding and completion. (Refer to Finding XIII-7.)

As shown previously in *Exhibit XIII-37*, NJAW's backlog of water and sewer main capital projects represents about 15% of its distribution assets, in which this large backlog calls into question each project's validity and NJAW's ability to fund and execute the projects. Therefore, NJAW should review, using the established base line threshold, the backlog of water and sewer main projects for validity and probability of funding and completion.

Recommendation XIII-6 Work with the NJBPU to move to a 15 year testing cycle or a sampling program for cycle changes of residential meters. (Refer to Finding XIII-8.)

In 2013 NJAW conducted a detailed study entitled the Meter LOS: Initial Draft⁶⁵⁹ that concluded that if the current 10 year cycle for the replacement of residential meters were to be replaced with a more strategic plan that an estimated \$2 million in reallocated capital and \$1 million in cost avoidance could be achieved.⁶⁶⁰ It is recommended that NJAW update the study and present it to the NJBPU for implementation.

XIV. Executive Management and Corporate Governance

This chapter addresses the corporate governance policies, practices, and procedures of American Water Works Company, Inc. (American Water or AW) and New Jersey-American Water Company (NJAWC). It will also review American Water's adherence to the Sarbanes-Oxley Act of 2002 (SOx). Specifically, this chapter will review the makeup and activities of the AW Board of Directors (Board) and its committees, Board interfaces with external and internal auditors, and actions to comply with the spirit of the requirements of both the Sarbanes-Oxley Act of 2002 and the New York Stock Exchange (NYSE). This chapter will also review American Water's holding company structure and the independence and compensation of executive management.⁶⁶¹

A. Background & Perspective

Publicly traded companies have long been subject to financial and disclosure laws and regulations (e.g., The Securities Exchange Act of 1934 and the Foreign Corrupt Practices Act, which among other conditions required companies to have internal controls). The financial and business community at large has been active in strengthening corporate governance principles through efforts such as the National Commission on Fraudulent Financial Reporting (Treadway Commission/Report) and the General Accounting Office. In 1998, the NYSE and the National Association of Securities Dealers (NASD) (now known as the Financial Industry Regulatory Authority (FINRA)) sponsored a committee known as the Blue Ribbon Committee that developed recommendations to improve the effectiveness of audit committees. Subsequently, NYSE, NASD, and the Securities and Exchange Commission (SEC) revised listing standards and developed new rules concerning the corporate governance roles of audit committees. Nevertheless, subsequent events surrounding several spectacular company collapses (e.g., Enron in 2001, and WorldCom and Global Crossing in 2002) and the allegations of misdeeds by corporate executives, independent auditors, and other market participants then undermined investor confidence in the U.S. financial markets. In response, Congress passed, and the President signed into law, the Sarbanes-Oxley (SOx) Act of 2002, which effected sweeping corporate disclosure and financial-reporting reform. This act directed the SEC to enact new rules to meet its intent. The SEC took and considered comments from interested parties and published the new rules in 2003. The most applicable sections of SOx as they apply to large, publicly traded corporations involve the following:

- ◆ Strengthening auditor independence
- ◆ Increasing the roles and responsibilities of the audit committees of the board of directors
- ◆ Requiring senior management to certify to and otherwise be generally held responsible for the accuracy of financial statements
- ◆ Increasing the disclosure and transparency of financial information in quarterly and annual reports
- ◆ Enhancing company internal controls (to include the establishment of a code of ethics)



Basic Corporate Organizational Structure

American Water Works Company, Inc. (AW) is a publically traded corporation overseen by an eleven-member AW Board of Directors. This Board consists of ten independent directors, including the Chairman, and one corporate officer – AW’s President and Chief Executive Officer (CEO).⁶⁶² In addition, New Jersey-American Water Company, Inc. (NJAW) is overseen by a five member Board of Directors consisting of two outside/independent directors and three company officers.^{663/664} American Water Works Service Company, Inc. (Service Company), which supplies support and operational services to American Water operating subsidiaries, has its own Board of Directors consisting of 15 directors as of September 9, 2019: 13 of whom are senior management employees of the Service Company with the other two being the CEO of the corporate parent (who is an employee of AW) and the other an employee of California-American Water Company. The Service Company Board does not have any committees.⁶⁶⁵

Board of Director’s Composition

Until July 25, 2019, the AW Board consisted of eight members: seven independent directors and one Company executive. The Chairman of the Board is an independent director. The Board includes a diverse depth of experience in energy/pipelines, finance/banking, insurance/risk, manufacturing/materials, military, technology, utilities, and regulatory. Seven members are new to the Board within the past five years.⁶⁶⁶ AW recently announced that the Board will be increased by three additional members (appointed on July 25, 2019), bringing the total Board up to eleven (11) directors. All three new directors are former CEOs of major electric and gas energy utilities. No AW Board member serves as a director on more than three other public corporations. The Chairman of the Audit, Finance and Risk Committee has an MBA degree from the Harvard Graduate School of Business and extensive experience in insurance and financial services. One of AW’s directors has served had served for seven years as a Commissioner on the Florida Public Service Commission, the last two years as its chairman.^{667/668}

The American Water Board does not have a set number of directors. The Board will expand and contract based on the discretion of the Board and the availability of qualified directors. Generally, the Board seeks to maintain a level of from eight to twelve directors.⁶⁶⁹

In April, 2019, AW updated their Corporate Governance Guidelines. These guidelines address the principles and manner in which the Company, specifically the AW Board of Directors, will meet their responsibilities in accordance to the Company’s Certificate of Incorporation, Bylaws, and applicable rules and regulations governing the Company including Sarbanes-Oxley Act of 2002 (SOx), New York Stock Exchange (NYSE) Listing Requirements, and federal securities laws. Specific topics include: General Principles, Board Composition, Director Responsibilities, Board Committees, Director’s access to management, employees, and independent advisors, Director Compensation, Director Orientation and continuing education, Management succession and development, annual performance evaluations, internal audit, and business code of ethics.⁶⁷⁰ This document is reviewed annually by the Board’s

Nominating/Corporate Governance Committee, who recommends any changes to the AW Board of Directors for approval.⁶⁷¹

General Principles for directors emphasize time commitment, adherence to ethics and conflicts of interest, financial acumen, and accountability. Director qualifications are only broadly discussed, but generally AW looks for a balance of experience and the diversity of ideas and opinions that new members can bring to the discussion. Directors are expected to balance the interests of all Company shareholders and stakeholders. 75 is the retirement age for directors and there are no set term limits.⁶⁷²

Board makeup is entirely independent except for one management Director, generally the CEO. All members of Audit, Finance and Risk; Nominating/Corporate Governance; and Executive Development and Compensation Committees must be independent. As the time of our review, Directors could not serve on more than two other public Boards without prior approval of the Nominating/Corporate Governance Committee and interlocking directorships are not allowed. Directors are responsible for initiating disclosure of any conflicts of interest. In addition, directors and senior management are required to annually fill out detailed questionnaires on their background and interests/activities and are required quarterly to affirm that they are not a party to a related person transaction involving AW. The information from these questionnaires is used for disclosures in Proxy statements and other reporting obligations.⁶⁷³

The AW Board must select a Chairman of the Board who is an independent director and must replace a Chairman of the Board who ceases to be independent with another independent director, although the Guidelines do provide for the role of the lead director, if the Chairman is not an independent director. Directors are required to meet in executive session at each Board meeting. Generally committee chair tenure is limited to 5 years and the Guidelines encourage Committee chair rotation recognizing instances where there is a specific expertise. Directors have full access to independent advisors and have the authority to fund these advisors without management approval.⁶⁷⁴

A meaningful portion of the Director's compensation is paid in some form of equity in the company. Continuing education for directors is required at least every 3 years and encouraged every year. However, the level and amount of director ongoing education is not tracked.⁶⁷⁵

At least one Board meeting each year includes a presentation of the Company's long term strategic plans by the Company's executive management team and the principal issues that the Company expects it may face in the future. In practice, strategic and risk issues are discussed at most Board meetings. Directors also participate annually in a multiple-day off site retreat to discuss strategic issues facing the Company. The Board is responsible for overseeing management succession plans presented by the CEO for executive officers. The Company is required to have an Internal Audit Department with the Director reporting (functionally) directly to the Audit, Finance & Risk Committee. Administratively, the Director of Internal Audit reports up through the AW Financial Organization. The Board is directly responsible, through the Audit, Finance and Risk Committee, for overseeing the Company's Business Code of Ethics.⁶⁷⁶



Articles III, and IV of the AW By Laws further details governance responsibilities of the Board and its committees, with Article V addressing governance responsibilities of Company officers.⁶⁷⁷

NJAW does not have any formal set of policies and practices for selecting Board members.⁶⁷⁸

Board Committees

The AW Board has four standing committees as follows:⁶⁷⁹

- ◆ Audit, Finance and Risk Committee – represents and assists the Board in ensuring the adequacy effectiveness, and integrity of the Company’s financial statements, internal controls, compliance with regulatory and legal requirements, independent auditor’s qualifications, independence, and activities; risk assessment and mitigation strategies; financial policies and significant financial decisions, activities and performance of the internal audit function and; reporting of information required by Securities and Exchange Commission (SEC) rules. This committee also promulgates and oversees enforcement of AW’s Code of Ethics.⁶⁸⁰
- ◆ Nominating/Corporate Governance Committee – represents and assists the Board in identifying and evaluating candidates for the Board; developing and reviewing Corporate Governance Guidelines; recommend committee membership and; reviewing composition and performance of committees and Board members.⁶⁸¹
- ◆ Executive Development and Compensation Committee – assists and represents the Board in overseeing the Company’s compensation programs (including directors and executives), and management development and succession planning.⁶⁸²
- ◆ Safety, Environmental, Technology, and Operations Committee – assists the Board in oversight and review of employee and public safety, environmental policies and practices to include water quality and emerging contaminants, technology policy, strategy and governance to include cybersecurity, and operational performance and risks.⁶⁸³

All four committees have detailed, documented charters that are annually reviewed and updated, as necessary, by each committee and approved by the AW Board.⁶⁸⁴

The AW Board and Committees meet at least quarterly. Committee meetings are done as a “committee of the whole”: all Board members are present and can participate although only committee members can vote on committee matters.⁶⁸⁵ We reviewed AW Board minutes for the past three years and Board packets and Audit, Finance and Risk Committee minutes and packets for the past year. AW Board topics that are regularly reviewed and discussed includes Strategic Updates (includes an annual three-day, off-site Board retreat on strategic issues facing the Company), performance and operations across the company, succession planning and executive development, financial plans and updates, status and plans for acquisitions, safety, corporate culture (human resources issues), compensation and risk management, state and federal regulatory and legislation issues, and executive and director evaluations. The Audit, Finance and Risk Committee routinely addresses financial matters focusing on internal controls and compliance issues, internal auditing activities (including oversight of cybersecurity and other risk

processes), ethics program (Code, training, acknowledgement, investigation), activities of outside auditors and consultants, legal proceedings, PricewaterhouseCoopers LLP (PwC) Required Communication (including approval of outside auditor fees), and Enterprise Risk Management (including annual risk review of the top 9 risks to the Company). Each Audit, Finance and Risk Committee meeting ends with separate executive sessions with Management, Internal Audit director, the General Counsel and Chief Ethics and Compliance Officer, and the external auditor (PwC).⁶⁸⁶ In addition, the Chair of the Audit, Finance and Risk Committee meets with the director of Internal Audit in executive session the week before the regularly scheduled session.⁶⁸⁷ As noted in the Audit, Finance and Risk Committee charter, the Director of Internal Audit reports functionally to the Chair of the AW Audit, Finance and Risk Committee and administratively up through the Chief Financial Officer.

Sarbanes-Oxley Required Internal Controls and Board Involvement

AW has identified 162 key SOx controls that applies to AW, AW service companies and operating companies. These controls include a description of control risk (High, medium, low), specific control identifier, significance (all key), frequency of checking (monthly, quarterly, annually, continuous), description of the control, nature (manual, configuration, IT Dependent Manual, segregation of duties, sensitive access), and the description of the associated risk.⁶⁸⁸ Annually, AW's independent auditor, PwC, conducts an independent review of AW's SOx controls and renders an opinion on their effectiveness.⁶⁸⁹

Also of note is that internal controls reviews are conducted by Company personnel, including Internal Auditing, with assistance as needed by an outside consultant/auditor: Ernst & Young (EY). Deficiencies are identified through this process and the Company's outside auditor, PwC, discloses the deficiencies they believe are significant or material weaknesses in internal control over financial reporting to the Audit, Finance and Risk Committee. Management is responsible for having an effective internal control structure and to remediate those deficiencies. Control deficiencies in 2016 have since been corrected. Additional control deficiencies have recently been disclosed and are currently being corrected. The Audit, Finance and Risk Committee expects these deficiencies to be resolved after end-of-year testing.⁶⁹⁰ For more information, see the chapters on Internal Controls and Internal Auditing.

PwC has been AW's outside auditors for over 10 years and, although the Audit, Finance and Risk Committee annually approves their fees, there has been no explicit consideration of rebidding their services.⁶⁹¹ PwC's audit fees have been relatively stable, but have increased approximately 11 percent over the past 5 years.⁶⁹² Also, the Wall Street Journal recently reported that PwC clients are far more likely to have to revise financial statements (both Big R and Little r restatements) than the other Big 4 firms combined: arguably an indication of audit quality.⁶⁹³ We found no indication of any issues related to the quality of PwC's audit services for AW.



NJAW and Service Company Boards

The NJAW Board is required to hold at least one annual meeting, but can hold special meetings as requested by Board members.⁶⁹⁴ In practice NJAW holds quarterly Board meetings in addition to another meeting (Five meetings per year)⁶⁹⁵ By-laws provide for the appointment of committees although currently, NJAW Board does not have any committees.⁶⁹⁶ The NJAW Board routinely addresses issues specific to NJAW including operations, budget and financial performance, capital expenditures, safety, growth strategy and development opportunities, rate case/regulatory matters, labor relations, real estate/facilities purchases and sales, and any ongoing litigation. External Board member guidelines are defined for all regulated companies.⁶⁹⁷ The Service Company Board meets quarterly (four times per year) and does not have any committees.⁶⁹⁸

Board and Executive Compensation

In 2019, all AW independent directors are paid an annual cash retainer of \$100,000. The Chairman of the Board receives an additional \$62,500, while the Chairs of Committees receive an additional \$25,000 (Audit, Finance and Risk) or \$20,000 (Executive Development and Compensation, Nominating/Corporate Governance, and Safety/Environmental/Technology/Operations). In addition, all directors receive annual stock grants valued at \$135,000, with the Chairman of the Board receiving an additional stock unit grant valued at \$62,500. Employee directors, e.g. the CEO, do not receive any annual retainers or equity compensation tied to their Board service. Directors are required to hold AW shares equal to five (5) times their annual cash retainer by the fifth anniversary of their commencement of service as a director. In addition to their fees, independent directors are reimbursed for travel and other expenses incurred in attending meetings and other functions of the Board and Committees, and also for one director education program per year.⁶⁹⁹ No directors have received “other compensation” (e.g. consulting fees) from AW over the past three years.⁷⁰⁰

NJAW and Service Company Board members receive no extra compensation for serving on their respective Board. Independent directors (NJAW) receive annual cash compensation of \$17,500 consisting of quarterly retainers and per meeting attendance fees.⁷⁰¹ There are no stock ownership requirements for NJAW directors.⁷⁰²

Director and executive compensation is reviewed and adjusted annually by the Board through the Executive Development and Compensation Committee. AW periodically conducts compensation studies on Section 16 Officers through an outside compensation consultant (Willis, Towers & Watson), and the Executive Development and Compensation Committee retains its own independent compensation consultant (Semler Brossy) to advise it on executive compensation matters.⁷⁰³ Outside studies on independent director compensation is also performed annually (Brossy Semler).⁷⁰⁴ These studies show that, on average, AW executives’ Base Salary, Total Cash Compensation, and Total Target Direct Compensation fall within 15 percent of blended market median (60 percent Energy Industry/40 percent Core General Industry).⁷⁰⁵

Section 16 executive management and AW director compensation (with the exception of restricted stock units issued to AW Board of Directors) is paid through the Service Company and allocated to AW subsidiaries in accordance with the Billing and Accounting Manual (BAM). Corporate administration (SF8000-1005) allocation is done in accordance with the BAM with NJAW receiving 19.3 % of costs. Independent director compensation for the NJAW Board is charged directly to NJAW. The Service Company has no independent directors; directors only receive their normal company compensation. There are no outstanding loans or lines of credit between AW and any AW director or member of executive management.⁷⁰⁶

Ethics - Board Disclosures, Ethics Policies and Practices

American Water has a documented Code of Ethics (Code) signed by the Chairman of the Board and the CEO and President of AW. Major topics include basic standards, conflicts of interest, fair dealing, handling sensitive information, safeguarding financial records and controls, government relations, conduct in the workplace, and administration. The Code emphasizes honesty and integrity, doing the right thing regardless of consequences, no retaliation against anyone bringing forward ethics concerns, and the common sense guidance of ‘don’t do anything you wouldn’t want published on the front page of the newspaper’.⁷⁰⁷

The Code has an up-front executive summary. Topics include Avoiding Conflicts of Interest, Fair Dealing, Handling Sensitive Information, Safeguarding Financial Records and Controls, Government Relations, and Conduct in the Workplace. General American Water Standards emphasizes employees taking personal responsibility for their actions and thoughtfully making proper decisions. The body of the text is punctuated with “Ethics in Action” inserts, which give specific examples of how certain situations should be addressed or answer specific questions that might be raised. Compliance with the Code of Ethics is a condition of employment at AW and violations will result in disciplinary action up to and including termination of employment. The Code broadly discusses vendors and contractors, but provides no direction on actions taken against vendors who violate The Code. Corporate Master Service Agreements, however, do contain language that explicitly states that the Contractor is expected to conform his business dealings in accordance with the underlining principals of The Code.⁷⁰⁸

The Administration section at the end specifies individuals in the Company in which to seek advice or to report violations. This includes a designated Chief Ethics and Compliance Officer, the Legal Department, and a confidential ethics hotline. All ethical violations or suspected ethical violations are required to be reported to the confidential ethics hotline. Others can also be notified, but the ethics hotline must be used. The Ethics hotline is manned by trained professionals of an outside vendor (NAVEX) that does not have any caller identification, so confidentiality is assured. Complaints are assigned a tracking number and then forwarded to the Chief Compliance (Ethics) Officer. She will determine if the complaint is investigated or forwarded to Human Resources or Management for resolution. There may be no investigation if the Chief Compliance Officer determines there is not enough information or if the allegation does not involve a violation of the Code. The Chief Compliance Officer, in consultation with the General Counsel, determines the appropriate follow-up action. There



are no formal factors on what gets referred to outside investigation, although seriousness of the allegation and availability of resources are primary determining factors. Not all complaints will result in a written report, but there will be some resolution (e.g. referred to HR) in NAVEX's data base.⁷⁰⁹ If an investigation report is prepared, it typically includes: an Executive Summary, Summary of the Allegation, Investigation Procedures, Summary of the Material Facts, Applicable Company Policies and Procedures, and Conclusion/Disposition.⁷¹⁰ All calls to the ethics hotline are reviewed by the Chief Compliance Officer. When appropriate, the Chief Compliance Officer will escalate a case to the Compliance and Ethics Committee (comprised of the Executive Leadership Team) and/or the Board's Audit, Finance and Risk Committee. Investigations can be internally performed, there is an AW employee designated for this purpose, or by an outside firm, e.g. outside counsel. The Chief Compliance Officer routinely reports on the status of compliance and ethics to the CEO and the Chair of the Audit, Finance and Risk Committee, the Compliance & Ethics Committee and the Audit, Finance and Risk Committee.⁷¹¹ Ethics Investigation Reports are documented and include an Executive Summary, Summary of the Allegation, Investigation Procedures, Summary of the Material Facts, Applicable Company Policies and Procedures, and Conclusion/Disposition. Quarterly summaries of ethics allegations and investigations (statistics by subsidiary and matter) along with outcomes are presented to the Board's Audit, Finance and Risk Committee.⁷¹² Written investigation reports are reviewed by the Audit, Finance and Risk Committee as needed and requested.⁷¹³

The Board and Ethics Committee is assisted by American Water's Compliance & Ethics department. This department is responsible for the operation of the enterprise-wide Compliance and Ethics program (CEP). Compliance & Ethics department personnel includes: the Chief Compliance Officer, Compliance Manager, and Compliance Analyst. Collectively, the Department is responsible for:⁷¹⁴

- ◆ Updating the Company's Code of Ethics, and managing the process to update policies and practices;
- ◆ Monitoring the Company's confidential ethics hotline and overseeing ethics investigations;
- ◆ Monitoring overall effectiveness of CEP;
- ◆ Delivering compliance training, including annual training for all employees on Code of Ethics;
- ◆ Assisting with risk identification and mitigation;
- ◆ Monitoring compliance with federal and state law and regulations; and
- ◆ Routinely communicating the status and effectiveness of the CEP to Chief Executive Officer and Chair of the Audit, Finance and Risk Committee of the Board of Directors.

A Compliance and Ethics representative will attend quarterly meetings with Internal Audit and give informal feedback on any compliance areas that are candidates for audit.

Each year, all directors and employees must complete training on the Code of Ethics. At the conclusion of the training, non-union employees certify they have read and complied with the Code of Ethics while union employees acknowledge that they attended the training. Some employees are designated on a "Restricted List" which means that in the normal course of their duties, they have access to material, non-public information. These individuals receive additional ethics training regarding insider trading. The Compliance Department tracks the status of completion of these trainings by employees.⁷¹⁵ On an

annual basis, the Chief Compliance Officer and General Counsel report to the AW Board Audit, Finance and Risk Committee regarding the completion of annual Code of Ethics training and corresponding certification along with any recommended changes to the Code.

The AW Board is ultimately responsible for oversight of the Code and its application. Waivers must be approved by the Board or a designated Board Committee. Waivers for AW executives and directors must be publically disclosed.⁷¹⁶ The Code was recently updated (2019-20), but has not been approved by the Board yet.⁷¹⁷⁷¹⁸ Although AW directors do not fill out annual disclosure forms, they must complete annual Board questionnaires, which serves the same purpose.⁷¹⁹

At the time of the audit, AW had a full time ethics investigator, who had a bachelor's and master's degree in criminal justice and forensic science and had considerable experience as an Army Military Police Officer. AW has also used four different outside law firms in the past three years, as required, for sensitive investigations.⁷²⁰

AW Board's Interaction with **Senior Management** (AW and NJAW)

NJAW Board regularly meets with NJAW senior management at their Board meetings. Topics generally include a financial report (including declaration of quarterly dividends to the parent corporation), approval of new/updated policies and procedures, operations reports, rate case regulatory update, business development, litigation, labor relations, and any governance updates.⁷²¹

Board Lawsuits (AW and NJAW)

There have been no shareholder lawsuits filed against AW in the past three years.⁷²² There is currently no legal action pending with NJAW.⁷²³

Senior Management Control

AW has an Executive Leadership Team (ELT) which serves as a senior management committee for AW corporate issues. This committee consists of members of senior management, including the CEO, and meets quarterly to discuss strategic issues facing AW. These meetings do carry agendas although minutes are not recorded.⁷²⁴⁷²⁵ Likewise, NJAW has a senior management team (SMT) made up of senior NJAW management, including the Regional Eastern Vice President and President of NJAW, who also meet at least quarterly to address operational issues. Members of this team meet frequently with their counterparts in the Service Company concerning services received. For example, The President of NJAW meets quarterly with the Service Company Supply Chain Department.⁷²⁶ For more information on ELT and SMT, see chapter XVII- Strategic Planning.⁷²⁷



B. Findings & Conclusions

Finding XIV-1 The American Water holding company structure is reasonable and beneficial to NJAW customers.

AW's corporate structure allows the holding company the resources to focus on critical governance issues that would be difficult and more expensive for individual operating companies to address on their own (e.g. ethics, internal controls, disclosure reporting). Company Boards are then free to address specific operating and financial issues specific to their company. Likewise, the Executive Leadership Team and the activities of the service company helps leverage expertise and resources to the benefit of the individual operating companies.

Finding XIV-2 American Water's Board of Directors has the proper level of experience, diversity and independence to oversee corporate objectives.

In July 2019, American Water's corporate Board increased to 11 members with the addition of three additional directors. Ten of the 11 directors are independent and the Chairman of the Board is an independent director. All directors have extensive management experience in a wide range of areas (e.g. finance, law, operations, and customer service) as well as industries. Industry experience includes State Regulatory experience as well as utility industry experience. Board turnover is appropriate: As of July 2019, seven of the 11 Board directors have joined within the past five years: three within the past 6 months.

A review of Board and Audit, Finance and Risk Committee minutes,⁷²⁸ as well as interviews with AW's Chairman of the Board and Chairman of the Audit, Finance and Risk Committee, indicates the Board is active in overseeing important issues and topics critical to the operation of American Water and its subsidiaries.

Finding XIV-3 American Water and NJAW corporate administration compensation packages are within industry norms, but allocated across subsidiaries based primarily on customer count.

Periodic compensation surveys are conducted by outside, independent, and qualified firms for senior management and Board directors. These surveys show that management and directors are compensated well within norms for the Energy and Core General industries. Allocation of these costs to NJAW is approximately 20 percent based on customer count.

Finding XIV-4 AW's Board committee structure is well defined and effective, although the administrative reporting relationship of AW Internal Auditor results in potential conflicts.

The AW Board has the proper number committees that focus on the important issues facing the corporation. All committees have substantive charters that are reviewed and updated annually. All

committees are assigned directors with relevant knowledge and experience to conduct their duties. Minutes are maintained on all Board and Committee meetings. The Director of Internal auditing functionally reports to the Chairman of the Audit, Finance and Risk Committee and does meet frequently with her in executive session. However, Internal Audit reports administratively up through the Finance Department. This represents a conflict of interest.

Finding XIV-5 AW is in compliance with New York Stock Exchange (NYSE) and Sarbanes-Oxley (SOx) requirements.

AW contracts with PwC, one of the Big 4 accounting firms, for conducting its audits and providing independent attestations for public disclosure. Internal controls are specifically identified and tracked by Company financial personnel and through an organizational compliance group. Testing is performed by Internal Auditing and outside support from an outside firm (Ernst & Young). PwC reviews the results and discloses the deficiencies they believe are significant or material weaknesses in internal control over financial reporting. Management determines what needs to be performed to correct the deficiencies. All required attestations from senior management are included in public disclosure documents (e.g. 10K, Proxy Statements).

Finding XIV-6 AW has a substantive Code of Ethics document and process, but it does not explicitly extend these requirements to all contractors and vendors who do business with American Water.

The Company has a documented, substantive Code of Ethics that includes examples of ethical situations and how to properly respond. The Code is reviewed and updated periodically by the Board Audit, Finance and Risk Committee. Training is available on-line and through training sessions and all employees are required to periodically undergo ethics training acknowledge The Code. A process is in place for allegations to be reported, via a hotline, to an independent, outside firm for tracking. All allegations (with sufficient information and relating to Code violations) are investigated and documented in a formatted investigation report. Statistics, reports, and key resolutions are presented quarterly to the Board Audit, Finance and Risk Committee. Outside law firms experienced in conducting ethics investigations have been identified and used for serious or sensitive investigations. An ethics committee, consisting of senior management, helps to oversee the program. The AW Board Audit, Finance and Risk Committee is responsible for the Ethics Program. Interviews with directors and senior company management reinforces that AW takes ethical behavior seriously.

Master Service Agreements have language in them that states the Company expects contractors to conform their business dealings in accordance with the underlying principles of the Company's Code of Ethics. This requirement is somewhat vague and should be better clarified.



Finding XIV-7 **The AW Board exercises appropriate control over external auditors; however, a process has not been established to ensure that cost comparisons for external auditing services are performed on a periodic basis.**

The Board Audit, Finance and Risk Committee meets quarterly with the external auditor in executive session. The Audit, Finance and Risk Committee evaluates the external auditor's performance and recommends their retention for the upcoming year. However, PwC's audit fees have increased over the past five years. Although we found no indication of any issues related to the quality of PwC's audit services for AW, there has recently been some issues related to their audit quality with some of their other clients. PwC has been the external auditor for AW for at least the past ten years and there has not been any formal rebidding of audit services in that time.

C. Recommendations

Recommendation XIV-1 **Examine broadening the formula for allocating senior management and AW director compensation. (Refer to Finding XIV-3.)**

Market-based businesses have different business models that the regulated companies and customer count is not an accurate or comparable method of allocating senior management and director compensation. A blended allocation formula would produce a fairer allocation of these costs.

Recommendation XIV-2 **Change administrative reporting of the Internal Audit Function. (Refer to Finding XIV-4.)**

Internal Auditing should report administratively through some other organization than the Finance group. Preferably they should administratively report to the CEO or the Legal Department to prevent any conflicts of interests.

Recommendation XIV-3 **Require vendors and contractors to explicitly acknowledge and agree to conduct themselves in accordance to AW's Code of Ethics. (Refer to Finding XIV-6.)**

Vendors and contractors should be required to conform to the Company's Code of Conduct, not just expected to comply. Penalties for unethical conduct by contractors or their employees should be explicit. Contract language can specifically identify particular instances that are most likely to occur with contractors, e.g. bribery, gift giving. Contractors should be required to report any instances of Company employees or other vendors/contractors who solicit unethical behavior (e.g. favors, kickbacks). Another useful step would be for AW to require major vendors and contractors to provide a copy of their own Code of Ethics.

Recommendation XIV-4 Implement a process to periodically perform cost comparisons for external audit services. (Refer to Finding XIV-7.)

Formal evaluations and comparisons of audit services should be conducted at least every five years.



XV. Organization Structure

This chapter will evaluate American Water Works Company, Inc. (AW) and New Jersey American Water Company (NJAW) organization to include the nature of the relationship among affiliates, including American Water Works Service Company (AWWSC or Service Company).

A. Background & Perspective

American Water Works Company, Inc., a holding company, is the largest and most geographically diverse publicly-traded water and wastewater company in the United States (by operating revenues and population served). AW employs approximately 7,100 professionals and serves more than 14 million people in 46 states and Ontario, Canada. AW's primary business involves providing water and waste water services to 3.4 million customers in approximately 1,600 communities in 16 States (U.S.) through ownership of regulated utilities. These "Regulated Businesses" account for approximately 88 percent of AW's total revenues.⁷²⁹

AW also operates non-regulated Market Based Businesses that provides a broad range of related water/wastewater services to residential, commercial customers and industrial customers; military installations; gas exploration companies; municipalities and; other utilities. AW's primary Market-Based Businesses included the following operating segments:⁷³⁰

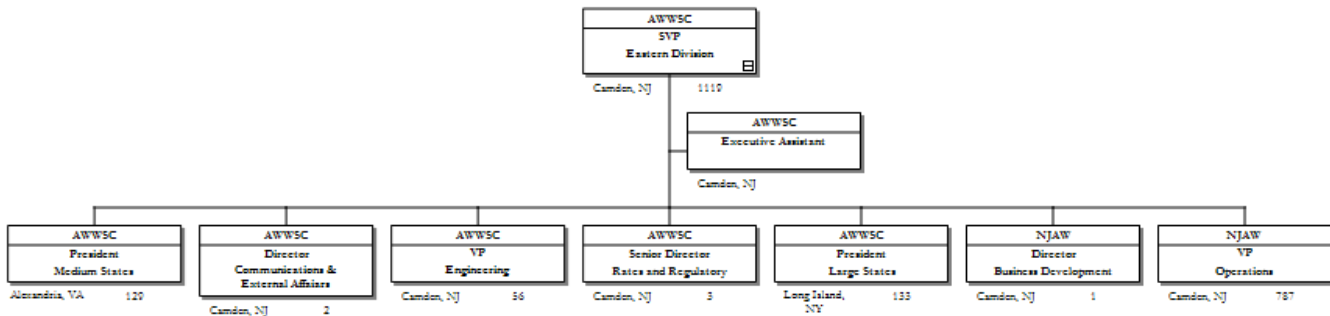
- ◆ Homeowner Services Group, which provides various warranty protection programs to residential and small commercial customers;
- ◆ Military Services Group, which enters into long-term contracts with the U. S. government to provide water and wastewater services on various military installations;
- ◆ Keystone Clearwater Solutions, LLC (Keystone), which provides customized water transfer services for shale natural gas exploration and production companies, but was sold to SC Water, LLC on December 17, 2019.

NJAW has little interaction with the market-based businesses except with one company in the Homeowner Services Group as noted below.

The organization of NJAW is shown in *Exhibit XV-1*.⁷³¹



Exhibit XV-1
New Jersey American Water Company
Organization Chart
as of April 30, 2019

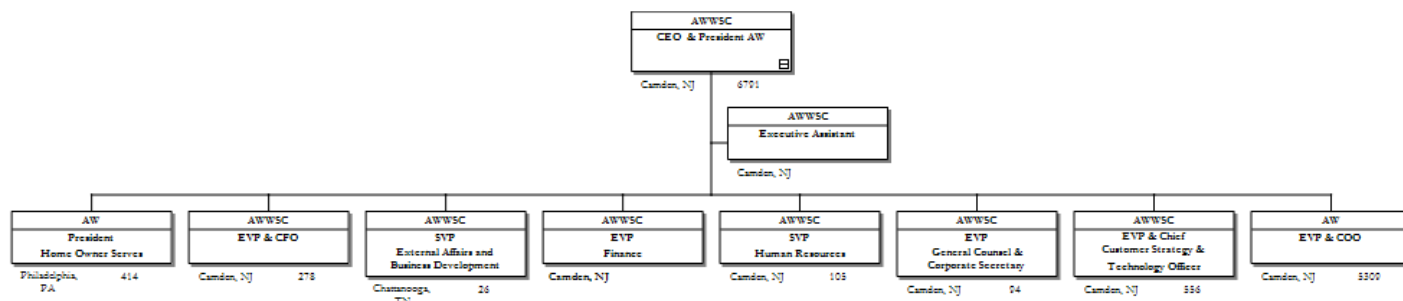


Source: Information Response 52

A Senior Vice President is directly responsible for New Jersey American Water Company (she also carries the title of President of New Jersey American Water Company). She has, in addition to an Administrative Assistant, seven direct reports including Presidents of Medium States and Large States, Directors/Senior Directors of Communications and External Affairs, Rates and Regulatory, and Business Development, and Vice Presidents of Engineering and Operations. The Vice President of Engineering has seven direct reports going down two more levels for a total complement of 56 employees. Functions are organized around GIS, engineering, capital program support, and project delivery. The VP Engineering has six direct reports with spans of control between four and 12 (with one one-on-one report in Engineering Asset Planning. Operations has the largest number of employees (787) with the Vice President of Operations having 15 direct reports. (Once the Senior Director of Coastal North Operations position went from vacant to filled, he has just eight (8) direct reports.) Going down in the Operations organization, spans of control vary widely, although overall there does not appear to be any excessive spans of control or layering of the organization. Support functions, e.g. Communications and External Affairs, have smaller staffs and smaller spans of control, which is appropriate for their functions.⁷³² NJAW has a total of 852 employees (as of April, 2019).⁷³³ More information on NJAW engineering and operations is in *Chapter XIII – Operations Review*.

Support services for NJAW and other operating companies, as well as market-based businesses, are provided by the American Water Works Service Company. *Exhibit XV-1* is an organizational chart of the Service Company.

Exhibit XV-2
American Water Service Company
Organization Chart
as of April 30, 2019



Source: Information Response: Corporate Handout

The organization is led by the Chief Executive Officer (CEO) and President of American Water, supported by an Executive Assistant. Reporting directly to her is the President of Homeowner Services (non-regulated) and the Executive Vice President (EVP) and Chief Operating Officer (COO) of AW. Also directly reporting to the CEO are six corporate functional areas of Chief Financial Officer, External Affairs and Business Development, Finance, Human Resources, General Counsel and Corporate Secretary, and Chief Customer Strategy and Technical Officer.⁷³⁴

Most of the traditional financial functions are carried out in the CFO organization. In addition to financial planning, investor relations and controller, internal audit, and procurement functions directly report to the EVP & CFO. Treasury functions report up through a Senior Vice President (SVP) of Strategic Financial Planning, which includes budgeting, revenue analytics, tax and compliance, and acquisitions. A Senior Director of Finance oversees six Divisional CFOs. The Controller's functional responsibilities include external financial reporting, payroll, and accounting. Internal audit is led by a Vice President and is staffed with six internal auditors, one a senior manager who has an additional two direct reports. The Chief Procurement Officer is responsible for all corporate supply chain operations, which includes category procurement, fleet and facilities procurement (advisory only), and inventory and investment recovery. Senior Managers (and one buyer) responsible for regional procurement report up to the Director of State Procurement.⁷³⁵ For more information on these areas, see *Chapter XXII – Finance* and *Chapter XXI – Support Services*.

The Senior Vice President of Human Resources has four direct reports: Vice Presidents for Labor Relations, Talent Management and Organization Effectiveness (mainly training and recruitment), Human Resources (HR) Operations, and Compensation and Benefits.⁷³⁶ See *Chapter XVI – Human Resources* for more information on the Human Resources functions.

Overall, like functions were appropriately grouped. Spans of control varied from 2 to as many as 13 and the entire organization is fairly flat (not many layers).⁷³⁷



Agreement for services among NJAW, AWWSC and affiliate organizations are documented in two separate agreements between NJAW and AWWSC (an Agreement for Support Services) and between NJAW and AW Capital Corporation (a Financial Services agreement). These documented, legal agreements are summarized as follows:⁷³⁸

- ◆ The overall agreement dates to early 1989 and mainly addresses the relationship between NJAW and the Service Company. Both companies are subsidiaries of AW with NJAW organized to deliver potable water as a public utility in New Jersey and the Service Company. The Service Company is organized with officers and employees experienced in the water utility business to support all facets of the AW subsidiary operating companies (including NJAW). These areas include the development, business and property of the water utilities to include (efficient) management, financing, accounting, administrative, and operating services. This agreement specifically states that the services provided to operating utilities is necessary because, in the opinion of management, comparable quality and diversification of services cannot be economically purchased elsewhere. The services rendered in this agreement are provided at the cost to the Service Company (no markup). Specific services include: accounting (advise, assist, establish, and maintain record keeping techniques to include internal controls), administration (economic, regulatory, governmental, and operational accounts, records, policies and procedures to include a service Company internal audit staff for periodic audits and reports), communications (relations with employees, customers, communities, and the general public to include press releases, brochures, visual presentations, plant tours, speeches, and public exhibits and displays), corporate secretarial (maintain records as per applicable law including minute books, charters, by-laws, contracts, deeds, stockholder records, regulatory reports and filings), engineering (widespread authority to advise and provide services to assist operating companies to plan, operate, maintain, and construct facilities to include field inspections. Service Company also provides a Materials Management program to arrange for the purchase of associated equipment, materials, and supplies), financial (includes sale of securities, cash management, and preparation of all financial reports), human resources (recruiting, establishing pay structures, negotiating with unions, training, employee development, maintaining benefits programs, and developing procedures and processes to meet employment laws, information systems (includes customer billing and accounting systems, and preparation of financial statements and reports), operation (procedures to promote overall efficient and economic operation of operating companies to include periodic operational reviews performed by Service Company personnel), rates and revenue (assistance with preparation and conduct of rate proceedings to include expert testimony, if applicable), risk management (insurance, safety and security programs, and Enterprise Risk Management Programs), and water quality (technical assistance to the water utility to meet water quality standards). Payments for services, including allowance for Service Company overhead and billing procedures, are broadly defined;⁷³⁹
- ◆ The Financial Services Agreement is a legal document dating back to 2000 that addresses NJAW's relationship to AW Capital Corporation (no employees) in regards to short term loans, long term borrowings, and associated cash management functions.⁷⁴⁰

- ◆ The Agreement for Support Services defines the relationship between NJAW and American Water Resources, Inc. (AWR). AWR is a market-based company (part of Home Services Group) that provides a water line protection program (for a monthly fee, utility customers can have their water lines repaired due to ordinary wear and tear), and sale and installation of water softeners and point-of-use treatment devices. NJAW provides certain support services to these programs for NJAW customers. NJAW is a contractor to AWR and receives compensation fees of 115% of fully distributed costs. This includes distribution of AWR produced promotional materials to NJAW customers (NJAW is not required to distribute material to their customers they deem unsatisfactory) and collection of payments for these services (forwarded to AWR).⁷⁴¹

AWK is obligated to abide by Sarbanes-Oxley (SOx) requirements, which includes a robust series of internal controls. These controls include Service Company billing processes to NJAW to protect against irregular, illegal, or improper transactions, to include verification and validation of overhead pools and cost centers. NJAW has full ability to drill down on all Service Company bill charges to confirm their accuracy.⁷⁴² A number of system performance reports regularly tracked by NJAW also provides quantifiable actual to plan data to help track affiliate charges.⁷⁴³ Additional information on affiliate transactions and internal controls are presented in *Chapters V* (Affiliate Relationships), *VI* (Internal Controls), *IX* (Affiliate Cost Allocation Methodologies), *XII* (Non-Rate-Related Revenues), *XIV* (Executive Management and Corporate Governance), *XXII* (Finance), and *XXV* (Affiliate Cost Allocations and Relationships).

There is no formal analysis of NJAW, AW, or Service Company organization or organizational effectiveness. AW/NJAW judges their organizational effectiveness by the progress against targets and metrics set by senior management (Executive Leadership Team (ELT) and Senior Leadership Team for NJAW).⁷⁴⁴ Those organizational changes that do occur are not documented except through news communications to employees. This included changes in Business Development, Finance, Legal, and Operations groups in 2018, a Supply Chain reorganization in 2015 (with additional changes ongoing), widespread organization changes in Safety and Engineering, Information Technology, Physical and Cyber-Security, Labor Relations and Business Development in 2015; changes in the Security function and Human resources, Finance and Accounting, and Operational Risk Management in 2014; and changes to Human Resources Operations teams in 2019. Organization changes occur when someone notes an improvement or problem with the resulting change eventually approved by appropriate senior management.⁷⁴⁵ Many of these changes are driven by new management or promotions and realignment of management responsibilities.⁷⁴⁶

AW/NJAW maintains a long list of policies and practices in the (organizational) areas of Communications, Finance and Accounting, Human Resources, Legal, Operations and Procurement, and Technology and Innovation. These policies and practices are not automatically reviewed and updated when related organizational changes occur.⁷⁴⁷ Detailed position descriptions for managers, supervisors and technical employees are maintained.⁷⁴⁸



B. Findings & Conclusions

Finding XV-1 The AW and NJAW organization is appropriate.

Given the size and dispersed nature of the AW organization, focusing expertise in a service company is appropriate and beneficial to operating companies, including NJAW. Service company departments, as necessary, have managers and employees assigned to specific regions to better communicate and advocate for the needs of different operating companies. Operating companies do not receive any services from non-regulated, for profit companies, which eliminates a potential conflict of interest. In the case where NJAW provides support for a non-regulated subsidiary, NJAW is compensated for their costs – a benefit to NJAW ratepayers. Service company support is all at cost (subject to appropriate allocation methodologies, record keeping and internal controls). Construction, maintenance and operation is still staffed by and the responsibility of NJAW personnel. AW/Service Company does provide an oversight/checking function. As mentioned earlier, a review of the AW/NJAW organization showed that like functions are grouped together and spans of control, although in some cases quite broad (e.g. 15 in one case), are generally appropriate. The organization is fairly flat and there are no cases of excessive layering. Detailed position descriptions are maintained.

Finding XV-2 AW/NJAW does not conduct periodic, broad-based organization analysis.

In the past five years, AW has made a number of minor organization changes, but these have been largely ad-hoc: coming from needs identified and discussed through senior management team meetings and various transformation initiatives. When asked for documentation on organizational analysis, the Company only provided employee communications releases announcing newly hired managers, promotions, and (in some cases) specific organization realignment. There hasn't been any Corporate-wide, documented organizational analysis.

C. Recommendations

Recommendation XV-1 Conduct a Corporate-wide, broad-based organization review. (Refer to Finding XV-2.)

Given the rapidly changing business environment (e.g. technology, capital needs, size of corporation/growth, customer needs, regulation/safety), AW should periodically (every three years or when there is a major change in business conditions) conduct a formal (documented) organization review to include standard analysis, such as grouping of functions, spans of control, and layering, as well impacts from changing business conditions, such as new technology changing working processes or changes in business environment, such as regulatory/risk/financial/operational conditions. This process can be coordinated through Human Resources, with continued input from senior management teams. This process should run concurrently with the periodic (every three year) review of procedures, policies, and practices. Also, any event that results in a change in policies or practices should be accompanied by a focused (and documented) organization impact review.

XVI. Human Resources

A. Background & Perspective

This task area addresses the human resources (HR) function within the NJAW organization. There have been significant changes in the perception and functions of human resources departments over the past several years. The quality of the human resources function is one of the most enduring sources of sustainable, competitive advantage for companies today. Increasingly, HR departments are moving away from their past focus on administrative, transactional, and support functions and toward a role as an in-house solution provider for a variety of organizational challenges. The goal of progressive companies is to develop HR programs that are part of a planned, cohesive system designed to support corporate objectives and meet governmental regulatory requirements. As stated in the RFP, in the evaluation of the human resources function Schumaker & Company consultants reviewed NJAW's human resources function in the following areas:

- ◆ Review NJAW's salary, wage, and compensation and benefits package practices.
- ◆ Describe the manner in which the company provides for the continuity of operations and sufficiency of skilled employees. As part of this, we will assess the effectiveness of NJAW's development, training, and evaluation techniques.
- ◆ Review the current labor relations status and methodology.
- ◆ Assess the productivity and utilization level of NJAW's workforces.
- ◆ Assess the human resources department's capability to manage employee information, access personnel information, and perform their assigned duties.
- ◆ Assess the affirmative action and equal employment opportunity (AA/EEO) policies, procedures, and functions.

Regulated utilities have a significant obligation to equal employment opportunity (EEO) policies and affirmative action (AA) compliance. Companies continue to hire and promote members of disadvantaged groups and to procure goods and services from disadvantaged businesses. Increasingly, companies recognize workforce diversity as a source of competitive advantage and necessary to respond to changing customer demographics. These corporations recognize that it is simply good business to promote and achieve cultural diversity both within the organization and in the marketplace. Utility companies, such as NJAW, are often among the largest employers and procurers of goods and services within their service territories. As a result, their actions are highly visible within the communities in which they operate. Further, company attitudes regarding diversity are often discernible well beyond the state and federal AA/EEO policies that they are generally required to follow.

Exhibit XVI-1 displays NJAW's number of employees annually from 2011 to 2018.⁷⁴⁹



Exhibit XVI-1
NJAW Employees
2011 to 2018

2011	2012	2013	2014	2015	2016	2017	2018
915	828	814	806	840	843	857	862

Source: Information Response 150

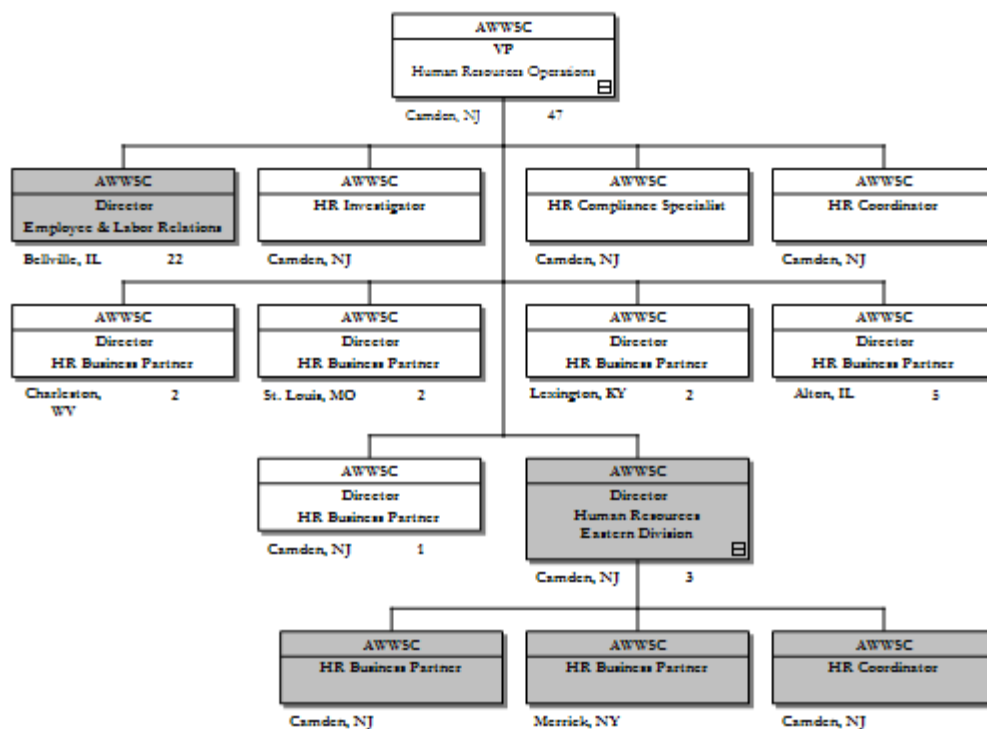
The employees of NJAW that are aging workforce has talent gaps and have to build or hire from outside.⁷⁵⁰ See *Operations* chapters for discussion of outside contractors.

Human Resources

Organization

Exhibit XVI-2 illustrates the organization chart of the Human Resources (HR) Operations organization in the American Water Works Service Company (AWWSC).⁷⁵¹

**Exhibit XVI-2
Human Resources Operations Organization Chart
April 2019**



In

Source: Interview 7

The Director of Human Resources Business Partner group provides services to four states, including NJAW in NJ, plus three Employee Relations Business Partners (ERBPs) of the 22 employees reporting to the Director Employee & Labor Relations provide support to NJAW.

The Director of Human Resources Business Partner (HRBP) for the Eastern Division (highlighted above) manages the HR function for the Eastern Division, specifically NJ, NY, VA, and MD. This group really provides HR operations support for topics such as talent acquisition, development, and succession. This Director has three employees reporting to her in this group, including two HR Business Partners, one of which addresses strategic HR for NJAW, and one HR Coordinator, who manages the administrative, transactional, and reporting functions for the division. HR Operations has moved to an Agile Mindset module.⁷⁵² An agile mindset is typically the set of attitudes supporting an agile working environment, which includes respect, collaboration, improvement, and learning cycles, pride in ownership, focus on delivering value, and the ability to adapt to change.⁷⁵³ The other Directors of Human Resources Business Partners not highlighted above manage the HR function for other states and functions.⁷⁵⁴

For NJAW, Human Resources headcount is currently three employees, but started at four in 2012, then moved down in 2013-2014, and then moved up again to three. There are additionally three Employee Relations Business Partners who support front line employees for several state utilities, including NJAW. Employee Relations Business Partners report centrally to the Director of Employee and Labor

Relations and address discipline concerns and respond to general HR inquiries. A Labor Relations Business Partner also reports to the Director of Employee and Labor Relations and responds to all Union related matters for NJAW and other state utilities.⁷⁵⁵

The Eastern Division utilities have approximately 1,106 employees in 2019, which includes 850 NJ, 125 NY, 120 VA, and 11 MD:⁷⁵⁶ Only if there are vacancies are there transfers between companies, but sometimes centralizing occurs.⁷⁵⁷

Exhibit XVI-3 displays NJAW's HR budget from 2012 to 2018, in which expenses have gone down.⁷⁵⁸

Exhibit XVI-3
NJAW HR Budget

	2012	2013	2014	2015	2016	2017	2018
Salaries & Wages	1,153,369.45	494,411.77	303,104.83	287,483.77	316,838.80	320,623.05	326,627.00
Pensions	-	-	-	-	-	-	-
Group insurances	-	-	-	-	-	-	-
Other benefits	392,260.14	320,629.59	255,661.51	256,577.15	245,980.51	246,240.76	200,554.58
Total employee related	1,545,629.59	815,041.35	558,766.34	544,060.93	562,819.31	566,863.81	527,181.58
Contracted services	126,355.00	182,962.93	113,933.00	113,933.00	75,933.00	75,933.00	75,933.00
Building maintenance and services	-	-	-	-	-	-	-
Telecommunication expenses	-	-	-	-	-	-	-
Postage printing and stationery	-	-	-	-	-	-	-
Office supplies & expenses	4,944.00	4,944.00	4,944.00	4,944.00	4,944.00	4,944.00	4,944.00
Advertising & marketing expenses	-	-	-	-	-	-	-
Employee related expense travel & entertainment	36,861.00	36,861.12	12,260.12	12,260.12	12,260.12	12,260.12	12,260.12
Miscellaneous expenses	37,327.00	37,327.08	37,327.08	37,327.08	31,527.08	31,527.08	31,527.08
Rents	-	-	-	-	-	-	-
Transportation	-	-	-	415.46	12,415.46	12,415.46	12,415.46
Operating supplies & services	205,487.00	262,095.13	168,464.20	168,879.66	137,079.66	137,079.66	137,079.66
Uncollectible Accounts Exp	-	-	-	-	-	-	-
Customer accounting	-	-	-	-	-	-	-
Regulatory expense	-	-	-	-	-	-	-
Insurance other than group	-	-	-	-	-	-	-
Maintenance service & supplies	-	-	-	-	-	-	-
Total operation and maintenance	1,751,116.59	1,077,136.49	727,230.54	712,940.59	699,898.97	703,943.47	664,261.24
Depreciation	-	-	-	-	-	-	-
Amortization	-	-	-	-	-	-	-
Removal costs	-	-	-	-	-	-	-
Depreciation and Amortization	-	-	-	-	-	-	-
General taxes	86,197.34	42,208.85	24,239.90	23,034.48	24,151.67	24,252.00	25,197.95
Loss (gain) on sale of assets	-	-	-	-	-	-	-
Impairment charges	-	-	-	-	-	-	-
Total operating expenses net	1,837,313.93	1,119,345.34	751,470.44	735,975.06	724,050.64	728,195.47	689,459.19
Operating income (loss)	(1,837,313.93)	(1,119,345.34)	(751,470.44)	(735,975.06)	(724,050.64)	(728,195.47)	(689,459.19)

Source: Information Response 393 Attachment HR Budget

The HR Function at American Water has several Centers of Excellence that collaborate with the HR Operations team who implement the strategies and designed programs. There are policies and practices which guide many of these HR functions, which HR Operations must apply.⁷⁵⁹

- ◆ *Compensation* –Although Compensation is a separate function within the Service Company Compensation and Benefits Department, Compensation collaborates with the HR Operations team of NJAW to align pay with market data. HR Operations team members, including the HR

Coordinator, are able to access data via HR systems for reporting and analysis of pay. The Compensation team also provides guidance and oversight to the annual merit increase process which the NJAW HR Operations team implements and calibrates.

- ◆ *Benefits* – Benefits are designed centrally and included as a function within the Service Company Compensation and Benefits department. The HR Operations group is not involved in establishing benefits, but helps answer questions, especially general items. They frequently have employees go to the benefits hotline, for example, regarding retirements.
- ◆ *Employee Relations and Labor Relations* – The Employee Relations Business Partners perform investigations on discipline with the Director of Employee & Labor Relations. Also, Labor Relations meetings are regularly with the Labor Relations Business Partner.
- ◆ *Talent Acquisition, including Diversity* – The HR Operations team partners with the centralized Talent Acquisition team to recruit for vacant positions. There is a strategy and focus on attracting diverse candidates.
- ◆ *Learning and Development* – The associated Training & Development Learn system recommends people for certain training and also helps overall impacts by delivering content. For example, the Eastern Division HR Business Partner group pushed out learning about how to get out of the building for safety. It gets involved in safety situations in which HR, Safety, and Operations groups get involved. The Director of HR Business Partner might go to tailgate talks in mornings to provide feedback.
- ◆ *HR Compliance* – Making sure HR policies and procedures are being complied.

For the Operations functions, the HR Operations group helps with recruitment for open positions by helping with interviews; however, not entry-level positions, as Supervisors conduct interviews without HR while using interview guides. One of the HR Business Partners also helps interviews for Manager or higher level positions. When a vacancy occurs the HRBP engages in consulting with the hiring manager to determine if the position will be backfilled or if there is a different need. If it is a true replacement, the HR Coordinator will start the recruitment process. Supervisors can initiate the form for requisition; however, if it is for new positions, other steps are required, including a job description, requiring HR intervention to create a position in SAP. The HRBP works with the Compensation group to compare the job to internal and market data.⁷⁶⁰ This HR Business Partner also goes out and assesses culture and creates plans, involving culture actions plan teams. She is now doing strategic work, not just daily interactions.⁷⁶¹

The Director of Human Resources Business Partner for the Eastern Division helps senior level managers discuss the talent in their departments, plan for succession, evaluate performance, plus provides coaching to senior leaders. For example, a culture survey brings information from employees that helps guide action plans and development needs. She, plus the HR Business Partner discussed above, are responsible for succession planning, including an annual talent review and identifying candidates on a regular basis.⁷⁶²



Annual performance reviews, which are calendar based, are helped and supported by the HR team. One such example would be the HR Coordinator sending out reminders to management. Feedback is provided at a mid-year checkpoint and employees are made aware when issues exist with performance. HR will assist Supervisors with writing feedback. Year-end reviews typically are written in the fourth quarter of a calendar year and discussions occur with employees in January. The Eastern Division HR Team meets with NJAW leadership to calibrate reviews. Employees write their own goals, but guidance from leadership shapes the goals. Employees have conversations with their Supervisor to ensure that their goals match the level of their role.⁷⁶³ NJAW uses performance reviews for their annual compensation process, in which annual rating directly influences and results in the amount of increase the employee receives. Compensation discussions take place in February and the merit increase processes in March, if applicable. NJAW is supposedly very involved in looking at merit increases.⁷⁶⁴ All employees have bi-weekly pay, which ends on a Sunday but paid on a Friday.⁷⁶⁵

According to HR Operations management, starting March 2019 the Human Resources structure has been moving toward technology and what skills are needed.⁷⁶⁶ The HR Operations group began using SAP in 2012 instead of JD Edwards (JDE). However, JDE was still used through 2018 for time reporting when MyTime was implemented in March 2019 for payroll purposes, including pay time off (PTO).⁷⁶⁷

- ◆ Exempt employees use PTO only (Regular time is recurring, time is entered by exception only, such as PTO).
- ◆ Non-exempt use everything and enter time daily.

The direct charges for cost allocation purposes is also used via MyTime. (See *Chapter IX – Affiliate Cost Allocation Methodologies* for more detailed information.

Systems

The existing employee information system software is MyEmployeeCenter (SAP SuccessFactors), which consists of a broad set of business process and analytical capabilities spanning the complete employee life cycle of hiring, on-boarding, personnel data administration, compensation, performance management, succession planning, and career development. The system is a single source of information, which delivers business information and processes capable of supporting end-to-end employee data management, workforce analytics and planning, employee engagement and collaboration, and integration of all back-end systems. A link to the public website for SAP Success Factors. <https://www.successfactors.com/products-services/core-hr-payroll/employee-central.html>.⁷⁶⁸

Retention Statistics and Associated Recruitment Costs

Exhibit XVI-4 displays retention and turnover rates for NJAW since 2012.⁷⁶⁹

**Exhibit XVI-4
Retention and Turnover Statistics
2012-2018**

	2012	2013	2014	2015	2016	2017	2018
Head count on 1-1	872	825	799	789	825	831	840
Head count on 12-31	825	799	789	825	831	840	848
Average Headcount	849	812	794	807	828	836	844
Termination count Jan1-Dec31	57	43	39	47	45	55	50
Turnover rate (Term Ct + Avg HdCt)	6.7%	5.3%	4.9%	5.8%	5.4%	6.6%	5.9%
Retention Rate (HdCt 1-1 Less TermCt + HdCt 1-1)	93.5%	94.8%	95.1%	94.0%	94.5%	93.4%	94.0%

Source: Information Response 148
Excludes "Temporary" from all counts

NJAW staffing levels shown previously in *Exhibit XVI-1* are somewhat different, as it includes non-employees and temporary employees, while *Exhibit XVI-4* above excludes non-employees and temporary employees.⁷⁷⁰

Below, in *Exhibit XVI-5*, the estimated costs incurred by the company for employee recruitment since 2012 is displayed. The company incurs an insignificant amount of expense related to external recruiters; however, the following costs include the labor and benefits associated with the internal resources used for recruiting.⁷⁷¹

**Exhibit XVI-5
Internal Recruitment Costs**

	2012	2013	2014	2015	2016	2017	2018
Recruitment Costs	\$92,100	\$94,200	\$95,400	\$96,600	\$98,600	\$101,000	\$102,800

Source: Information Response 148

There have been no studies made to determine proper staffing levels and spans of control utility-wide.⁷⁷² It is up to NJAW Operations groups to determine what staffing levels are required.

Talent Acquisition, Including Diversity

Targeted talent acquisition is from due diligence to help answer questions about working with teams. After closing occurs involved in integration into culture.⁷⁷³ Refer to *Diversity & EEO* section of this chapter for detailed information about what this means and what is done.



Compensation & Benefits

American Water has *Compensation and Benefits Policy* documentation and *Compensation and Benefits Practice* documentation.⁷⁷⁴

The policy documentation provides the requirements regarding compensation and benefits. It addresses timing, key methods, approvals, reporting, and roles/responsibilities, plus it addresses the differences between regulated and market-based businesses (MBB), where applicable.⁷⁷⁵ This policy contains guidance relevant to compensation and benefits for all positions not covered by a collective bargaining agreement. Compensation and benefit issues for employees covered under a collective bargaining agreement are contained in the applicable collective bargaining agreement. Unless otherwise specified, this policy establishes requirements that are to be followed by all employees not covered by a collective bargaining agreement for determining applicable compensation and benefits. Employees should refer to the related practice or contact their Human Resources Department with questions related to the subjects covered in this policy, which include:⁷⁷⁶

- ◆ Compensation Business Objective
- ◆ Performance, Incentive, and Service Awards, including merit increases, annual performance plan (APP), spot awards, and service awards.
- ◆ Off Cycle Salary Adjustments, including temporary assignment, promotional increase, demotion, lateral transfer, out of range rates, and equity review
- ◆ Benefits (as described below)
- ◆ Relocation Benefits
- ◆ Relocation Levels
- ◆ Meal Allowance & Meal Reimbursement Benefits
- ◆ Responsibilities

Unless otherwise covered in a collective bargaining agreement, the *Compensation and Benefits Practice* documentation outlines the key enterprise activities relevant to compensation and benefits for all employees, which aligns with the requirements outlined in the *Compensation and Benefits Policy* documentation. High level practice variances related to market-based businesses (MBB), if any, are outlined in a separate section of this documentation.⁷⁷⁷

The following are the major sections covered within the Key Activities area of this practice:⁷⁷⁸

- ◆ *Section 1: Employee Compensation*
- ◆ *Section 2: Employee Benefits*
- ◆ This practice contains appendices for the following: *Appendix A – Summary of Policies Related to the Compensation and Benefits Practice*
- ◆ Key definitions are detailed.

Exhibit XVI-6 displays compensation and benefits for NJAW from 2013 to 2018.⁷⁷⁹

Exhibit XVI-6						
NJAW Compensation & Benefits						
2013 to 2018						
	2013	2014	2015	2016	2017	2018
Payroll for Year	\$67,056,749	\$67,008,882	\$70,658,339	\$72,449,544	\$74,606,861	\$82,226,961
	2013	2014	2015	2016	2017	2018
Pension & OPEB	21,536,952	7,925,341	17,574,656	15,836,015	16,565,581	11,268,284
Group Insurance	12,058,817	11,666,211	11,949,140	14,828,702	15,444,095	16,342,247
Other Benefits	4,451,685	4,446,178	5,079,683	5,294,742	5,623,431	6,408,478
	38,047,454	24,037,730	34,603,479	35,959,459	37,633,106	34,019,009
	2013	2014	2015	2016	2017	2018
Pension & OPEB	32.12%	11.83%	24.87%	21.86%	22.20%	13.70%
Group Insurance	17.98%	17.41%	16.91%	20.47%	20.70%	19.87%
Other Benefits	6.64%	6.64%	7.19%	7.31%	7.54%	7.79%
	56.74%	35.87%	48.97%	49.63%	50.44%	41.37%

Source: Information Response 401

Compensation

Exhibit XVI-7 displays the salary structure chart for American Water exempt employees, in which executive compensation is levels 50-70 and the remainder are non-executives.⁷⁸⁰ Annual Incentive Plan (AIP), now known as Annual Performance Plan (APP), applies to all levels, but Long Term Performance Plan (LTPP) only to executive levels.⁷⁸¹



Exhibit XVI-7
Salary Structure Chart

2019 Salary Structure - Exempt							
Current Salary Level	APP Target*	LTPP**	Minimum	Q1	Midpoint	Q3	Maximum
70							
65							
62							
60							
55							
50							
45							
40							
35							
30							
25							
22							

Notes: *APP participation is limited to eligible employee groups as defined by APP Structure
**LTPP participation is limited to eligible employee groups as defined by LTPP Structure

Source: Information Response 397 (Part of confidential documentation)

Exhibit XVI-8 shows NJAW's regulatory overtime costs by department.⁷⁸²

Exhibit XVI-8
NJAW Regulatory Overtime Costs by Department
2013 to 2018

COST CENTER	2013	2014	2015	2016	2017	2018
Admin & General	\$ 25,422	\$ 14,218	\$ 17,926	\$ 28,585	\$ 34,042	\$ 18,243
Customer Service	4,154				5,280	1,295
Engineering	951	365	164	454	2,744	1,925
Field Services	1,376,447	1,624,839	1,473,613	1,613,910	1,777,936	1,794,484
Fleet	27,668	26,484	57,425	81,612	73,016	80,817
Network	4,807,749	5,167,474	5,839,653	6,041,337	6,354,182	7,298,332
Production	1,652,336	1,482,583	1,719,976	1,728,532	1,830,563	2,539,259
SCADA	837		77	2,787	5,363	12,135
Supply Chain	1,777					
Water Loss Mgmt	8,531	4,359	5,530	4,540	5,629	6,069
Community and Gov't Relations	973	1,955	2,230	1,849	2,500	1,527
Engineering and Asset Planning	3,728	22	443	3,546	4,357	986
Environmental Compliance	30,550	32,293	33,750	55,498	68,915	45,048
Grand Total	\$ 7,941,122	\$ 8,354,591	\$ 9,150,786	\$ 9,562,650	\$ 10,164,526	\$ 11,800,123

Source: Information Response 151 Update

Excludes overtime associated with non-regulatory labor, which was inadvertently included in the original response

Benefits

American Water management indicates that it offers a competitive, comprehensive benefits program, including robust health and wellness benefits, and retirement and savings benefits, that accommodates different business models and demographics. The company's programs are designed to strike a balance between employee choice and cost-effectiveness. Employees are encouraged to refer to all terms within the specific benefits plan document and summary plan descriptions (SPDs) for complete details and administration.⁷⁸³

Specifically benefit programs, including perquisites, include:⁷⁸⁴

- ◆ *Group Insurance Plan For Non-Union Employees* – A SPD of the Group Insurance Plan of American Water and its designated subsidiaries and affiliates supplements the documents and certificates provided by the various insurance carriers and provides a general description, written in non-technical language, of the important provisions of the plan. There may be other materials (such as an insurance policy or other contractual agreement with a health care or other service provider) that contain more detailed information about plan benefits. Every effort has been made to ensure that all of these materials contain a consistent description of the plan's benefits of the following programs; however, if there is any conflict or inconsistency between these materials, it is the Plan Administrator's responsibility to interpret the conflicting provisions and determine what benefits will be provided under the plan.⁷⁸⁵



- Medical
- Prescription Drug
- Dental/Vision
- Flexible Spending Accounts (Health Care and Dependent Care)
- Disability (Sick Leave, STD, and LTD)
- Life Insurance (Basic Life, Voluntary Life, AD&D, Spouse or Same-Sex Domestic Partner Life, and Dependent Life)
- Employee Assistance Program

An employee and eligible spouse or eligible same-sex domestic partner and eligible child(ren) are eligible to participate in the benefits described in this SPD if the employee is an American Water non-bargaining employee and is a full-time employee (working not less than 35 hours each week) or a part-time employee (working 20 hours each week), except American Water Enterprise employees (who may only participate in the Flexible Spending Accounts and EAP). Part-time employees (and their eligible spouse or eligible same-sex domestic partner, and eligible children) who meet these requirements are eligible for Medical, Prescription Drug, Flexible Spending Accounts, and EAP coverage only.⁷⁸⁶

- ◆ *Group Insurance Plan for Union Employees* – A SPD of the Group Insurance Plan of American Water and its designated subsidiaries and affiliates supplements the documents and certificates provided by the various insurance carriers and provides a general description, written in non-technical language, of the important provisions of the plan. There may be other materials (such as an insurance policy or other contractual agreement with a health care or other service provider) that contain more detailed information about plan benefits. Every effort has been made to ensure that all of these materials contain a consistent description of the plan’s benefits of the following programs; however, if there is any conflict or inconsistency between these materials, it is the Plan Administrator’s responsibility to interpret the conflicting provisions and determine what benefits will be provided under the plan.⁷⁸⁷

- Medical
- Prescription Drug
- Dental/Vision
- Flexible Spending Accounts (Health Care and Dependent Care)
- Health Spending Accounts (HSA)
- Disability (Sick Leave, STD, and LTD)
- Life Insurance (Basic Life, Voluntary Life, AD&D, Spouse or Same-Sex Domestic Partner Life, and Dependent Life)
- Employee Assistance Program
- Voluntary Benefits – Accident Insurance, Critical Illness Protection, Hospital Indemnity Coverage, and Pet Insurance

An employee and eligible spouse and eligible child(ren) are eligible to participate in the benefits described in this SPD if the employee is an American Water employee represented by a collective bargaining unit and is a full-time employee (working not less than 35 hours each

week). The employee is ineligible to participate in the plan if:⁷⁸⁸

- A part-time employee (Union – working less than 30 hours per week, Non-Union – working less than 20 hours per week)
 - Are classified as a temporary employee in accordance with the company’s personnel policies and practices;
 - Perform services for the company pursuant to an arrangement with a leasing organization or any other third-party, including but not limited to a “leased employee” within the meaning of Section 414(n) of the Internal Revenue Code; or
 - Are a person who is classified as an independent contractor or otherwise as a person who is not treated as an employee for purposes of withholding federal employment taxes, regardless of any contrary governmental or judicial determination relating to such employment status or tax withholding obligation. If a person described in the preceding sentence is subsequently reclassified as, or determined to be, an employee by the Internal Revenue Service, any other governmental agency or authority, or a court, or if the company is required to reclassify such an individual as an employee as a result of such reclassification or determination (including any reclassification by the company in settlement of any claim or action relating to such individual’s employment status), such individual shall not become eligible to become a participant in the plan by reason of such reclassification or determination.
 - The employee’s eligibility and participation date depends upon the terms of his or her collective bargaining agreement. A copy of the collective bargaining agreement has been previously provided to the employee by his or her union. If the employee needs another copy of this document, contact the Benefits Service Center. If the employee is on a layoff, on disability, or on leave of absence on eligibility date, coverage will begin on the day the employee returns to active work.
- ◆ *Savings Plan* – A SPD of the Savings Plan of American Water and its designated subsidiaries for the benefit of eligible non-union employees employed by it or by one of the participating employers listed on an appendix, which includes NJAW. The principal purpose of the plan is to assist employees in providing for financial security at retirement. The plan is a complex legal document, intended to meet the requirements of the Internal Revenue Code of 1986, as amended (the Code) and the Employee Retirement Income Security Act of 1974, as amended (ERISA). The plan is also designed to comply with Section 401(k) of the Code. A 401(k) plan allows an employee to make contributions by payroll withholding on a pre- or post-tax basis. If an employee elects to participate, s/he will be able to reduce his or her income for Federal income tax purposes while saving for retirement. In addition, employer’s matching contributions provide an additional incentive for employees to participate in the plan.⁷⁸⁹ An employee is eligible if employed by American Water or a designated subsidiary and are not described on the ineligible employee list, as follows:⁷⁹⁰
- Employed by a company that does not participate in the plan, which can be determined by looking at a list of participants on an appendix, which includes NJAW;



- Temporary employees who have not completed at least 1,000 hours of service during an anniversary year and reached the following January 1 or July 1 entry date;
- Co-op program employees who have not completed at least 1,000 hours of service during an anniversary year and reached the following January 1 or July 1 entry date;
- Leased employees, unless the Plan Administrator has determined that the specific leased employees are eligible;
- Employed in an ineligible category, such as a division of a participating employer to which this plan has not been extended;
- Non-resident aliens with no income source within the United States; and
- Classified by their employers as independent contractors.

An employee who is covered by a collective bargaining agreement will participate in the plan in accordance with the terms of such collective bargaining agreement.

- ◆ *Pension Plan* – A SPD of the Pension Plan for union employees of American Water and its designated subsidiaries for the benefit of eligible union employees employed by it or by one of the participating employers listed on an appendix, which includes NJAW, and whose collective bargaining agreements provide for their participation in this plan. The plan is a complex legal document, intended to meet the requirements of the Internal Revenue Code of 1986, as amended (the Code), and the Employee Retirement Income Security Act of 1974, as amended (ERISA). In order to help employees understand the plan, American Water has summarized its most important features in this SPD, which describes the provisions of the plan generally in effect on July 1, 2012. A copy of the official plan document is available for inspection at the company’s Corporate Human Resources Department.⁷⁹¹ The company makes all contributions to the plan and the exact amount of these contributions are actuarially determined, with no cost by employees.⁷⁹² Depending on when hired and the employee’s collective bargaining agreements determines who is eligible to participate in the plan.⁷⁹³
- ◆ *Pension Plan* – A SPD of the Pension Plan for non-union employees of American Water and its designated subsidiaries for the benefit of eligible union employees employed by it or by one of the participating employers listed on an appendix, which includes NJAW. The plan is a complex legal document, intended to meet the requirements of the Internal Revenue Code of 1986, as amended (the Code), and the Employee Retirement Income Security Act of 1974, as amended (ERISA). In order to help employees understand the plan, American Water has summarized its most important features in this SPD, which describes the provisions of the plan generally in effect on July 1, 2012. A copy of the official plan document is available for inspection at the company’s Corporate Human Resources Department.⁷⁹⁴ The company makes all contributions to the plan and the exact amount of these contributions are actuarially determined, with no cost by employees.⁷⁹⁵ Depending on when and how hired determines who is eligible to participate in the plan.⁷⁹⁶

- ◆ *Savings Plan* – A SPD of the Savings Plan of American Water and its designated subsidiaries for the benefit of eligible union employees employed by it or by one of the participating employers listed on an appendix, which includes NJAW. The principal purpose of the plan is to assist employees in providing for financial security at retirement. The plan is a complex legal document, intended to meet the requirements of the Internal Revenue Code of 1986, as amended (the Code) and the Employee Retirement Income Security Act of 1974, as amended (ERISA). The plan is also designed to comply with Section 401(k) of the Code. A 401(k) plan allows an employee to make contributions by payroll withholding on a pre- or post-tax basis. If an employee elects to participate, s/he will be able to reduce his or her income for Federal income tax purposes while saving for retirement. In addition, employer’s matching contributions provide an additional incentive for employees to participate in the plan.⁷⁹⁷ An employee is eligible if employed by American Water or a designated subsidiary and are not described on the ineligible employee list, as follows:⁷⁹⁸
 - Employed by a company that does not participate in the plan, which can be determined by looking at a list of participants on an appendix, which includes NJAW;
 - Temporary employees who have not completed at least 1,000 hours of service during an anniversary year and reached the following January 1 or July 1 entry date;
 - Co-op program employees who have not completed at least 1,000 hours of service during an anniversary year and reached the following January 1 or July 1 entry date;
 - Leased employees, unless the Plan Administrator has determined that the specific leased employees are eligible;
 - Employed in an ineligible category, such as a division of a participating employer to which this plan has not been extended;
 - Union employees, unless a collective bargaining agreement provides for the employee’s participation;
 - Non-resident aliens with no income source within the United States; and
 - Classified by their employers as independent contractors.

An employee who is covered by a collective bargaining agreement will participate in the plan in accordance with the terms of such collective bargaining agreement.⁷⁹⁹

- ◆ *Group Insurance Plan for Retired Employees* – A SPD of the Group Insurance Plan of American Water and its designated subsidiaries, including NJAW, and affiliates effective January 1, 2014. The plan results from the spin-off of retired employees and their eligible dependents from the Group Insurance Plan for active employees of American Water and its designated subsidiaries and affiliates as of the effective date. The purpose of the plan is to offer eligible retired employees, their spouse, and their dependents an opportunity to obtain certain medical, prescription drug, dental, life insurance, and other welfare benefits. Benefits are provided under the plan through a number of benefit programs, including group health benefits, including medical benefit program, prescription drug program, and dental benefits, plus other life insurance



benefits (including basic life insurance benefits and other similar benefits provided under a benefit program) Separate Program Documents which describe the specific benefits provided by each benefit program, the individuals covered by each benefit program, and the other terms and conditions of each benefit program, as amended from time to time, are incorporated herein by this reference. The company maintains the plan for the exclusive benefit of its eligible retirees, their spouses and dependents. The plan is to be administered and interpreted in a manner consistent with the Employee Retirement Income Security Act of 1974, as amended (ERISA), applicable provisions of the Internal Revenue Code of 1986, as amended (the Code) and the regulations issued thereunder. Nothing in this plan document, however, will subject any benefit program to ERISA if the benefit program would not otherwise be covered by ERISA.⁸⁰⁰

Not all employees who retire are eligible for pension and/or post-retirement benefit, as it depends on their benefit group.⁸⁰¹

American Water reserves the right to amend any benefit plan without prior notice to participants, including the right to change eligibility criteria or program costs and the right to restrict or eliminate benefits provided. American Water also reserves the right to terminate or discontinue these benefits at any time, without prior notice to employees.⁸⁰²

All new employees interested in participating in company benefits plans (including signing up dependents) must enroll in benefits within 31 days of hire and provide the required documentation within 30 days following approval of the enrollment request. Employees interested in changing or updating their benefits elections must do so during open enrollment; unless they have an event which qualifies them for a special enrollment (e.g. a qualifying “life event” as defined in the *Compensation and Benefits Practice* documentation). If an employee has a qualifying life event, the employee has 31 days from the date of the event to change/update benefits. Open enrollment typically occurs in October/November each year.⁸⁰³

Part-time employees may be eligible for medical benefits, including Employee Assistance Plan (EAP), Financial Services Authority (FSA), 401(k) savings plan, if they work at least 20 hours per week or 1,000 hours per year.⁸⁰⁴

Labor Relations Plan Philosophy & Union Contracts

Plan Philosophy

According to American Water management, it is committed to partnering with its unions to build a strong company, by acknowledging the past and looking to a future where it forges a lasting and productive partnership based on mutual trust and respect. As labor and management partners, the company commits to:⁸⁰⁵

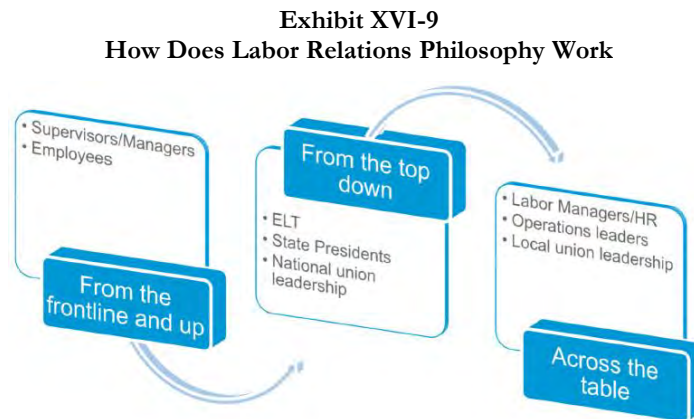
- ◆ Treat each other with respect
- ◆ Be consistent and “Walk the Talk”
- ◆ Work together to resolve issues early

- ◆ Communicate openly and candidly, sharing relevant information
- ◆ Listen carefully for understanding

To explain what that means, American Management indicated:⁸⁰⁶

- ◆ We will:
 - Communicate frequently and regularly
 - Seek input and listen to feedback Negotiate fairly
 - Challenge each other
 - Seek to do the right thing for the company and our employees
 - Live our values
- ◆ We will not:
 - Be discourteous or disrespectful
 - Always agree
 - Push personal agendas
 - Say one thing in the room and do another in the field

Exhibit XVI-9 illustrates how American Water management thinks the labor relations philosophy works.⁸⁰⁷



Source: Information Response 157 Attachment Page 4

Union Contracts

NJAW has seven current union contracts, including:⁸⁰⁸

- ◆ *NJAW Delran Operating Center and Water Workers Union (Local 99)* for January 22, 2018 to January 22, 2022 –The term “employees” covered by the agreement is limited to employees in the following classifications: Systems Operator I- II; Production Mechanic I-II-III-IV; Shift Mechanic I-II-III-IV; Field Services Representative; Meter Reader; Utility Inspector/Mechanic; Utility Mechanic I-II-III; Stock Clerk; Mechanic; and Field Operations Mechanic.⁸⁰⁹

- ◆ *NJAW Atlantic/Cape May Operating Center and Water Workers Union (Local 99) for November 19, 2018 to October 14, 2022* –The term “employees” covered by the agreement is limited to employees in the following classifications: Stockperson; Field Services Representative; Mechanic; Maintenance Mechanic I-II; Station Operator; Utility Mechanic I-I-III; and Utility Mechanic II/Inspector.⁸¹⁰
- ◆ *NJAW Lakewood Operating Center and Service Employees International Union (Local 32BJ) for September 12, 2016 to September 2019* –The term “employees” covered by the agreement is limited to employees in the following classifications: Maintenance Mechanic; Field Services Representative; Meter Processor; Utility Mechanic/Inspector; System Operator; Operations Mechanic; Utility Mechanic; and Meter Technician.⁸¹¹
- ◆ *NJAW Bridgewater Internal Union of Operating Engineers (Local 68-68A-68B, AFL-CIO) for April 10, 2017 to March 12, 2021.*⁸¹²
- ◆ *NJAW Utility Workers Union of America (Local 423) at Belle Mead, Plainfield, Raritan Millston, Canal Road, and E-Town Services Elizabeth locations for February 1, 2016 to January 31, 2020.*⁸¹³
- ◆ *NJAW Utility Workers Union of America (Local 391) at Short Hills/Washington Operating Centers for April 4, 2018 to April 3, 2022* – The term “employees” covered by the agreement is limited to employees in the following classifications: Operations Representative I-II; Stock Clerk; Field Services Representative; Inspector; Maintenance Mechanic; Meter Reader; Operator-Maintenance Mechanic I-II-III-IV; Station Operator; Station Operator II-III-IV; Utility Mechanic I-II-III-IV; and Utility Mechanic II/Leak Detection.⁸¹⁴
- ◆ *NJAW Cost North Region Shrewsbury Operating Center and Utility Workers Union of America (Local 395) for April 17, 2017 to April 16, 2021* –The term “employees” covered by the agreement is limited to employees in the following classifications: Operations Representative I-II; Field Services Representative; Inspector; Meter Reader; Maintenance Mechanic I-IV; Maintenance Technician I-II; Operator Maintenance Mechanic I-II; Utility Mechanic I-II-III-IV; Stock Clerk; and Systems Operator.⁸¹⁵

Only managerial executive, supervisory, or professional employees having the right to hire, fire, or discipline, or effectively to make recommendations to the employer with respect thereto, and possibly Operations Specialists, and office and clerical employees are specifically excluded from and are not covered by the provision of these agreements.⁸¹⁶

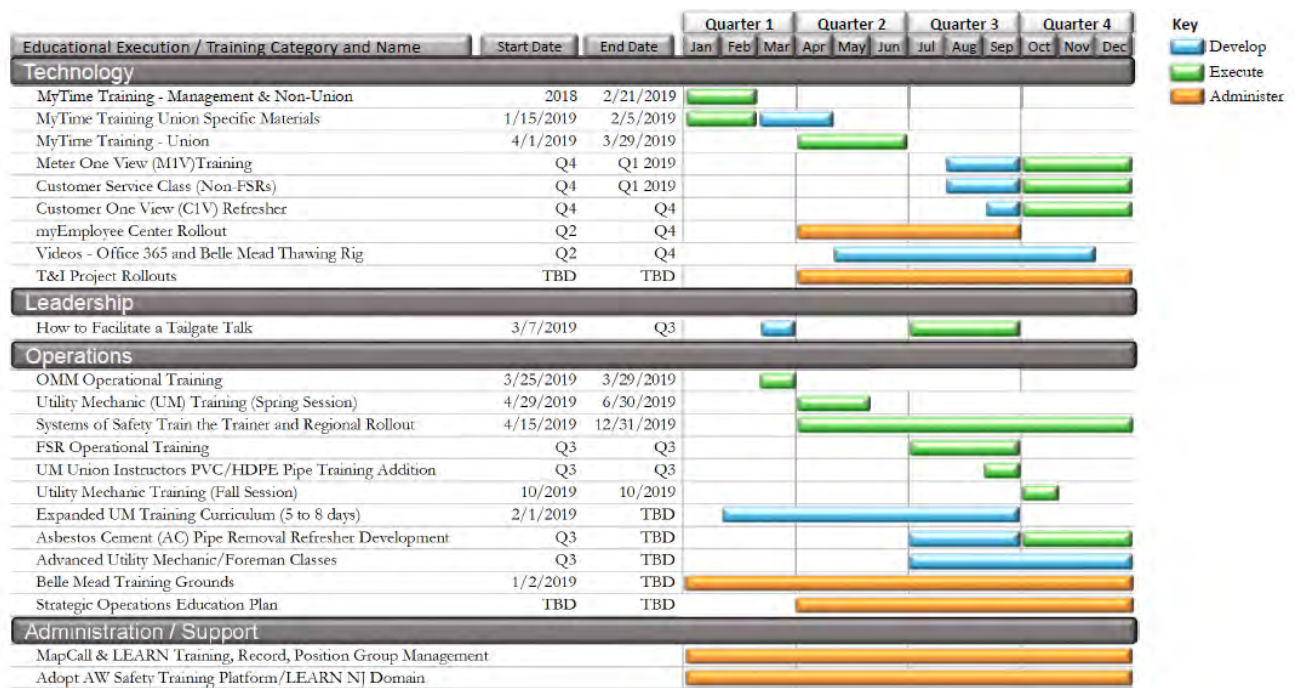
The purpose of some of these contracts is generally to recognize by the parties hereto that the company is engaged in furnishing an essential public service, which vitally affects the health, safety, comfort, and general well-being of a large number of people in communities furnished with water service by the company. The responsibility of uninterrupted service to the public is a mutual responsibility of employees and management, which requires that any disputes arising between employees and the management be settled in an orderly way without interruption of water services, and both parties to these agreements hereby recognize this mutual responsibility.⁸¹⁷

Learning and Development

All employees are required to take a minimum of 20 hours of learning in a calendar year. The courses are managed through the company’s learning management system (LEARN) and offered as instructor-led and/or online learning. Topics range from safety, technology, operations, to professional development. LEARN weeks are offered four times a year, providing learning opportunities for employees. During a LEARN week, two virtual classes are offered per day. Each week is a different focus (examples: Professional Development, Technology, Compensation & Benefits, and Safety/Security). Individual employees are assigned training and development based on their role with the company and the requirements of that role. Employees can also self-select learning in LEARN. In 2018, all NJAW employees completed the minimum 20 hours of learning.⁸¹⁸

LEARN was introduced in April 2015.⁸¹⁹ The listing of LEARN courses from the inception of LEARN in 2015 through April 2019 indicated that 3,331 topics have been included.⁸²⁰ For example, *Exhibit XVI-10* shows the Operations Educational Roadmap for 2019.⁸²¹

**Exhibit XVI-10
Operations Education Roadmap
2019**



Source: Information Response 141 Attachment 2

Additionally, new hires are assigned the Onboarding Education Program. *Exhibit XVI-11* shows the New Hire Onboarding Program Learning Plan. Newly promoted and hired Supervisors and Managers are assigned courses dedicated to leadership and management skills. Before NJAW implemented the

LEARN system in 2015, the company utilized MapCall technology to track learning needs, assign training, and capture completed training.⁸²²

Exhibit XVI-11 New Hire Onboarding Program Learning Plan

Onboarding Program

DOCUMENTS (due within the first week) (0 Hours)

- Code of Ethics Booklet
- Policies Documents
- Employer Notification Requirements under FMLA
- Fact Sheet- Final Rule on Section 503 of the Rehab Act of 1973
- OFCCP EEO Supplemental Final JRF QA
- Employer Obligation to Maintain and Report Records (NJ ONLY)
- Right to be Free of Gender Inequity (NJ ONLY)
- The American Water Charitable Foundation

Charting the Course (due in 30 days) (3.25 Hours)

- Charting the Course: A Leader's Guide to Being a Student of the Business PRE-TEST
- Charting The Course: Vision & Strategy
- Charting the Course: Structure & Operations
- Charting the Course: Culture Through Our Core Values
- Charting the Course: A Leader's Role in Building & Shaping Culture
- Charting the Course: Growth
- Charting the Course: A Leader's Guide to Being a Student of the Business POST-TEST

Online Training (due in 90 days)

- Water and Wastewater 101 eLearning (1 Hour)
- 2017 Code of Ethics Training (.5 Hours)
- Respect and Dignity: Embracing Diversity and Inclusion in the Workplace Online Training (1 Hour)

Cyber Security 101 Program (1.5 Hours)

- Securing the Human: Introduction
- Securing the Human: You are the Shield
- Securing the Human: Social Engineering
- Securing the Human: Email and Messaging
- Securing the Human: Browsing
- Securing the Human: Social Networks
- Securing the Human: Mobile Devices
- Securing the Human: Passwords
- Securing the Human: Data Security
- Securing the Human: Hacked
- Securing the Human: Conclusion

- Certified Safe Worker (2019) (0 Hours)
- New Hire Benefits Orientation (1 Hour)
- American Water Safety Culture (.5 Hours)
- Workplace Security Awareness (1.25 Hours)
- myTime (.5 Hours) (Due in 7 Days)

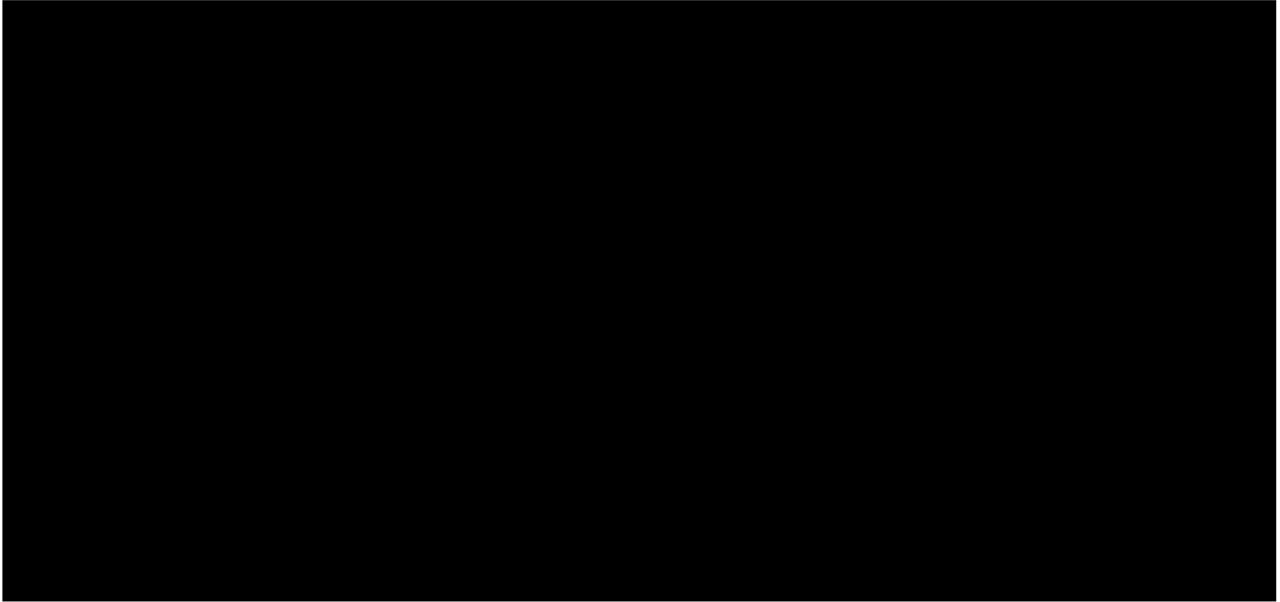
Assigned Various Safety courses depending on Location and Position

Source: Information Response 141 Attachment 1

The programs used to evaluate the effectiveness of the learning and development programs includes a minimum of 3 to 5 questions for a knowledge check at the end of each e-learning. This is followed for most training modules. Instructor led training includes pre and post-tests as well as post-event surveys. The feedback from the surveys is utilized to improve the training.⁸²³

NJAW's leadership development process for 2019 is illustrated in *Exhibit XVI-12*.⁸²⁴

Exhibit XVI-12
Essentials of Leadership 2019



Source: Information Response 144 Attachment 1 and 2 (Part of confidential documentation)

Safety Programs, Key Safety Personnel, and Safety Committees

According to NJAW's VP Operations, NJAW largely follows Corporate American Water Health and Safety Procedures and Practices. Additionally, there are several state specific programs/processes that may exceed corporate requirements in some cases, including but not limited to personal protective equipment matrices, excavation checklists, contractor safety management, job briefing checklists, and training protocols.⁸²⁵

The key personnel in managing programs, initiatives, and daily activities in the area of safety include five Senior Specialists of Operational Risk Management and one Director of Operational Risk Management. The specialists support the respective regions and operations centers around the state. The Director supports all initiatives and activities across NJAW. Aside from the key personnel mentioned above, each employee is responsible for their safety as well as the safety of their co-workers. Additionally, the management team supports and assists in the execution of many of the programs and initiatives in place throughout the state.⁸²⁶

Each region/location also conducts a joint union/management safety committee meeting on a monthly basis. All key safety initiatives, concerns, and issues are discussed and addressed at these monthly meetings. Due to the size and structure of the region, the Central team also conducts a quarterly safety committee meeting where employees from all locations (Belle Mead, Plainfield, Raritan Millstone, and Canal Road) meet to share ideas as well as discuss any common initiatives and concerns. In addition to the safety committees mentioned above, NJAW sponsors a Behavioral

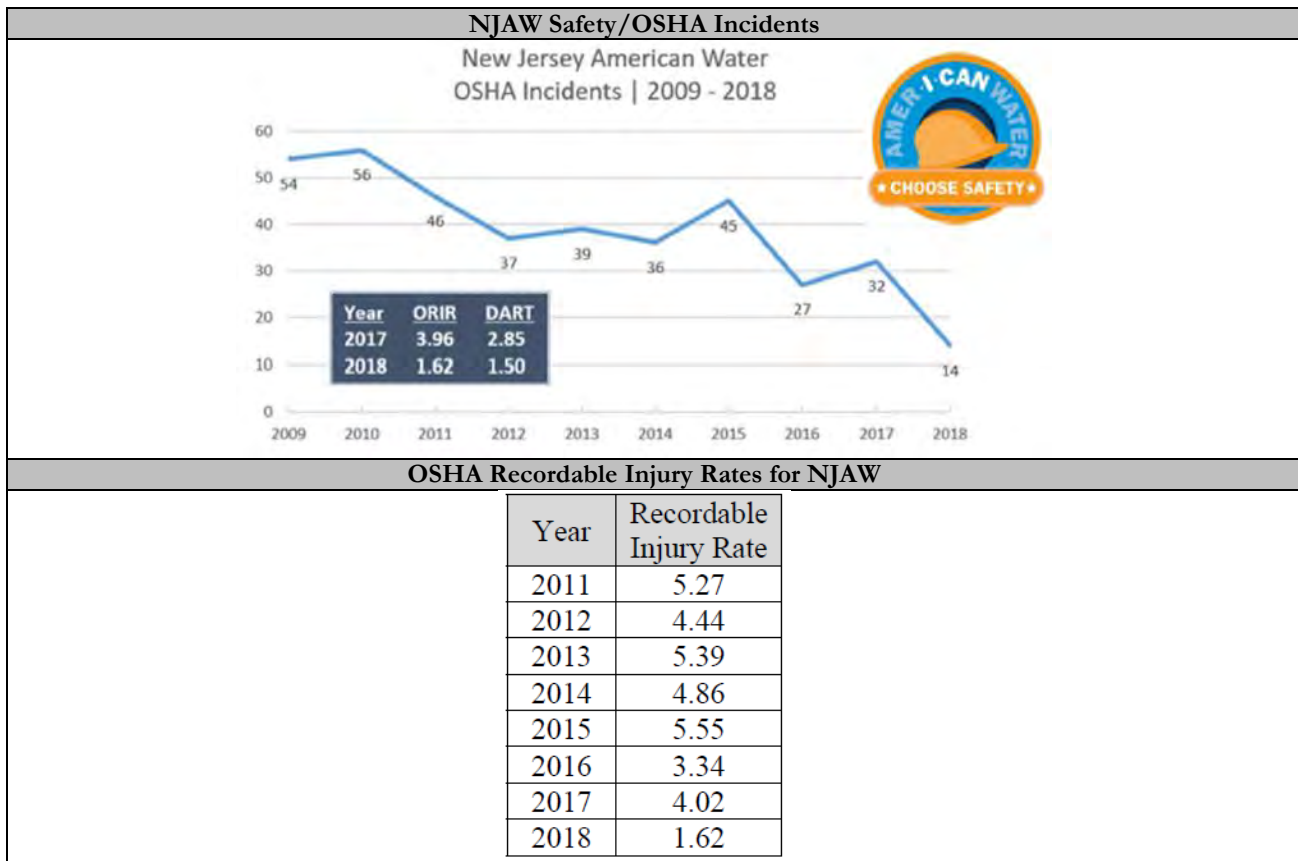


Accident Prevention Process (BAPP) that is in place in every area as well. BAPP is a union-lead peer to peer process and is supported by an organization named DEKRA Insight. NJAW employees conduct safety observations and provide feedback to their peers. The respective teams, for each area, meet every month to discuss observations, trends, and corrective actions.⁸²⁷

The teams may also meet with management sponsors during Barrier Removal Meetings to discuss any potential barriers in the way of addressing safety concerns. Barrier Removal Meetings are conducted to develop and discuss necessary corrective actions and/or remove any barriers.⁸²⁸

Exhibit XVI-13 displays OSHA logs and safety statistics from 2009-2018, in which the number has gone down.⁸²⁹

Exhibit XVI-13
OSHA Logs and Safety Statistics
2009 to 2018



Source: Information Response 146

HR Needs Assessments

The data is available in SAP and myEmployeeCenter to run reports that provide insight into workforce needs such as age, tenure, eligibility for retirement, vacancies, diversity, gender, total open (T/O) and talent acquisition status.⁸³⁰

While building out goals for the year HR has reviewed business plans, budgets and held discussions with functional leaders to identify any staffing needs for the upcoming year. When staffing needs arise requisitions are created via myEmployeeCenter (formerly MyCareerSolutions), which is an SAP product.⁸³¹ Additionally, there is a talent review (also conducted in myEmployeeCenter) and a succession plan is built for companywide critical roles (organized by corporate organizational development). During this process, needs are identified and partnerships with the appropriate centers of expertise are established (talent acquisition, compensation, learning, organizational development).⁸³²

The Talent Review Process is focused on forward-looking business challenges and requirements and the associated talent implications. HR Business Partners perform a lead role in implementing the Talent Review activities including, facilitation, action planning and monitoring of progress on commitments. The overall objective of talent review provides a foundation for succession management and employee and leadership development. Supplementary talent review priorities include leadership development, inclusion and diversity, and workforce planning.⁸³³

Succession Planning is American Water's systematic approach to:⁸³⁴

- ◆ Building a technical/professional and leadership talent pool to ensure talent continuity
- ◆ Developing potential successors in ways that best fit their strengths
- ◆ Identifying the best candidates for categories of positions

Some jobs are vital to the organization and too critical to be left vacant or filled by anyone but the best qualified persons. Succession planning is critical to mission success and creates an effective process for recognizing, developing, and retaining top leadership talent.⁸³⁵

Exhibit XVI-14 is a sample of the Talent Acquisition Dashboard, which is a monthly report for the company and state.⁸³⁶



**Exhibit XVI-14
Talent Acquisition Dashboard
as of March 2019**

Regulated Operations	Requisition Status											Requisition Age				Hire Data				Emp Referral		Diversity					
	Open Union	Open Non-Union	Total Open	On-Hold Union	On-Hold Non-Union	Total On-Hold	Count		Filled Union		Filled Non-Union		Count < 60 days		Count 60+ days		Internal		External		Count		Candidate		Hired		
							MTD	YTD	MTD	YTD	MTD	YTD	Total Open	Total Filled YTD	Total Open	Total Filled YTD	MTD	YTD	MTD	YTD	Referrals (includes job reqs)	Referrals Hired	Count	%	Count	%	
AW Service Southeast																											
Kentucky-American Water C																											
Tennessee-American Water																											
Midwest																											
Illinois-American Water C																											
Iowa-American Water Compa																											
Indiana-American Water Co																											
Michigan-American Water C																											
Missouri-American Water C																											
CA/HI																											
California-American Water																											
Hawaii-American Water Co.																											
Mid-Atlantic																											
Pennsylvania-American Wat																											
West Virginia-American Wa																											
Eastern																											
Maryland-American Water C																											
New Jersey-American Water	10	20	30	1	0	1	6	3	9	10	17	27	20	10	10	17	5	11	6	16	38	2	522	40.5%	11	40.7%	
New York-American Water C																											
Virginia-American Water C																											
Total																											

Source: Information Response 147 Attachment (Part of confidential documentation)

Disciplinary Procedures & Records

American Water has *Workplace Conduct and Behavior Policy* documentation and *Workplace Conduct and Behavior Practice* documentation for its disciplinary procedures.⁸³⁷ They also address conflict resolution policies/procedures.⁸³⁸ The policy addresses all aspects of workplace conduct and behavior, including without limitation, the requirements for employees and supervisors to report inappropriate conduct. According to American Water management, this policy should be read together with the related practices and the Code of Ethics, plus it also addresses requirements for employees to present a professional business image; and addresses requirements for employees who engage in outside employment. The policy statement contains guidance on the various aspects of workplace conduct and behavior. Unless otherwise specified in this policy or an applicable collective bargaining agreement, this policy establishes requirements that are to be followed by all employees, non-employees, contractors, and vendors. If the employee is covered by a collective bargaining agreement and specific provisions of the collective bargaining agreement or mutual practice are different than or in conflict with this policy, the provisions of the collective bargaining agreement or mutual practice supersede those in this policy, provided they do not violate the law. Employees should refer to the applicable practices, their collective bargaining agreement, if applicable, or contact their Human Resources Department with questions related to the subjects covered in this policy, which include:⁸³⁹

- ◆ Dignity and respect; threats and acts of violence
- ◆ Anti-harassment, anti-discrimination, and anti-retaliation
- ◆ Outside employment and directorships
- ◆ Use of company property

- ◆ Tobacco free environment
- ◆ Office attire/uniforms and branded apparel
- ◆ Safe use of communication devices and technology while driving
- ◆ Reporting potential violations
- ◆ Application of discipline

Employees, non-employees, contractors, and vendors are responsible for compliance with this policy; and for assuring the security of company confidential/proprietary material and company-provided property and equipment in their possession. Employees are responsible for informing their supervisor, Human Resources, or the Code of Ethics Hotline if they have a concern related to potential violations of this policy. The Vice President of Communications and External Affairs is responsible for establishing branding guidelines for company apparel and uniforms. The Senior Vice President Human Resources is responsible for overall administration of this policy in consultation with Legal, Operational Risk Management, and Managers/Supervisors. *Exhibit XVI-15* lists the summary of practices related to workplace conduct and behavior policy mentioned in the policy documentation.⁸⁴⁰

Exhibit XVI-15
Summary of Practices Related to Workplace Conduct and Behavior Policy

Policy	Related Practices
Respect and Dignity in the Workplace Policy	Workplace Conduct and Behavior Practice
	Violence Free Workplace Practice
	Code of Ethics
Violence Free Workplace Policy	Respect and Dignity in the Workplace Practice
	Safety Code Practice

Source: Information Response 158 Attachment 1

The practice documentation outlines the key enterprise activities related to workplace conduct and behavior, including disciplinary guidelines, which aligns with the requirements of the Workplace Conduct and Behavior Policy documentation. If the employee is covered by a collective bargaining agreement and specific provisions of the collective bargaining agreement or mutual practice are different than or in conflict with this policy, the provisions of the collective bargaining agreement or mutual practice supersede those in this policy, provided they do not violate the law. High level practice variances related to market-based businesses (MBB), if any, are outlined in a separate section of this documentation.⁸⁴¹ This documentation covers activities related to identifying, reporting, and resolving conflicts related to inappropriate workplace conduct and behavior. The following are the major sections covered within the Key Activities area of this practice:⁸⁴²

- ◆ *Section 1: Disciplinary Guidelines and Actions*
- ◆ *Section 2: Identifying and Reporting Inappropriate Workplace Conduct and Behavior*
- ◆ This practice contains appendices for the following: *Appendix A – Summary of Policies Related to the Workplace Conduct and Behavior Practice*
- ◆ Key definitions are detailed.



Sexual Harassment Documentation

American Water has *Respect and Dignity in the Workplace Policy* documentation whose purpose is that American Water is committed to a workplace in which all individuals are treated with mutual respect and dignity. In keeping with its values, American Water has zero tolerance for discrimination, harassment, or retaliation as described in this policy. This means the company will not tolerate any form of discrimination, harassment, or retaliation by or towards any employee, vendor, customer, or other person in our workplace. Also, such behaviors are not allowed at a customer location, while operating a company vehicle, in public locations, or on its job sites. This policy also prohibits discrimination, harassment, or retaliation while on company business trips, or at business related social events or at any time outside of work. It is important to understand that discrimination, harassment, and retaliation that occurs outside of work is still prohibited by this policy, because it may impact the company, its reputation, or its name. A guiding principle of employment with the company is to treat everyone with respect and dignity and always be professional and courteous.⁸⁴³

As this policy applies to many situations and many different behaviors, American Water has included sections about its commitment to equal employment and non-discrimination, to a harassment free workplace, and one describing other types of harassment. They have also included sections about a couple of areas that people do not always think about when they think of respect and dignity at work: using emails, texts and social media, and romantic or sexual relationships between company employees. These are two places this policy applies, but they are not the only two places it applies.⁸⁴⁴

The following are the major sections covered in this policy documentation:⁸⁴⁵

- ◆ Emails, Social Media and other Computer Systems
- ◆ Consensual Relationships
- ◆ Commitment to Equal Employment Opportunity and Non-Discrimination
- ◆ Commitment to a Harassment Free Workplace, including No Tolerance for Discriminatory Harassment, Sexual Harassment Defined, and Other Harassment Defined.
- ◆ Reporting Policy Violations, including Reporting Responsibilities of Employees and Supervisors, Investigation of Complaints, Protection against Retaliation, Responsive Action, and Knowingly False or Bad Faith Malicious Accusations.

Exhibit XVI-16 lists the summary of practices related to respect and dignity in the workplace mentioned in the policy documentation.⁸⁴⁶

Exhibit XVI-16
Summary of Practices Related to Respect and Dignity in the Workplace

Policy	Related Practice
Respect and Dignity in the Workplace	Respect and Dignity in the Workplace
Code of Ethics	
Workplace Conduct and Behavior	Workplace Conduct and Behavior

Source: Information Response 160 Attachment 1

Also included is a complaint form for reporting sexual harassment.⁸⁴⁷

Besides the *Respect and Dignity in the Workplace Policy documentation*, American Water also provided a document titled *Respect and Dignity: Embracing Diversity & Inclusion in the Workplace, which also mentions use of workshops from a letter from the American Water President & CEO*.⁸⁴⁸

Executive Compensation/Performance Management

Besides information in this section, detailed information is also included in *Chapter XIV – Executive Management & Corporate Governance*.

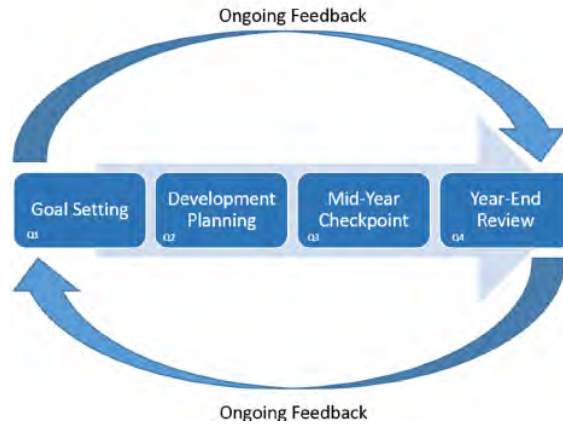
According to AWWSC management, American Water regularly reviews compensation and benefits programs to ensure they are market competitive. The programs are designed to attract, retain, and motivate exceptional people to actively contribute to the success of the company and to share the company's success. American Water uses a compensation system that supports the company's business strategy while providing competitive compensation, and equal pay for equal work. American Water utilizes the external market data to benchmark jobs while ensuring internal alignment by reviewing team size and scope of responsibility. New Jersey American Water models its compensation philosophy and activities around ensuring competitiveness on the American Water approach. The performance management programs encourage constructive and ongoing feedback across the organization to provide accountability for performance goals and expectations, support and enhance professional development, and provide performance information to inform compensation and promotional decisions.⁸⁴⁹

Supervisors and employees are encouraged to have regular and ongoing conversations to discuss performance, revisit and revise established goals and adjust them as necessary, and discuss focus areas for development. The formal performance review process is required to be conducted annually and completed in myEmployeeCenter. A year-end performance review is required in order for the employee to be considered for a merit-based increase and annual performance plan payment (the terms of which are based on plan eligibility requirements).⁸⁵⁰

The performance management cycle is illustrated in *Exhibit XVI-17*.⁸⁵¹



**Exhibit XVI-17
Performance Management Cycle**



Source: Information Response 161 Attachment

Executive Compensation Salaries

Executive compensation salary administration follows American Water *Compensation and Benefits Policy and Practice* documentation. Executives are considered Directors who hold jobs in levels 50 and above as referenced in the Salary Structure chart shown in *Exhibit XVI-18*.⁸⁵²

**Exhibit XVI-18
Salary Structure Chart
Executives Only**

2019 Salary Structure - Exempt							
Current Salary Level	APP Target*	LTPP**	Minimum	Q1	Midpoint	Q3	Maximum
70							
65							
62							
60							
55							
50							

Source: Information Response 162 Attachment 2 (Part of confidential documentation)

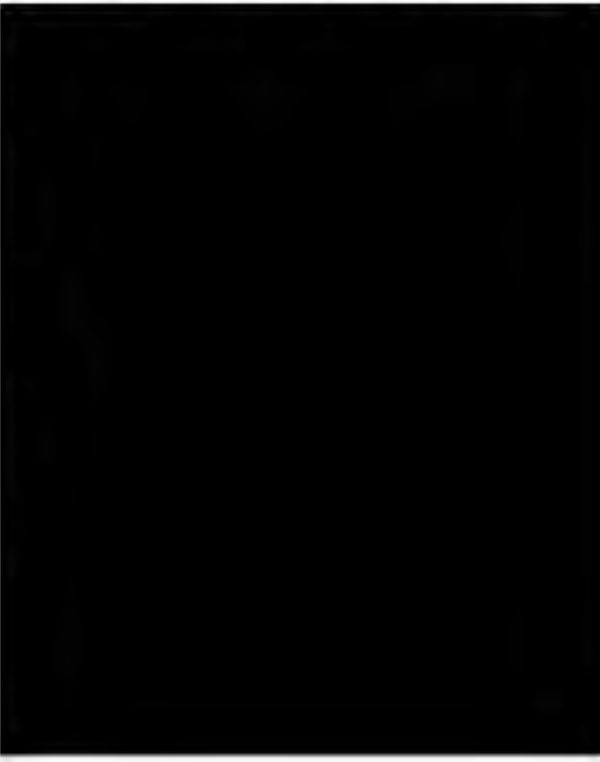
Below are the pay survey data used to determine competitiveness of compensation levels for executives:⁸⁵³

- ◆ *Towers Watson* – Energy Services Executive Compensation Survey (2015)
- ◆ *Towers Watson* – General Industry Executive Compensation Survey (2015)
- ◆ *Willis Towers Watson* - General Industry Middle Management, Professional and Support Compensation Survey (2018)
- ◆ *Willis Towers Watson* – General Industry Executive Compensation Survey (2018)

In late 2015, American Water engaged Willis Towers Watson to complete a benchmarking study for all employees at the Director level or above. The surveys indicated above were utilized to benchmark American Water’s jobs to external market data points.⁸⁵⁴

Actual merit increases for 2012 to 2019 have ranged from 2.56% to 2.95% per year, which is close to budget merit increases. Then executive compensation salary range increases for the past eight (8) years are shown in *Exhibit XVI-19*.⁸⁵⁵

Exhibit XVI-19
Executive Compensation Salary Range Increases
2012-2019

Year	Old Pay Grade	New Pay Grade	Min-Pay	Mid-Pay	Max-Pay
2012					
2013 and 2014					
2015					
2016					
2017 and forward					

Source: Information Response 165 Attachment 2 (Part of confidential documentation)

Executive Compensation Benefit Programs

Included among American Water’s executive compensation benefit programs are:

- ◆ *2017 Omnibus Equity Compensation Plan*, whose purpose is to provide designated employees of American Water Works Company, Inc. and its subsidiaries and non-employee members of the Board of Directors of the American Water with the opportunity to receive grants of stock options, stock units, stock awards, stock appreciation rights, and other stock-based awards, plus the company believes that the plan will encourage participants to contribute materially to the financial and operational success, and growth, of the American Water, and will align the economic interests of participants with those of its stockholders and customers.⁸⁵⁶

The following paragraphs on this and next page are considered confidential documentation by the company.

- ◆ [Redacted text block]

- ◆ [Redacted text block]

- [Redacted text block]

- [Redacted]

• [Redacted]

• [Redacted]

• [Redacted]

- [Redacted]

◆ [Redacted]

859

860

◆ [Redacted]

861

Diversity & EEO

Affirmative Action Plans

Affirmative action plans (AAPs) are maintained for two years due to federal regulations, so the following list shown in *Exhibit XVI-20* includes *Executive Order 11246* plans for 2017 to 2019, which typically include establishment of responsibilities for implementation of the written affirmative action program; identification of problem areas (including placement goals, review of employment decisions, review of hires/promotions, review of terminations, compensation); accomplishment of prior year placement goals; development and execution of action-orientation programs; and internal audit and reporting systems; plus company-wide outreach and positive recruitment appendix:⁸⁶²

Exhibit XVI-20
Affirmative Action Plans

November 1, 2017 to October 31, 2018	November 1, 2018 to October 31, 2019
Bridgewater, NJ Delran, NJ Egg Harbor Township, NJ Hillsborough, NJ Lakewood, NJ Plainfield, NJ Short Hills, NJ Shrewsbury, NJ Voorhees, NJ	Bridgewater, NJ Delran, NJ Egg Harbor Township, NJ Hillsborough, NJ Lakewood, NJ Plainfield, NJ Short Hills, NJ Shrewsbury, NJ

Source: Information Response 152 Attachments

Some affirmative action plans are short on minorities or females. The HR Compliance Specialist who reports to the VP of HR Operations does these plans and associated reports.⁸⁶³

There are more Equal Employment Opportunity (EEO-1) reports than AAPs because EEO-1s are prepared by individual location regardless of headcount. For example, the Shrewsbury AAP is comprised of the Shrewsbury, Colts Neck, and Neptune, and Hazlet locations.⁸⁶⁴

Provided by NJAW was the Company's Job Group Analysis by region⁸⁶⁵ and the Company's Incumbency versus Availability analysis by region⁸⁶⁶, but no totals exist, so no exhibit is shown.

Employee Diversity Initiatives

Examples of the 2018 activities company-wide includes recommendations for focus areas for 2019 and beyond is summarized in *Exhibit XVI-21*.⁸⁶⁷

**Exhibit XVI-21
2018 Employee Talent Acquisition Activities**

Date	Activity Details	Location	Type of Activity
January			
15	MLK Day of Service Job Fair	Philadelphia, PA	Career Fair
24	Penn State Engineering	State College, PA	Career Fair
25	Kroc Center-Camden Job Fair #4	Camden, NJ	Career Fair
February			
	Black History Month		
16	Temple Engineering Career Fair	Philadelphia, PA	Career Fair
22	Drexel Winter Internship Careerfair	Philadelphia, PA	Career Fair
23	WISE/EIF Program Mock interviews	Mt Laurel, NJ	Training program
March			
1	Douglass Project for Women in STEM - Networking Night (Rutgers)	New Brunswick, NJ	Networking event at Rutgers
9	Sterling High School Career Fair	Somerdale, NJ	Career Fair
14	Energy and Utilities Employer Round Table	Branchburg, NJ	In partnership with the utilities Talent Network, discussion on pathway to employment
23	Gloucester County Mega Career Fair	Sewell, NJ	Career Fair
24	Tri-State College Diversity Summit	New Brunswick, NJ	Summit/sponsorship
27	Rowan Mock Interview Coaching	Glassboro, NJ	Networking / Coaching opportunity
April			
	GI JOB Hot Jobs for Veterans edition: spotlight		
4	Rutgers Career Fair	Camden, NJ	Career Fair
11	Drexel CCI Corporate Partners Program	Phila., PA	
11	Veterans Job Fair @ BB&T Pavilion	Camden, NJ	Career Fair
12	Kroc Center-Camden Job Fair #5	Camden, NJ	Candidate Interview Best Practices Presentation, plus Mock Interviewing and Resume Tips
30	NJBDA's 5th Annual Symposium & Inaugural Data Science Career Fair	Ewing, NJ	In partnership with 12 colleges
May			
16	Career Today Job Fair	Tinton Falls, NJ	Career Fair
24	South Jersey Veterans Reception on Battleship NJ	Camden	Appreciation Reception sponsored by AWK
June			
8	URGENT Mock Interviews	Garden City NY	Mock interviews with the participants of the URGENT program
July			
27	Gloucester County Disability Employment Job Fair & Resource Event	Clayton, NJ	Career Fair
August			
September			
5	Penn Career Services Engineering Career Fair	Philadelphia	Career Fair
6	DICE Technology & Engineering Career Fair	Edison, NJ	Career Fair
13	Rutgers - New Brunswick - Fall Career MegaFair	New Brunswick	Career Fair
19	Camden Working Summit	Camden, NJ	Jobs & Career Training
25	Camden County Unemployment Office	Camden, NJ	Intro to our company
28	Bridging the Gap Veterans Job Fair	Bordentown, NJ	Career Fair
October			
3	Rutgers Camden Career Fair	Camden, NJ	CareerFair
4	Temple College of Engineering Career Fair	Philadelphia, PA	Career Fair
4	Rowan University	Glassboro, NJ	CareerFair
10	Rutgers Supply Chain Career Fair	Edison, NJ	Career Fair
11	Temple - Fox School of Business SCM	Philadelphia, PA	Supply Chain networking
11	Drexel University Fall Career Fair	Philadelphia, PA	
11	Camden County Mega Job Fair	BBT Camden, NJ	
12	Princeton University Science & Technology	Princeton, NJ	
15	NJ Careers in Utilities Week Job Fair	West Windsor, NJ	Career Fair
November			
1	Construction & Utilities Talent Network Summit	Newark, NJ	Summit to introduce females to the industry
9	2018 Veterans Transition Summit & Job Fair	Cherry Hill, NJ	Career Fair
28	Resume writing - Camden Community College	Blackwood	Presentation
December			
3	NJ Chamber of Commerce Business Roundtable	Mt. Laurel, NJ	Open discussion and Q&A

Source: Information Response 153 Attachment 13 (Spreadsheet)



Diversity Spend with Contractors

Exhibit XVI-22 displays NJAW's diversity spend and spend percentages with diverse contractors from 2012 to 2018, which shows it is generally getting better.⁸⁶⁸

Exhibit XVI-22
Diversity Spend and Spend Percentages with Diverse Contractors
2012 to 2018

Minority Status Group Desc	Year							Grand Total
	2012	2013	2014	2015	2016	2017	2018	
Small Business	\$27,113,799	\$33,843,793	\$44,910,555	\$62,933,096	\$58,509,220	\$69,307,515	\$84,407,991	\$381,025,968
Women Owned	\$1,928,658	\$3,262,743	\$17,110,187	\$27,696,952	\$31,168,453	\$31,692,633	\$35,595,707	\$148,455,334
Minority Owned	\$16,838,862	\$1,706,936	\$4,714,606	\$11,419,721	\$8,276,900	\$17,525,864	\$12,123,088	\$72,605,978
Disabled Veteran Owned			\$261,312	\$696,369		\$7,693	\$119,721	\$1,085,095
Veteran Owned	\$32,965	\$39,660	\$24,191	\$362,546	\$65,014	\$161,539	\$117,632	\$803,547
Disabled Owned			\$8,554		\$717,249			\$725,803
Small Disadvantaged Business				\$13,432	\$22,524	\$349,182	\$79,036	\$464,174
Historically Underutilized					\$397	\$696	\$255	\$1,348
Total Diversity Spend	\$45,914,284	\$38,853,132	\$67,029,405	\$103,122,116	\$98,759,757	\$119,045,122	\$132,443,430	\$605,167,247
Diverse Business Type	2012	2013	2014	2015	2016	2017	2018	Grand Total
Small Business	7.97%	11.30%	15.01%	18.37%	15.95%	16.81%	18.90%	15.20%
Women Owned	0.57%	1.09%	5.72%	8.08%	8.50%	7.69%	7.97%	5.92%
Minority Owned	4.95%	0.57%	1.58%	3.33%	2.26%	4.25%	2.71%	2.90%
Disabled Veteran Owned	0.00%	0.00%	0.09%	0.20%	0.00%	0.00%	0.03%	0.04%
Veteran Owned	0.01%	0.01%	0.01%	0.11%	0.02%	0.04%	0.03%	0.03%
Disabled Owned	0.00%	0.00%	0.00%	0.00%	0.20%	0.00%	0.00%	0.03%
Small Disadvantaged Business	0.00%	0.00%	0.00%	0.00%	0.01%	0.08%	0.02%	0.02%
Historically Underutilized	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Diverse % of Sourceable	13.50%	12.97%	22.41%	30.09%	26.94%	28.87%	29.66%	24.14%
Total Sourceable	\$340,359,022	\$299,447,031	\$299,177,978	\$342,678,970	\$366,727,407	\$412,206,466	\$446,612,607	\$2,507,209,480

Source: Information Response 154 Attachment

B. Findings & Conclusions

Finding XVI-1 **No issues were found regarding copies of the Letter of Commitment or other reports concerning federal or state audits of NJAW for regulatory compliance.**

NJAW received copies of the letter of commitment or other reports concerning federal or state audits of NJAW for regulatory compliance, as follows:⁸⁶⁹

- ◆ On December 4, 2018 NJAW received a letter from the U.S. Department of Labor, Office of Federal Contract Compliance Programs (OFCCP), which indicated that it selected NJAW's establishment at 204 Carriage Lane, Delran, NJ 008075 for compliance review involving a desk audit, an on-site review, and an off-site analysis.
- ◆ On February 5, 2019 NJAW received a letter from the U.S. Department of Labor, Office of Federal Contract Compliance Programs (OFCCP), which indicated that it has recently completed a compliance valuation of this location's equal employment opportunities 0policies and practices, and during the process the OFCCP had found no apparently violations of Executive Order 112456, as amended, Section 503 of the Rehabilitation Act of 1973, as amended (Section 503), or the Vietnam Era Veterans' Rehabilitation Act of 1974, as amended (Section 4212).

Finding XVI-2 **Any practices documentation doesn't always exist along with associated policy documentation.**

Human Resources policies and practices documentation resides on the company's Intranet and are accessible to all employees.⁸⁷⁰

At American Water not all policies have a corresponding practice. According to NJAW management, policies set forth standards to guide organizational action and employee conduct on various topics. When necessary, practices are used to describe the steps necessary to implement and/or support a policy.⁸⁷¹

Policies documentation include:⁸⁷²



- ◆ Compensation and Benefits Policy (Effective 6/30/2019)
- ◆ Drug and Alcohol Policy (Effective 1/1/2016)
- ◆ Leaves of Absence Policy (Effective 1/1/2020)
- ◆ Recruitment and Staffing Policy (Effective 1/1/2019)
- ◆ Respect and Dignity in the Workplace Policy (Effective 10/19/2018)
- ◆ Separation of Employment Policy (Effective 6/30/2019)
- ◆ Solicitation and Distribution Policy (Effective 4/1/2016)
- ◆ Talent and Performance Management Policy (Effective 6/30/2019)
- ◆ Time, Attendance, and Paid Time Off Policy (Effective 6/30/2019)
- ◆ Tuition Reimbursement Policy (Effective 1/1/2020)
- ◆ Workplace Accommodation Policy (Effective 6/17/2019)
- ◆ Workplace Conduct and Behavior Policy (Effective 6/15/2019)
- ◆ Violence Free Workplace Policy (Effective 6/30/2019)

Practices documentation include:⁸⁷³

- ◆ Compensation and Benefits Practice (Effective 6/30/2019)
- ◆ Drug and Alcohol Free Workplace Practice (Effective 1/1/2016) – Union employees
- ◆ Drug and Alcohol Free Workplace Practice (Effective 7/1/2017) – Non-union employees
- ◆ Leaves of Absence Practice (Effective 1/1/2017)
- ◆ Pension & Other Post Employment Benefits (OPEB) (Effective 12/2/2019)
- ◆ Recruitment and Staffing Practice (Effective 9/1/2013)
- ◆ Respect and Dignity in the Workplace Practice (Effective 9/1/2019)
- ◆ Separation of Employment Practice (Effective 6/30/2019)
- ◆ Time, Attendance, and Paid Time Off Practice (Effective 6/30/2019)
- ◆ Tuition Reimbursement Practice (Effective 1/1/2018)
- ◆ Violence Free Workplace Practice (Effective 6/30/2019)
- ◆ Workplace Conduct and Behavior Practice (Effective 6/15/2019)

However, there are none of the following type of practices documentation with these three policy documentation listed above:

- ◆ Solicitation and Distribution Policy (Effective 4/1/2016)
- ◆ Talent and Performance Management Policy (Effective 11/30/2012)
- ◆ Workplace Accommodation Policy (Effective 6/17/2019)

Also, it is not clear how frequently the Human Resources Department reviews these policies and practices documentation items and changes when necessary. Some policies were updated after they were provided to Schumaker & Company auditors; however, a few are still old without being updated. Some policies and practices may be subject to negotiation with our labor partners. This may cause a delay in the final upload/approval (for example the Drug and Alcohol policy).

Finding XVI-3 Safety statistics are trending in a good direction.

The recordable injury rate has been declining since 2001 as was shown in *Exhibit XVI-13*. Although the long-term goal is to be at a level of zero, the activities being taken are getting results.

Finding XVI-4 Overall HR policies and procedures are well documented and thorough.

NJAW has developed good documentation on its HR policies and procedures as were discussed in the Background and Perspectives section of this HR section.



C. Recommendations

Recommendation XVI-1 Provide practice documentation that correspond with all policy documentation, plus make sure policy and practice documentation is updated in a timely manner. (Refer to Finding XVI-2.)

At American Water not all policies have a corresponding practice.

According to NJAW management, policies set forth standards to guide organizational action and employee conduct on various topics. When necessary, practices are used to describe the steps necessary to implement and/or support a policy. Schumaker & Company disagrees that this is appropriate.

As a minimum, practice documentation for the following policies are required:

- ◆ Solicitation and Distribution Policy (Effective 4/1/2016)
- ◆ Talent and Performance Management Policy (Effective 11/30/2012)
- ◆ Workplace Accommodation Policy (Effective 6/17/2019)

Others should be provided when new policies are created. Also, as previously mentioned, it is not clear how frequently the Human Resources Department reviews these policies and practices documentation items and changes when necessary. All such documentation should be reviewed at least every two years, and updated, whenever necessary.

XVII. Strategic Planning

This chapter evaluates American Water Works Company, Inc.'s (AWK's) and New Jersey-American Water Company, Inc.'s (NJAW's) strategic planning methodology.

A. Background & Perspective

Strategic/Corporate Planning Process

American Water Works Company, Inc.'s and New Jersey-American Water Company, Inc.'s mission is to deliver clean, safe, reliable and affordable water and wastewater services to the customers they serve.⁸⁷⁴ This mission is stated in regulatory filings and presentation materials.⁸⁷⁵

AW and NJAW does not have a documented strategic plan or a strategic planning process. AW's strategic focus can be discerned through their regulatory filings (e.g. 10K). The US water and wastewater industries are characterized by a large number of small, highly fragmented companies. This large number of small, fragmented water and wastewater companies may result in inefficiencies in the marketplace, such as lack of operating expertise, financial and technological capabilities, and economies of scale to provide services and raise capital. A larger utility has the financial resources and expertise to make mandated and other infrastructure upgrades to water and wastewater systems as well as spread support costs across a larger customer base. AW is actively pursuing acquisitions and other related complementary business activities in line with their strategy to continue their growth.⁸⁷⁶

AW regulatory filings also discuss the business aspects that greatly affect their ability to prosper. AW has identified five strategic areas along these lines: Safety, People, Customer, Operational Excellence and Growth. Each area has associated long-term goals, which in turn are associated with specific measures each year. The following are the goals and measures for 2019:⁸⁷⁷

◆ *Safety* –

[REDACTED]

◆ *People* –

[REDACTED]



◆ *Customers* –

◆ *Operational Excellence including Financial Performance* –

◆ *Growth (Infrastructure and customer)* –

⁸⁷⁸

Strategic/corporate planning mainly involves members of the American Water Executive Leadership Team (ELT) consisting of 10 officers of AW including the President and Chief Executive Officer (CEO). The ELT meets periodically throughout the year and, depending on the topics being addressed, will have agendas and materials distributed prior to the meeting. There are no minutes or summaries of these meetings. They are supported by senior leadership teams from each American Water subsidiary. NJAW's Senior Management Team (SMT) consists of senior managers, Vice-Presidents and Directors, and includes the Senior Vice-President of the Eastern Division and President of NJAW. NJAW's SMT also meets periodically throughout the year as necessary and there are no meeting minutes or other formal documentation related to those meetings.⁸⁷⁹ In addition, the AW Board of Directors receives at least one strategic plan briefing each year. In practice, strategic issues are discussed at almost every quarterly Board meeting and the directors take a multi-day off site strategic planning retreat to discuss the important issues facing American Water.^{880 881}

Goals and performance measures are then distributed down through the AW organizations, where managers and employees are tasked with developing their own goals and development efforts in support. Employees are asked, but not required, to develop cascading goals (employee goals directly connected to corporate goals). These goals are input into an automated system; myEmployee Center Database.⁸⁸² The ELT will review corporate progress to goals in their meetings.⁸⁸³ A Program Management Team has recently been constituted with personnel within AW to help better define metrics and smooth communications throughout the organization regarding meeting strategic goals and initiatives.⁸⁸⁴ AW relies heavily on annual and 5-year capital and operations business plans, which are detailed numerical budgets, to drive the execution of their strategy.⁸⁸⁵ These processes are documented through their Capital Policy⁸⁸⁶ and Capital Investment Management Practice⁸⁸⁷ and the O&M budgeting process.⁸⁸⁸ O&M budgeting is performed each year in the April through July timeframe. Operating and service Company finance teams coordinate with functional leads to develop a bottom-up estimates of all

operating costs (e.g. labor, maintenance, production). The NJAW budget is presented to the NJAW Board and the consolidated budget for all companies is presented to the AW Board.⁸⁸⁹

One of NJAW's strategic goals for the past eight years has been to expand their regulated customer base to promote long term cost savings through the ability to spread fixed costs over a larger group and further enhance economies of scale in their supply chain. This includes supporting certain market-based businesses to further leverage down costs to the regulated customers. These efforts involve operating and maintenance agreements with other New Jersey water utilities (mainly municipals).⁸⁹⁰

The Capital Policies apply only to existing businesses and not to the acquisition on new businesses. An Asset Investment Strategy aligns the capital program with the mission and goals of the company. This strategy is developed annually by a cross-functional team of the Engineering Department, the Finance Department, and Operations with input from the Risk Management Committee. Under the Capital Policy, Operating Units develop their own capital plan for approval from their company boards, as necessary and, consolidated with other companies, the AW Board. This process is intended to address the strategic objectives to create customer value based on need and benefits and earn a timely and fair return on investment.⁸⁹¹ Minimizing cost of service to the customer while providing safe, reliable, efficient and quality service is mentioned.⁸⁹² NJAW has had three rate increases in the past eight years: in 2012 (\$30 million), 2015 (\$22 Million), and in late 2018 (\$40 Million). All three rate increases were primarily driven by capital expenditures. NJAW indicated that although they try to keep abreast of comparable rates for other water utilities, they do not collect or maintain this information in any document or repository.⁸⁹³ More information on the capital and O&M budgeting can be found in *Chapter II – Evaluation of Financial Performance*.

NJAW strategy for the past eight years has been to grow their customer base with the goal of spreading fixed costs over a larger base and enhance economies of scale in their supply chain. This has taken the form of offering maintenance and service agreements with neighboring water utilities. NJAW has also supported some market-based ventures.⁸⁹⁴ NJAW also has a wide range of initiatives underway in the areas of Safety, People, Customer Service, Environment, Growth, and Technology and Operational Efficiency. Specific initiatives are classified by AW corporate objectives they support and are assigned to responsible leads.⁸⁹⁵

Key Performance Indicators

NJAW has a number of Key Performance Indicators (KPIs) that reflect their goals. These include the major areas of Safety (e.g. OSHA incident rates), Customer (e.g. service quality, complaints), Operational Efficiency (e.g. system delivery, billing process, repairs), and Regulatory Compliance (e.g. inspections, violations, non-compliance).⁸⁹⁶ These metrics are reported to senior management monthly via a KPI Dashboard Report.⁸⁹⁷ These measures and others are summarized annually in a System Performance Report. This latter report includes categories of Financial Measures, Customer Service/Satisfaction Measures, Process Improvement/Business Transformation Measures, Health and



Safety Measures, and Environmental Measures.⁸⁹⁸ Annual reports going back to 2013 were reviewed and found to be detailed, quantified, and robust.⁸⁹⁹

Risk Assessment Methodology

Broad-based risk assessment and mitigation programs and efforts, including cyber-security, have become an increasingly important element of a corporation's strategic planning.⁹⁰⁰ AW/NJAW has a documented Enterprise Risk Management (ERM) policy and Enterprise Risk Management practice. The ELT is responsible for defining and reviewing top corporate risks (approximately 10 major risks)⁹⁰¹ with individual members assigned responsibility for risk indicators, current issues, and mitigation plans for specific risks. A Risk Management Committee (RMC), consisting of members appointed by the CEO and representing all business units, assists the ELT in their responsibilities. The RMC's specific duties are documented in a written charter. ERM activities are distributed down throughout Operating Units (who identify associated risks and set their own priorities, tolerances, and strategies) with Internal Audit providing assurance to the RMC, CFO, CEO, and Board Audit, Risk & Finance Committee that processes are performed effectively and that measures and reports are reliable.⁹⁰²

AW has also instituted an Ongoing Business Continuity Program whereby they perform tabletop cyber exercises to develop responses to potential catastrophes. Corporate personnel will define the scenario and operations will think through responses. Responses that can be documented into a response protocol should that situation, or something similar, ever arise. Incident commanders are identified for each company to be the point person for any event.⁹⁰³

For NJAW, risk assessment includes Emergency Response Plans, with drills conducted annually and programs to identify high risk assets for setting priorities in the capital planning process.⁹⁰⁴

ERM is discussed with the AW Board at least bi-annually⁹⁰⁵, but in practice, top risks are discussed at most Board meetings and at the annual off-site Board Strategic Planning Retreat.⁹⁰⁶

B. Findings & Conclusions

Finding XVII-1 There is no integrated, documented strategic planning process.

As discussed earlier, goals and targets are established annually by the ELT and promulgated down through the organization, where managers and employees then establish supporting performance targets. And the AWK Board does address strategic and risk issues at most of their meetings. But although there are many elements of strategic planning throughout the organization, they are not integrated into a single strategic plan that integrates into operating company business plans.⁹⁰⁷

There are no specific corporate, operating unit, or departmental business plans.⁹⁰⁸ There are no process flow charts that defines the strategic or business planning process.⁹⁰⁹ There is no documented process to develop annual strategic plans, to include schedules, key staff, or approvals required.⁹¹⁰

C. Recommendations

Recommendation XVII-1 Develop a formal, integrated strategic planning process. (Refer to Finding XVII-1)

Develop a documented Strategic Plan that starts with the Mission Statement that then links down to Corporate Objectives, which in turn link directly down to goals and performance measures with ongoing management reporting formats. All operating units (e.g. NJAW) should have a similar structured business plan that directly supports the AW Strategic Plan.



XVIII. System Operations

A. Overview

Exhibit XVIII-1 displays a simplified illustration of the water usage cycle.⁹¹¹ New Jersey American Water (NJAW) operates facilities that provide drinking **Water Supply** service to 647,000 residential, commercial, and industrial customers and **Water Disposal (Wastewater)** service to 49,000 customers in the State of New Jersey.⁹¹²

Exhibit XVIII-1
Simplified Water Usage Cycle
September, 2004



Source: <https://www3.epa.gov/npdcs/pubs/primer.pdf> page 7

A Public Water Supply System in the United States is identified by the Federal Environmental Protection Agency's (EPA) Safe Drinking Water Information System (SDWIS) and by its Public Water System Identification Number (PWSID).⁹¹³ NJAW owns and operates 33 PWSIDs in New Jersey and contracts to operate 5 PWSID systems owned by other entities.⁹¹⁴



A Public Water Disposal System in the United States is identified by its EPA National Pollutant Discharge Elimination System (NPDES) number.⁹¹⁵ NJAW owns and operates six wastewater collection only systems and owns 20 wastewater collection and treatment systems operated by a third party contractor.⁹¹⁶

This following discussion of NJAW'S System Operations activities are grouped by:⁹¹⁷

- ◆ **Organizations** performing activities required to construct, replace, operate, and maintain NJAW's assets to provide water delivery and waste water disposal to its customers;
- ◆ **Safety and Health** of the workforce, NJAW'S most valuable asset;
- ◆ **Water Quality Management** to ensure the delivery of high quality water;
- ◆ **Water Loss Management** to minimize water lost from system leaks;
- ◆ **Decision Support Systems** to assess use of technology used for operational decisions;
- ◆ **Design & Construction Standards** to assure uniformity of operations;
- ◆ **Asset Planning** to forecast asset changes to maintain quality of service;
 - Asset Assessment;
 - Forecasting and Modeling; and
 - Capital Investment Management and Project Budgeting.
- ◆ **Construction Management** to make changes to the assets within budget and on-time;
- ◆ **Field Operations** required to assure customer needs are met in a timely manner.

Each topic of discussion includes *Background & Perspective, Findings & Conclusions, and Recommendations.*

B. Organizations

Background & Perspective

Activities required to construct, maintain, and operate NJAW’s assets to provide water and wastewater service to its customers are associated with one of four (4) geographic areas displayed in *Exhibit XVIII-2*.⁹¹⁸

**Exhibit XVIII-2
New Jersey Operational Areas
as of July, 2019**

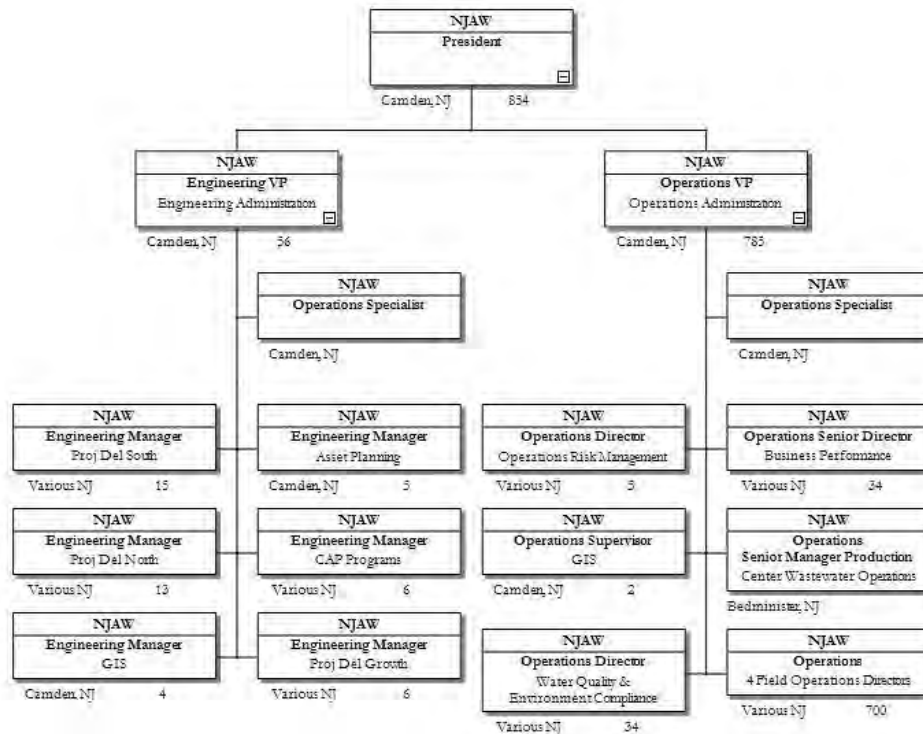


Source: Information Response 52

The primary organizations responsible for NJAW’s System Operations are Engineering and Operations are shown in *Exhibit XVIII-3*.⁹¹⁹ At the time of the audit, the organizational structure shown in *Exhibit XVIII-3* was in place but NJAW was in the process of evaluating the organizational structure and the current organization may be different.⁹²⁰



Exhibit XVIII-3
System Operations Organizations
as of July, 2019



Source: Interviews 2, 11, and 13, Information Response 52, and Consultant Analysis

Responsibilities of the Engineering organizations shown on *Exhibit XVIII-3* are:⁹²¹

- ◆ *The GIS (Geospatial Information System) team is responsible for developing analytic tools used by employees to assess the condition of water distribution assets and aid field operations in their activities as discussed in the **Decision Support Systems** and **Asset Planning** sections below;*
- ◆ *The CAP Program (Capital Program) group that prepares and monitors NJAW's annual Capital Budget and collaborates with AWWWS (American Water Works Company) Engineering in maintaining and updating the 5-year and 10-year Capital Spending Plan (CSP) and will be discussed later in the **Asset Planning** topic;*
- ◆ *The **Proj Del (Project Delivery) - North and South** teams provide asset planning and project management, including design, activities that support Asset Management Projects in the four Operating Areas shown in *Exhibit XVIII-2* and will be discussed further in the **Construction Management** section.*
- ◆ *The Proj Del (Developer Services) – Growth organization provides project management, including design, activities to provide assets to serve new customers throughout all of NJAW with further discussion also in the **Construction Management** section.*

Responsibilities of the Operations organizations shown on Exhibit XVIII-3 are:⁹²²

- ◆ The Risk Management team provides safety and health services to NJAW and is discussed in the ***Safety and Health*** topic below;
- ◆ The **Water Quality & Environmental Compliance** group is responsible for monitoring the quality of water delivered to customers and is included in the discussion of ***Water Quality Management***;
- ◆ The **Business Performance** organization has three (3) groups:
 - **The Customer Advocacy** is responsible for investigating and resolving customer complaints and will be included in the review of **Water Transmission and Distribution Operations**;
 - **The Automation and Controls Automation/Supervisory Control and Data Acquisition (SCADA)** included in the discussion of ***Water Plant and Well Operations*** is responsible for installing and maintaining SCADA systems;
 - **The Meter Operations team provides meter shop services to all of NJAW and is discussed in the *Meter Management and Meter Reading* section;**
- ◆ The GIS team is responsible for assuring correct GIS data for completed field work is entered into the GIS and is included in the discussion of Project and Contractor Management;
- ◆ The Contract Wastewater Operations group, included in Wastewater Collection and Treatment Operations, is responsible for managing the contractor operating 20 wastewater treatment facilities.
- ◆ The four Operations areas shown in *Exhibit XVIII-2*, reviewed in the Field Operations topic below, are responsible for the daily activities required to construct, replace, maintain, and operate the assets necessary to provide water and wastewater services to NJAW customers.

Findings & Conclusions

None

Recommendations

None

C. Safety and Health

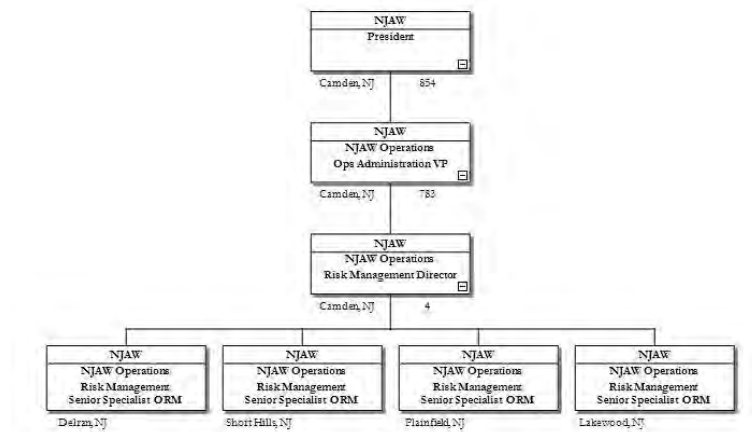
Background & Perspective

NJAW Safety and Health is the responsibility of the Vice President Operations through the Director of the Risk Management organization. During the audit, NJAW was evaluating changing the name of the



organization to Health and Safety. The organization's mission is to support NJAW in achieving its goal of zero OSHA recordable injuries per year. The employees in the organization are geographically located throughout New Jersey as shown in *Exhibit XVIII-4*.⁹²³

Exhibit XVIII-4
NJAW Operations Risk Management Organization
as of July, 2019



Source: Interviews 2 and 31

The organization is focused on employee safety and environment. Eighty percent of Health and Safety's time is spent on safety training, safety inspections, incident investigations, and safety audits.⁹²⁴

The Safety Specialists trains NJAW on various topics, some of which are:⁹²⁵

- ◆ Hazardous Material Handling;
- ◆ Personal Protective Equipment
- ◆ Excavation;
- ◆ Defensive Driving;
- ◆ Commercial Driver's License; and
- ◆ Industrial Hygiene.

Crane and Backhoe training are outsourced. Nova Care⁹²⁶ provides occupational and ergonomic training.⁹²⁷

The Belle Mead service center is used as a training center for some centralized Utility Mechanic training and Field Service Representative training. Otherwise training is held in each district operations center. Training content and records are maintained in the MapCall system. Training frequency varies based on internal and regulatory requirements some topics are covered initially, annually, biannually, every three years, or every five years. There are a total of 73 programs in MapCall⁹²⁸

The Avetta System is used to prequalify contractors in the area of safety.⁹²⁹

All Management personnel are trained in making safety inspections and are required to do them periodically.⁹³⁰

NJAW Union personnel participate in a peer to peer safety awareness process called Behavior Accident Prevention Process (BAPP). BAPP is a union-lead, peer to peer process and is supported by an organization named DEKRA Insight⁹³¹. NJAW also sends representatives to the annual DEKRA Conference to ensure continuous improvement in the process. The BAPP process, in use for 5 years, is viewed as the catalyst that changed the safety culture as NJAW.⁹³²

There are 8 BAPP teams across NJAW. Team leaders meet on a quarterly basis to discuss trends and barriers to collaborate and share ideas. Employees conduct safety observations and provide feedback to their peers. The respective teams, for each area, meet every month to discuss observations, trends, and corrective actions. This process is managed by the bargaining unit volunteers who administer the program. Each location also conducts a joint union/management safety committee meeting on a monthly basis. All key safety initiatives, concerns, and issues are discussed and addressed at these monthly meetings.⁹³³

Due to the size and structure of the region, the Central team also conducts a quarterly safety committee meeting where employees from all locations (Belle Mead, Plainfield, Raritan Millstone, and Canal Road) meet to share ideas as well as discuss any common initiatives and concerns. In addition to the safety committees mentioned above, the teams may also meet with management sponsors during Barrier Removal Meetings to discuss any potential barriers in the way of addressing safety concerns. Barrier Removal Meetings are conducted to develop and discuss necessary corrective actions and/or remove any barriers to safety.⁹³⁴

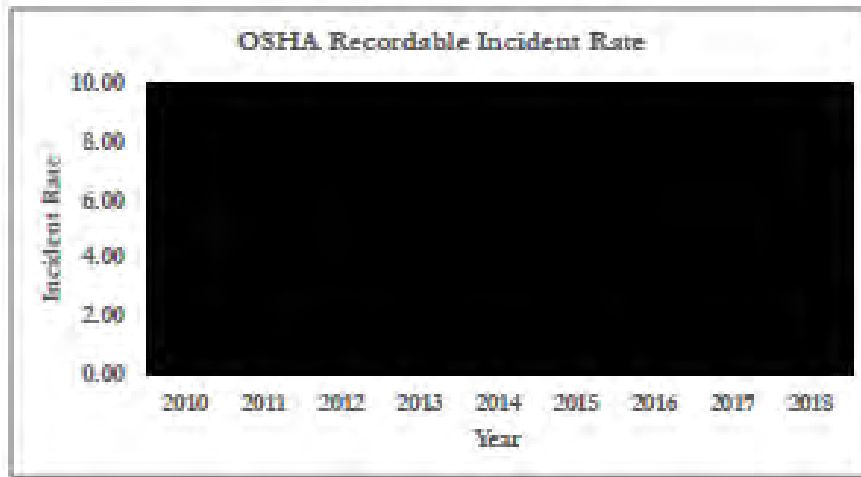
Accidents are tracked in a monthly safety report. They are reported verbally to the Safety Specialist and via Map Call to Supervision. All accidents get investigated. Non OSHA recordable accident investigations use the 5Y⁹³⁵ process. Recordable accidents use a commercially available process called Tap Root. The TapRoot^{©936} is a process used across American Water to investigate OSHA Recordable, Serious Incident and Fatalities (SIF's) as well as SIF potential incidents across American Water. TapRoot[©] is a systematic root cause analysis process, training, and software to analyze and fix the root causes of incidents. The process uses a decision tree to determine the root causes which then requires the investigation team to identify the appropriate corrective/preventive actions to prevent a future incident from occurring. The investigation team consists of a multi-disciplinary team including management and union employees. Tap root investigations are conducted by Union and Management personnel trained in the Tap Root process.⁹³⁷

The Corporate Safety and Procedures Manual provides guidance and process for the administering of the NJAW Safety Program.⁹³⁸

The implementation of the BAPP and other proactive safety initiatives effect on NJAW's safety record is illustrated in *Exhibit XVIII-5*.⁹³⁹



**Exhibit XVIII-5
NJAW OSHA Recordable Incident Rate
2010 to 2018**



Source: Information Response 60 (Confidential)

Findings & Conclusions

Finding XVIII-1 The Risk Management/Safety program at NJAW is well run and yielding positive results.

Exhibit XVIII-5 indicates that NJAW’s OSHA Recordable Incident was on a downward trend from 7.28 for 2009 to 5.55 for 2015 (23.8% decrease). After the introduction of BAPP in 2015 the trend accelerated from 5.55 for 2015 to 1.50 (73.0% reduction). The 2009 (7.28) to 2018 (1.50) reduction was 79.4%.

Recommendations

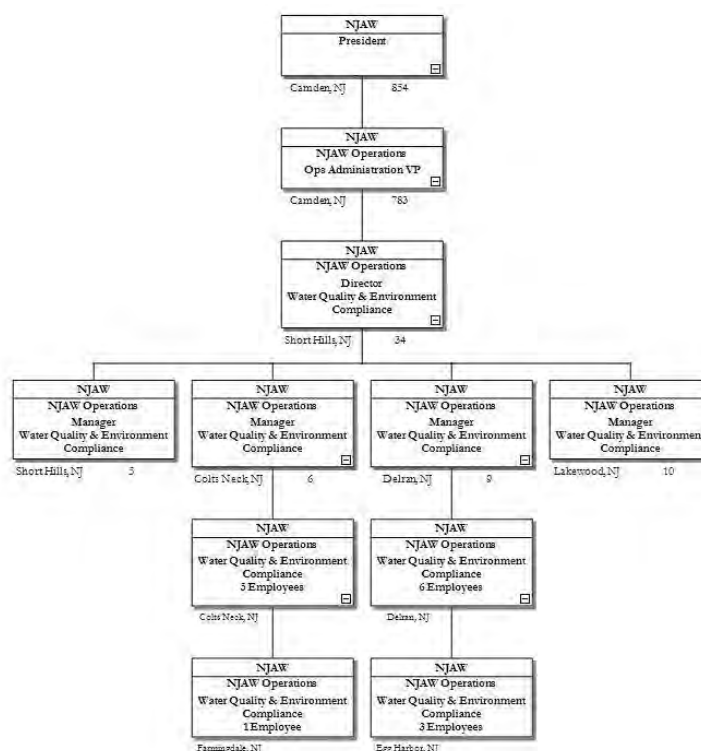
None

D. Water Quality Management

Background & Perspective

The Water Quality and Environmental Compliance Organization, *Exhibit XVIII-6*, reports directly to the NJAW Vice President Operations. There are 35 employees in the department, including the Director. The Director has four direct reports organized into four geographic areas: North; Central; Coastal; and South.⁹⁴⁰

Exhibit XVIII-6
NJAW Water Quality and Environmental Compliance Organization
as of July, 2019



Source: Interview 2

Water quality within NJAW is managed to comply with all aspects of the NJ Safe Drinking Water Act NJAC 7:10. NJAW’s water quality is tracked by the thirty-three (33) unique PWSIDs (Public Water System Identification) as shown in *Exhibit XVIII-7* and *Exhibit XVIII-8*.⁹⁴¹ The PWSID data shown in *Exhibit XVIII-7* and *Exhibit XVIII-8* compiled during the audit may be different from current data because of revisions by NJDEP and/or NJAW.



**Exhibit XVIII-7av
North and Central Operating Area PWSIDs
as of July 2019**

OPER AREA	PWSID	COUNTY	NJAW SYSTEM NAME	NJDEP CONNECTIONS
NORTH	NJ2121001	WARREN	WASHINGTON	4,099
	NJ2103001	WARREN	BELVIDERE	1,196
	NJ1427017	MORRIS	ITC	172
	NJ1427009	MORRIS	WEST JERSEY	210
	NJ1427009	MORRIS	COUNTRY OAKS (Note 1) (Note 2)	168
	NJ2116003	WARREN	MANSFIELD	55
	NJ0712001	(List 1)	PASSAIC BASIN	81,832
	NJ1407001	MORRIS	FOUR SEASONS	120
	NJ1605001	PASSAIC	LITTLE FALLS	4,546
	NJ1803002	SOMERSET	TWIN LAKES	50
CENTRAL	NJ1436002	MORRIS	ROXBURY (Note 3) (Note 4)	3,905
	NJ1011001	HUNTERDON	FRENCHTOWN	453
	NJ2004002	(List 2)	RARITAN	205,035
	NJ1024001	HUNTERDON	CROSSROADS (Note 5)	82

List 1: MORRIS, ESSEX, SOMERSET, UNION
List 2: HUNTERDON, MIDDLESEX, MERCER, SOMERSET, UNION

Note 1: NJDEP shows status as Inactive
Note 2: NJDEP shows "Country Oak" in Atlantic County as PWSID NJ123303
Note 3: NJDEP shows status as Inactive
Note 4: NJDEP shows Name asf HERCULES INC
Note 5: NJDEP shows Name as OLDWICK

Source: Information Response 497 and https://www9.state.nj.us/DEP_WaterWatch_public/

**Exhibit XVIII-8
Coastal and South Operating Area PWSIDs
as of July, 2019**

OPER AREA	PWSID	COUNTY	NJAW SYSTEM NAME	NJDEP CONNECTIONS
COASTAL	NJ1345001	(List 3)	COASTAL NORTH	125,947
	NJ1350001	MONMOUTH	UNION BEACH	2,450
	NJ1507007	OCEAN	ORTLEY BEACH (Note 6)	3,200
	NJ1507008	OCEAN	PELICAN ISLAND	100
	NJ1523003	OCEAN	NEW EGYPT	459
	NJ1523002	OCEAN	DEEP RUN	244
SOUTH	NJ0119002	ATLANTIC	ATLANTIC COUNTY	41,318
	NJ0508001	CAPE MAY	OCEAN CITY	13,677
	NJ0511001	CAPE MAY	STRATHMERE	129
	NJ0506010	CAPE MAY	CAPE MAY CH	2,255
	NJ0327001	(List 4)	WESTERN	95,376
	NJ0329006	BURLINGT	SUNBURY	334
	NJ0809002	GLOUCEST	LOGAN	1,962
	NJ0323001	BURLINGT	MOUNT HOLLY	14,295
	NJ0318002	BURLINGT	HOMESTEAD	1,210
	NJ0333004	BURLINGT	VINCENTOWN	240
	NJ0808001	GLOUSTER	HARRISON	2,675
	NJ0809001	GLOUSTER	BRIDGEPORT	336
NJ1707001	SALEM	PENNS GROVE	4,629	

List 3: OCEAN, MONMOUTH
List 4: CAMDEN, BURLINGTON

Note 6: NJDEP shows status as Inactive

Source: Information Response 497 and https://www9.state.nj.us/DEP_WaterWatch_public/

NJAW uses the New Jersey Department of Environmental Protection (NJDEP) web site “Drinking Water Watch” to track and record all test data for each PWSID. Each month all of the required test data is entered directly into the Drinking Water Watch application by PWSID number. The Drinking Water Watch specifies both what data has to be entered and the frequency of sampling.⁹⁴²

NJAW is evaluating new processes and software but currently uses two systems to manage samples:

- ◆ The Sample Analysis Management System (SAMS) is used to track what samples are scheduled, where, and when the samples are to be collected;
- ◆ The Horizon LIMS, manages lab work, it sends out sample package for each sample to be taken to the field and maintains chain of custody documentation for each sample.⁹⁴³

There is a 10-day grace period at the beginning of the month for the completion of the previous month’s data. All samples are taken on a regular schedule and most are sent to the American Water Company’s central lab in Belleville, Illinois for analysis. Others are analyzed in-house at certified labs. A small number of samples are outsourced. All samples taken to the lab follow strict chain of custody procedures.⁹⁴⁴

Monthly, a “Compliance Sample Collection Report” is completed by the Director Water Quality and certified by the NJAW VP Operations. The report is submitted to the NJAW President. WQ results are submitted to the NJDEP. The report has five pages, a sample of which is shown in *Exhibit XVIII-9*.⁹⁴⁵

Exhibit XVIII-9
Sample Drinking Water Compliance Sample Collection Confirmation Form
as of May, 2019

May 2019 Page 1 of 5

Drinking Water Compliance Sample Collection Confirmation Form

Monthly Samples

System	TC Samples Required	TC Samples Coll.	Positive Samples	Repeat Samples	GWR Samples	Triggered GWR Samples (if raw source TC+)	Compliance Res. Completed With	Level 1 or Level 2 Assessment?
Short Hills	120	151	0	n/a	n/a	n/a	Y	n/a
Four Seasons	1	1	0	n/a	n/a	n/a	Y	n/a
West Jersey	1	1	0	n/a	n/a	n/a	Y	n/a
Country Oaks	1	1	0	n/a	n/a	n/a	Y	n/a
Total Coliform	7	8	0	n/a	n/a	n/a	Y	n/a
ITC	10	12	0	n/a	n/a	n/a	Y	n/a
Little Falls	1	1	0	n/a	n/a	n/a	Y	n/a
Twin Lakes	3	4	0	n/a	n/a	n/a	Y	n/a
Belvidere	1	1	0	n/a	n/a	n/a	Y	n/a
Mansfield	10	12	0	n/a	n/a	n/a	Y	n/a
Washington	15	17	0	n/a	n/a	n/a	Y	n/a
South Orange	10	12	0	n/a	n/a	n/a	Y	n/a
Roxbury								

Monthly Samples

Parameter	System	Monitored Location	Coll. Date	% Removal Req Met?	Comments			
TOC Precursor	Short Hills	Raw/POE	Weekly	Y	samples collected 5/1, 5/7, 5/14, 5/21, & 5/28; to be reported on MOR			
Bromate	Short Hills	CB Eff	5/15	n/a				
Parameter	System	Monitored Location	Week 1	Week 2	Week 3	Week 4	Week 5 (Excursions)	Comments
	Short Hills	16 POE	5/6	5/13	5/20	5/28	N	*Short Hills Well Station & Nazareth TP OOS Entire month.

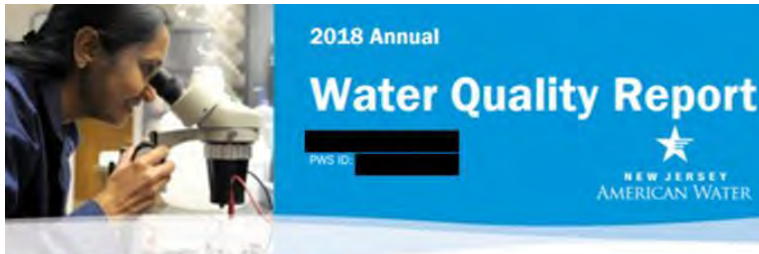
Source: Information Response 584



The NJDEP sends out a Notice of Violation (NOV) for both untimely and/or out of compliance data.⁹⁴⁶ All NOV's are captured in MapCall along with critical action items to ensure the avoidance of future compliance issues associated with the NOV. A root cause analysis is performed for each NOV to identify any further action required to prevent future NOV's.

In addition, NJAW submits an annual multi-page Consumer Confidence Report, otherwise known as a Water Quality Report, a sample cover of which is given in *Exhibit XVIII-10*, to the NJDEP and its customers.⁹⁴⁷

Exhibit XVIII-10
Cover from Sample Annual Water Quality Report
2018



A Message from the New Jersey American Water President
To Our Valued Customers:

New Jersey American Water is proud to be your local water service provider, and I am pleased to share some very good news about the quality of your drinking water. As you read through our Annual Water Quality Report, you will see that we continue to supply water that meets or surpasses all state and federal water quality standards. Additionally, the price you pay for this high-quality water service remains a great value as one of the lowest household utility bills.

New Jersey American Water has the expertise of more than 800 experienced professionals, the right technologies in use, and a demonstrated commitment to replacing and upgrading our infrastructure so that you can be assured that your drinking water is of the highest standards.

Our team of experts continuously monitor, maintain and upgrade our facilities to ensure that they operate efficiently and meet all regulatory standards. This requires investing millions each year in our infrastructure, including treatment plants, tanks, pump stations, pipes, fire hydrants and metering equipment. We do this because we care about our customers as much as we care about water. Statewide, we invested more than \$330 million in 2018 alone to improve our water treatment and pipeline systems.

We have an exceptional track record when it comes to water quality and drinking water regulatory compliance. In fact, we take water quality so seriously that five of our surface water treatment plants have been nationally recognized with Directors Awards from the U.S. EPA's Partnership for Safe Water program for surpassing federal and state drinking water standards.

Please take the time to review this report. It provides details about the source and quality of your drinking water, using the data from water quality testing conducted for your local system between January and December 2018. If you have any questions, I encourage you to visit the Water Quality page of our website at www.njnewjerseywater.com, or call our Customer Service Center at 800-272-1325.

Sincerely,
Cheryl D. Norton
Cheryl Norton
President, New Jersey American Water

This report contains important information about your drinking water. If you do not understand it, please have someone translate it for you.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

此份報告包含關於飲用水的重要資訊。如果您無法理解，請尋求他人協助翻譯。

本報告包含關於飲用水的重要資訊。如果您無法理解，請尋求他人協助翻譯。

이 보고서는 귀하의 음용수에 대한 중요한 정보를 포함하고 있습니다. 이해하지 못하시면 도움을 받으십시오.

Share This Report:
Landlords, businesses, schools, hospitals and other groups are encouraged to share this important water quality information with water users at their location who are not customers. Additional copies of this report are available by contacting customer service at 1-800-272-1325.

Partnership for Safe Drinking Water Program
New Jersey American Water is a member of the Environmental Protection Agency (EPA) Partnership for Safe Water Program (an association of water utilities and government) which is committed to voluntarily providing drinking water of a quality far better than required by federal regulations. The Partnership recognized New Jersey American Water for our commitment to provide the best water quality by presenting the prestigious "Director's Award" for our surface water treatment plant in Tinton Falls (Monmouth County) and in Neptune (Monmouth County).

Source: <https://amwater.com/njaw/water-quality/water-quality-reports>

NJAW's approach to controlling lead in the water is illustrated by an extract from the company's web site shown in *Exhibit XVIII-11*.

Exhibit XVIII-11
NJAW's Approach to Lead in Drinking Water
July, 2019

Our Approach to Corrosion Control

We take steps to reduce the potential for lead to leach from your pipes into the water. This is accomplished by adding a corrosion inhibitor to the water leaving our treatment facilities, where needed. Some source waters are non-aggressive by nature, meaning there is no need to add corrosion control treatment.

Results from Lead Sampling

The results from samples collected in your water system are included in your annual water quality report (also known as the Consumer Confidence Report) as well as in the Typical Water Quality Summary, both of which can be found on our [Water Quality Reports](#) page.

Because service lines, faucet fixtures, household pipes, and/or solder can contribute significantly to the lead and copper levels in tap water, we ask our customers to collect samples in their homes. These samples are collected on a routine basis (systems begin by monitoring once every six months with reductions in sampling possible that allow for monitoring once every three years) at homes that are considered vulnerable based on when they were constructed and the materials used. We do this monitoring according to the requirements of the Lead and Copper Rule and use the results to confirm that our corrosion control strategy is operating as intended.

Source: <https://amwater.com/njaw/water-quality/lead-and-drinking-water>

Additional topics on the website include:

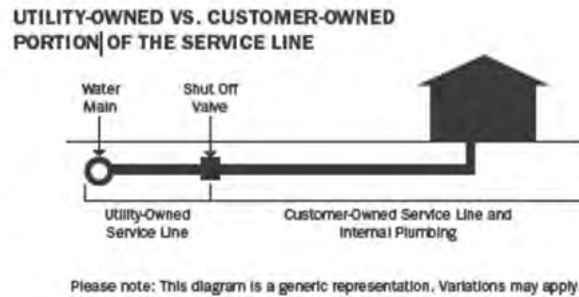
- ◆ Assessing your exposure to lead;
- ◆ Minimizing your exposure to lead;
- ◆ Home treatment for lead;
- ◆ Getting your water tested for lead; and
- ◆ Additional sources of information about lead

Reducing the number of lead service lines is a work in progress at NJAW because the customer (through the property owner) is responsible for the maintenance, repair and replacement of the portion owned by the property owner as shown in *Exhibit XVIII-12* below.⁹⁴⁸



Exhibit XVIII-12
NJAW Service Line Ownership
July, 2019

The Water Company owns a portion of the service line, typically from the main to the curb stop, found near the street curb or side walk. The property owner owns the rest of the service line (from curb stop) all the way into the house or building being served. See diagram.



Source: <https://amwater.com/njaw/water-quality/service-line-replacement>

The company replaces several thousand of its service lines annually as part of its asset renewal program. During planned projects, the company provides the customer with specific information on the project and general guidance on flushing the new service line. The customer receives information listing flushing procedures depending on the service line material (Lead, Partial-Lead, and no-Lead). If a lead service is identified, the company advises the customer of recommended steps to mitigate their potential exposure to lead in drinking water.⁹⁴⁹

In certain parts of the company's service area there are lead service lines still in use. Removal of lead service lines is an industry recommended practice even in instances where the water system is in full compliance of the Lead and Copper Rule. All of New Jersey American Water Company operating systems are in full compliance of the Lead and Copper Rule.⁹⁵⁰ Hence, lead service lines replacement is not required; but it is a highly recommended practice when any portion of the service line is determined to be lead material.⁹⁵¹

The New Jersey Infrastructure Bank (successor to New Jersey Environmental Infrastructure Trust (NJEIT)) is an independent State Financing Authority responsible for providing and administering low interest rate loans to qualified municipalities, counties, regional authorities, and water purveyors in New Jersey for the purpose of financing water quality infrastructure projects that enhance ground and surface water resources, ensure the safety of drinking water supplies, protect the public health and make possible responsible and sustainable economic development.⁹⁵² The company has applied for the State Revolving Funds (SRF) administered by the NJEIT to replace customer side lead service lines in eligible municipalities. The Company current application to NJEIT for a low interest loan includes several municipalities in each of the following counties: Essex, Middlesex, Passaic, Somerset, and Union County.⁹⁵³

Findings & Conclusions

Finding XVIII-2 NJAW is in compliance with all current water quality regulations.

All NOV's are captured in MapCall along with critical action items to ensure the avoidance of future compliance issues associated with the NOV. A root cause analysis is performed for each NOV to identify any further action required to prevent future NOV's.

Finding XVIII-3 NJAW is in full compliance of the Lead and Copper Rule.

NJAW is limited in its ability to mediate lead in service lines because the line is owned by the customer, but the Company has decided to further mitigate potential customer exposure to lead in drinking water by replacing the entire lead service line, which it believes is the most cost-effective and prudent method to reduce customer exposure to lead in drinking water and to continue to maintain full compliance with the Lead and Copper Rule.⁹⁵⁴

Finding XVIII-4 NJAW participates with the New Jersey Water Quality Institute to keep abreast of emerging contaminates and testing procedures.

NJAW's participation in the State Drinking Water Quality Institute (DWQI) that is responsible for developing Maximum Contaminant Levels (MCL) or standards for hazardous contaminants in drinking water enables the company to evaluate the capability its production assets to meet the standards.

Finding XVIII-5 NJAW keeps aware of potential future compliance requirements using the "Unregulated Contaminant Monitoring Rule (UCMR)" published by the Environmental Protection Agency every 5 years and looks ahead for emerging contaminates and testing procedures.

NJAW's awareness of future compliance requirements allows the company to program compliance actions into its strategic planning.

Recommendations

None

E. Water Loss Management

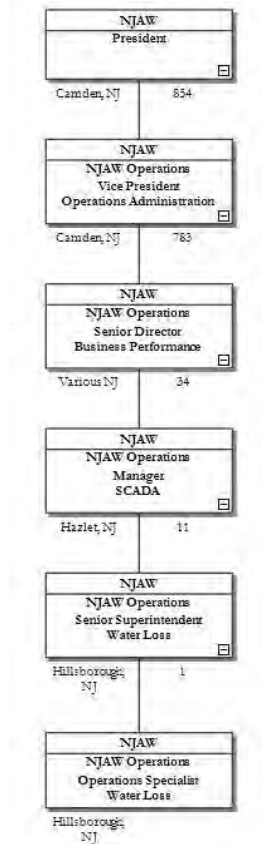
Background & Perspective

Water Loss Management is the responsibility of the NJAW Vice President Operations as shown in *Exhibit XVIII-6*. At the time of the audit, a Senior Superintendent, assisted by an Operations Specialist,



in the SCADA group of the Business Performance Organization reporting to the VP of Operations performs Water Loss Management activities.⁹⁵⁵

Exhibit XVIII-13
NJAW Water Loss Management Organization
as of July, 2019

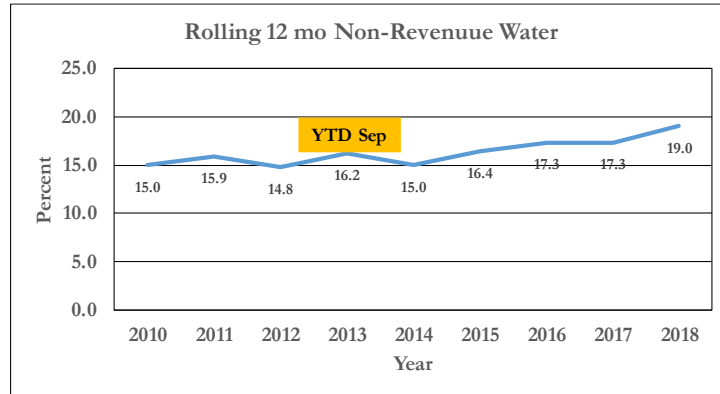


Source: Interview 24 and Information Response 52

Non-Revenue Water (NRW) as a percentage of Total Delivered increased by 26.7% (15.0 in 2010 to 19.0 in 2018) at NJAW for the last 9 years as shown in *Exhibit XVIII-14*.⁹⁵⁶ NJAW established a *Water Loss Management team that reported:*⁹⁵⁷

“Evaluations of statewide water losses by the Water Loss Management team have concluded that, on average, water losses in New Jersey are increasing at a rate of 0.2% annually (thirteen years of data) in a do-nothing scenario. Without proactive intervention water losses would continue to increase at approximately this rate annually”.

**Exhibit XVIII-14
Rolling 12 Months Non-Revenue Water
as Percent Total Delivered
2010 - 2018**



Source: Information Response 60

NJAW’s volumetric losses for 2018 were 18,893,919 gallons. The company has set a goal to reduce the losses to 16,543,000 gallons in 2019.⁹⁵⁸

NJAW’s Water Loss Management Plan.⁹⁵⁹, updated annually, has been developed to be consistent with the American Water Works Association Manual 36 *Water Audits and Water Loss Control*.⁹⁶⁰ The company plan is 21 pages and it is quite extensive and complete, the summary plan for 2018 is shown in *Exhibit XVIII-15*.⁹⁶¹

Exhibit XVIII-15
NJAW Water Loss Management Plan Summary
as of December 31, 2018

New Jersey American Water Annual Water Loss Management Plan Summary

The plan objective is aligned with water accountability and loss control processes and practices promulgated by the American Water Works Association (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](#) (Version 5.0 and as amended) that 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. New Jersey American Water, at both the state and the district level, has phased out inadequate, past practices which utilized ambiguous terminology, especially the use of “unaccounted for water,” as an evaluation criteria.

The Company’s NRW strategy follows the latest industry accepted standards while also maximizing customer satisfaction, return on investment, and operational efficiency at an acceptable level of risk. The key elements are:

- 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 a Supervisory Control and Data Acquisition (SCADA) System and 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 all systems; and
- 4) employing sufficient loss control methods to contain water and revenue losses at economic levels and to minimize system upsets.

Details of projects in progress, reports and programs can be found on the [NJ Water Loss Management SharePoint site](#) and on our [department shared drive](#).

Source: Information Response 481

The Plan makes several recommendations, four of which are shown in *Exhibit XVIII-16*, *Exhibit XVIII-17*, *Exhibit XVIII-18*, and *Exhibit XVIII-19*. The potential cost avoidance of reducing non-revenue water is \$0.2 – \$0.95 million annually as provided in *Exhibit XVIII-20*.⁹⁶²

Exhibit XVIII-16
Pressure Management Recommendation
2018 Water Loss Management Plan
2018

Pressure management for leakage control can be defined as the practice of managing system pressures to the optimum levels of service ensuring sufficient and efficient supply to legitimate uses and consumers, while reducing unnecessary or excess pressures, eliminating transients and faulty control levels all of which cause the distribution system to leak unnecessarily. Scientifically, there is a direct relationship between leakage levels and system operating pressure. Higher pressures result in not only higher losses during active leakage events but also result in higher unavoidable background leakage. While it is understood that system delivery pressure varies with demand there is opportunity, particularly at night, to reduce system pressure without negatively impacting operations.

System planning and operational engineering shall assess the state's systems and identify those systems or portions of systems that would benefit from the following:

- pressure reduction
- implementation of controlled districts
- pressure sustaining or relief
- altitude or level control
- transient control
- pressure modulation

The groups should be engaged to present a plan and costing information by the end of 2020. The water loss management team has identified well qualified consultants who specialize in the preparation of such plans and will provide this information to these internal groups. Reference to "Leakage Management Technologies" published jointly by AWWA Research Foundation and USEPA, 2007, is encouraged.

Until further study is conducted, it is recommended that the Raritan Millstone and Canal Road Treatment Plants attempt to convey water at a consistent pressure of 85 psi, particularly at night and off-peak periods.

Source: Information Response 481 pages 16-17

Exhibit XVIII-17
Active Leak Control Recommendation
2018 Water Loss Management Plan
2018

The single largest opportunity to reduce losses will be achieved through expansion and acceleration of active leakage control efforts in targeted district in the state. It is recommended that a plan and staffing be put in place to proactively survey each system in its entirety every three years.

In the Raritan District, this requires six Utility Mechanics; in Essex Passaic, three Utility Mechanics and for the Coastal North District and Delaware District, one Utility Mechanic. Based upon the specialization of skills, two T&D Supervisors should be trained as champions to deliver the project. Based upon the performance in 2017, additional knowledge sharing is essential for the T&D supervisors to successfully contribute to the essential services, knowledge and support of leak operatives. These Utility Mechanics are responsible for, and dedicated strictly to performing continuous proactive leak surveys and for pinpointing of leaks as needed.

Source: Information Response 481 page 17



Exhibit XVIII-18
Speed and Quality of Repairs Recommendation
2018 Water Loss Management Plan
2018

The timeline associated with leakage has four components which are:

- hidden (H)
- awareness (A)
- location (L)
- repair (R)

Hidden leakage can only be captured through continuous acoustic monitoring or proactive leakage control. In cohesive soils this component typically far out-weighs the others in terms of volume lost.

The awareness component is relative to the type of failure which may be either reported or unreported. Unreported failures do not surface and water escapes into the ground without any visible signs of leakage at ground surface. These failures may have a long awareness time unless monitoring measures are in place. It is estimated that unreported failures are associated with three to four times the volume of similar reported leaks.

Location refers to the amount of time required to pinpoint leakage. With current technologies this is usually a very short span of time ranging from 30 minutes to typically 2 hours.

Repair refers to the amount of time required to repair the failure after the leak has been pinpointed. A recommended schedule for repairs is 96 hours for 90% of located leaks.

Source: Information Response 481 page 18

Exhibit XVIII-19
Rehabilitation and Replacement Recommendation
2018 Water Loss Management Plan
2018

At the present time less than 0.1% of transmission and distribution mains are replaced and/or rehabilitated annually. Published literature strongly suggests that an accelerated schedule would reduce leakage. However, it is recommended that an annual inspection schedule of large diameter transmission mains be developed to reduce the risk of catastrophic failures (as previously noted).

Diameter	Grand Total	Diameter	Grand Total
16.00	567.84	42.00	8.40
18.00	17.22	48.00	40.39
20.00	106.04	51.00	2.80
24.00	134.93	54.00	13.69
26.00	0.12	60.00	24.71
27.00	1.28	66.00	2.96
30.00	82.39	72.00	3.08
36.00	88.02		
Grand Total		1,093.87	

Based on studies in Las Vegas, New Orleans and Baltimore, only five percent of this type of pipe requires rehabilitation or replacement. Therefore, it is recommended that in situ inspection of pipe occur at a rate of approximately 10 percent per year (5.5 miles annually).

Source: Information Response 481 page 19

Exhibit XVIII-20
Avoided Cost of Reducing Water Loss
2018 Water Loss Management Plan
2018

The value of avoiding the delivery of 0.2BG annually at a rate of \$650/MG is approximately \$0.2 million dollars. The value of the marginal rate is based on purchased water, power, chemicals and residuals management. The cost avoidance and revenue enhancement are net positive for the Company. Recent history has indicated the value will be significantly higher and will likely exceed \$0.95 million dollars.

Source: Information Response 481 page 20

Currently, leak surveys are done on a targeted basis, *Exhibit XVIII-21*, or as continuous monitoring *Exhibit XVIII-22*.⁹⁶³ *Exhibit XVIII-21* indicates the targeted surveys are effective and can yield a significant number of leaks (449). NJAW has targeted programs in place that call for scheduled periodic surveys of this type or that a similar number of miles of main will be surveyed in the future years. The company also incorporates continuous monitoring of piping systems for leakage control. *Exhibit XVIII-22* indicates that only 89 leaks were discovered by continuous monitoring during the same time period.⁹⁶⁴

Exhibit XVIII-21
Targeted Leak Surveys
2018 Water Loss Management Plan
2018

Active Leakage Control

Leak surveying is typically done on a pro-active basis when leaks are suspected to be a significant contributing factor to NRW. Focused pro-active 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. Using a combination of Company employees and external resources, the Company also has completed numerous leak surveys of the Company's Hunterdon and Essex Passaic systems and currently these systems are either pro-actively surveyed or undergoing installation of continuous acoustic monitoring. Those systems saw an immediate improvement in their water losses; we located leaks on our lines and fixed them. This program has been expanded to the Central (Raritan) district in late 2018. Details of these projects are found in the appropriate Comprehensive Planning Studies. Additionally, targeted Company employees now receive more training across the State, and the Company purchased additional equipment for continuous, proactive work in the Coastal and South Districts as deemed necessary. For the Essex/Passaic and Raritan Districts, the Company has developed a plan and increased the number of man hours spent on proactive leak surveying. Additional, non-surfacing, leaks have been located and repaired through these efforts, resulting in improvement in real losses. For the Essex/ Passaic District, the Company revised its plan and now utilizes up to three Company employees for proactive leak surveying. For the Raritan District, the Company employs two full time leak detection employees and three employees perform leak detection on a part time basis. A third full time position is currently posted. Additionally, leak detection on large diameter transmission mains and other high risk buried linear assets is outsourced to a third-party service provider.

In 2017, 1,493 miles of mains, or 17% of NJAW's total, were proactively or reactively surveyed. These surveys resulted in the location of 449 leaks. Employees have been afforded technical training from both internal and external expertise and provided new tools to perform proactive leak work. Likewise, surfacing leaks have been pinpointed by these employees and 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. The majority of the time delay is to allow for One Call mark outs.

Source: Information Response 481 page 3



Exhibit XVIII-22
Continuous Monitoring Leak Surveys
2018 Water Loss Management Plan
2018

Active Leakage Control: Continuous Monitoring

MLog by Itron - Noise logging is currently used in selected portions of the Essex/Passaic District. In 2016, the existing network of sensors was upgraded from 2G to 3G AMR in those that are so provisioned. There are 1,304 AMI/AMR and 3,564 radio read types installed. In 2018, the Company continued to experience expected failures of these loggers, as they have reached the end of their useful life and are being retired.

EchoShoreDX by Echologics – The EchoShoreDX platform incorporates the latest generation of acoustic sensors that are the result of Echologics 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 in area wide grid system continuously monitored. 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 began installing this technology in 2016.

As of the end of 2018, a total of 4,149 permanent acoustic monitoring sites, or the EchoShoreDX system, are deployed and in use in the following areas:

- Washington/Oxford: 265 nodes covering 80 miles;
- City of Irvington: 514 nodes covering 74 miles;
- Frenchtown: 23 nodes covering 7 miles;
- Belvidere: 73 nodes covering 21 miles;
- New Egypt : 35 nodes covering 7 miles;
- Sunbury (Plumstead Township): 13 nodes covering 5 miles;
- West Orange: 954 AMI
- Little Falls: 286 Cell
- Summit: 362 Cell
- Chatham: 256 Cell
- Mt Horeb: 811 Cell
- Hillside: 335 Cell
- Dunellen/South Plainfield: 441 Cell
- Raritan: 51 Cell

In 2017, 89 leaks were located using this technology.

Source: Information Response 481 page 5

Since the targeted leak surveys yielded a significantly higher number of leaks, it stands to reason that regularly scheduled surveys repeated every three years (as recommended in *Exhibit XVIII-17*) would initially yield beneficial results.⁹⁶⁵ The benefits of such surveys is greatly enhanced by the addition of permanent continuous acoustic monitoring systems.

Findings & Conclusions

Finding XVIII-6 NJAW has a comprehensive, current plan for reducing non-revenue water losses.

Exhibit XVIII-15 provides the summary of the 21 page plan which has not been fully funded.

Recommendations

Recommendation XVIII-1 Provide funding and implement the four recommendations in the current Water Loss Management Plan. (Refer to Finding XVIII 8.)

The four recommendations from Exhibit XVIII-16 through Exhibit XVIII-19 and are:

- ◆ It is recommended that a plan and staffing be put in place to proactively survey each qualifying system in its entirety every three years.
- ◆ It is recommended that the Raritan Millstone and Canal Road Treatment Plants attempt to convey water at a consistent pressure of 85 psi, particularly at night and off-peak periods. This would be in conjunction with a further hydraulic study, which is being conducted.
- ◆ It is recommended that the schedule for repairs is 96 hours for 90% of located leaks.
- ◆ It is recommended that in situ inspection of pipe (Transmission main) occur at a rate of approximately 10 percent per year (5.5 miles annually).⁹⁶⁶



F. Decision Support Systems

Background & Perspective

NJAW System Operations organizations use the Enterprise SAP and PowerPlan software systems, *Exhibit XVIII-23* and *Exhibit XVIII-24*, mostly as a repository for the company's customer, asset, payroll, accounting and financial data.⁹⁶⁷

Exhibit XVIII-23
Summary Description of SAP Software
August, 2019

SAP software refers to a range of software products sold by German company SAP.

Founded in 1972, SAP is one of the largest software companies in the world and produces on-premises traditional software in addition to cloud software.

The cloud software element is relatively new for the company compared to the traditional software that it has been developing since 1972.

SAP is best known for producing enterprise resource planning software (ERP); this allows organisations to manage business operations across procurement, manufacturing, service, sales, finance, and HR.

In addition to the ERP software, SAP also offers several other software solutions such as SAP Anywhere, a combined e-commerce and CRM software package, that is designed to help small businesses manage marketing, sales, customer service, and inventory.

The company also offers Business One, which is designed to manage multiple aspects of a business from sales and customer relationships to financials and operations.

In addition to the software that it produces to help businesses to manage their operations, the company has software aimed at business intelligence (BI).

Source: <https://www.cbronline.com/what-is/what-is-sap-software-4912451/#2>

Exhibit XVIII-24
Summary Description of PowerPlan Software
August, 2019

PowerPlan is an enterprise software company devoted to helping asset-intensive businesses optimize their financial performance. PowerPlan combines purpose-built software for asset-centric accounting, tax, budgeting and analytics with domain expertise to help executives generate cash, mitigate compliance risk and enable a culture of cost management. The world's most demanding asset-intensive companies already trust PowerPlan to manage more than \$2.3 trillion in assets.

Source: <https://www.capterra.com/p/130103/PowerPlan-Asset-Accounting/>

The System Operation Organizations use a number of software applications that interface to SAP and PowerPlan that support manager, supervisor, and employee decision making. NJAW uses ESRI ArcGIS software as its Geospatial Information System (GIS) platform as described in *Exhibit XVIII-25*.⁹⁶⁸

Exhibit XVIII-25
NJAW GIS Description
July, 2019

The GIS system houses physical data for distribution systems assets such as pipelines, valves, hydrants, interconnection meter chambers, and services to critical customers such as hospitals. The GIS data has many attributes, which includes geographic coordinates, diameter, size, material and where available installation year. The GIS system also houses location data for supply, treatment, pumping and storage assets such as wells, groundwater treatment stations, river intakes, surface water treatment plants, pump stations, storage tanks, lift stations, and chemical application vaults. NJAWC completed its transformation from printed maps to digital maps in 2010 with the release of its first GIS Web Map. In the subsequent years, as mobile devices have proliferated, NJAWC has transitioned GIS to be available on iOS & Android as well as other platforms.

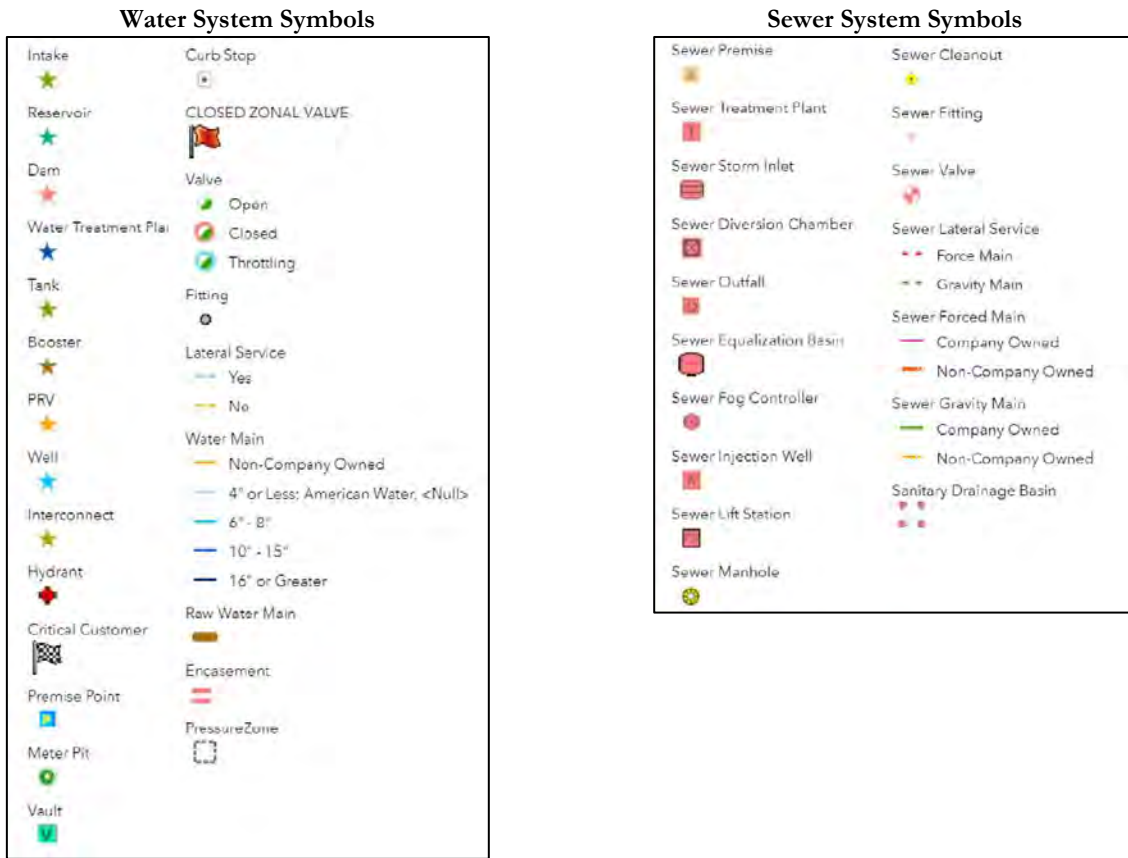
NJAWC recognized the need for all distribution system GIS assets to be updated with GPS, alternately known as Global Navigation Satellite System (GNSS), accuracy of better than one survey foot. For most assets, the company captures coordinates at a horizontal accuracy of 1-2 centimeters. As of April 2019, nearly 900,000 buried assets covering a linear distance of almost 9,000 miles of GIS distribution system have been updated with GNSS sub-foot coordinates within the New Jersey State Plane NAD1983 [2011] coordinate system. In addition, NJAWC has built a private Continuously Operating Reference Station (CORS) network (seven GPS base stations) to provide employees with statewide GPS coverage at sub centimeter accuracy. The network utilizes satellite signals from GPS (USA), GLONASS (Russia), Galileo (EU), as well as BeiDou (China) satellites. This private network can provide real-time 1cm accuracy on a properly configured company mobile device.

Source: Information Response 8

There are multiple views (layers) of data in GIS available for decision making. *Exhibit XVIII-26* provides the symbols used for the Water System Layer and the Sewer System Layers.⁹⁶⁹



**Exhibit XVIII-26
Sample GIS Map Symbols
July 2019**



Source: Information Response 7

NJAW uses Bentley WaterGems and SewerCad software, in *Exhibit XVIII-27*, which interfaces with the company’s GIS data for hydraulic modeling to help make decisions about operational issues and develop future asset plans.⁹⁷⁰

Exhibit XVIII-27
NJAW Hydraulic Modeling Software
July, 2019

WaterGEMS

Source: Bentley Systems

WaterGEMS is a hydraulic modeling application for water distribution systems with advanced interoperability, geospatial model building, optimization, and asset management tools. From fire flow and constituent concentration analyses, to energy consumption and capital cost management, WaterGEMS provides an easy-to-use environment for engineers to analyze, design, and optimize water distribution systems.

SewerCAD

Source: Bentley Systems

SewerCAD is an easy-to-use sanitary sewer modeling and design software product that thousands of municipalities, utilities, and engineering firms around the world trust to design, analyze, and plan wastewater collection systems. Engineers can model both pressurized force mains and gravity hydraulics with ease, using steady-state analysis with various standard peaking factors, and extended-period simulations.

Source: <https://www.wateronline.com/doc/watergems-datasheet-0001>
<https://www.wateronline.com/doc/sewercad-datasheet-0001>

Another software product used with the company's GIS data is InfoMaster (InfoAsset Planner) which allows NJAW to build a model that predicts Risk of Failure of water mains and is used to make asset planning decisions about pipe replacement. *Exhibit XVIII-28* provides a description of the software product and symbols used in NJAW's Risk of Failure in GIS that is available to authorized users.⁹⁷¹



**Exhibit XVIII-28
Risk of Failure Tool
August, 2019**

InfoMaster (InfoAsset Planner) Description

InfoAsset Planner: Analytic Asset Management

InfoAsset Planner is a complete analytic asset management and asset planning tool for water supply and sewer networks. Based on ArcGIS, it uses mathematical models to forecast the pipe failures to help water system operators to find the most appropriate solution to avoid or solve the issue.

Symbols Used in NJAW's Risk of Failure GIS Layer

InfoMaster - Main Break Layer	InfoMaster - Replacement/Rehab Projects (RP)
 Break Repair - Break on Existing Main	 AP APPROVED
 Break Replace - Break on Replaced or Retired Main	 AP ENDORSED
InfoMaster - RISK OF FAILURE DETAILS	
 1 Low	 CANCELED
 2 Medium-Low	 COMPLETE
 3 Medium	 COMPLETE - NOT IN GIS
 4 Medium-High	 MANAGER ENDORSED
 5 High	 PROPOSED
	 SUBMITTED

Source: <https://www.geomod.fr/en/water-modelling/infoasset-planner/> and Information Response 7

MapCall, NJAW's in-house developed, work management software, is used by Field Operations, Production, and Water Quality / Environmental organizations. Field Operations and Production use MapCall to initiate, schedule, track, and complete work orders for asset inspection, maintenance, installation, and replacement. *Exhibit XVIII-29* provides an image of MapCall's Help Screen.⁹⁷²

**Exhibit XVIII-29
MapCall Help Screen
July, 2019**

Help Topics	
Records found: 170	
TITLE	DESCRIPTION
View How to look up or search images (Services, Valves, Taps, etc.)	Instructions on how to look up images in MapCall (Services, Valves, etc.)
View Failure to hit End	New feature when a user forgets to hit End on a Crew Assignment
View Hydrant Tags	Screen Shots of the new feature.
View Permit Annotations	Fix: Saving the Annotations on a permit fails or takes to long.
View Planning, Priorities, Purpose Descriptions (Definitions)	Descriptions of Categories used for planning work in MapCall Work Management
View PrePlanning for Users or Contractors	How to use PrePlanning to assign work (for users or contractors)
View View, Remove, or Reorder Crew Assignment Work Orders	How to view, remove a Crew Assignment, and how to put work orders in a sequence to be worked.
View How to use Real Time Operations (RTO)	How to use RTO (Real Time Operations). Updated with Main Break Layer Instructions and Screen Shot.
View Valve Inspection-Map View	How to inspect valves using Google Map View.
View Valve Inspection-Inspection Schedule	How to inspect valves using Inspection Schedule.
View Lost Water Calculation	Spread sheet to help calculate GPM lost.
View Pending Hydrants and Valves	How to find Pending Hydrants and Valves
View Sewer Overflow and Sewer Main Cleaning	How to look up a Sewer Overflow and run the Sewer Overflow Report. Also, how to enter sewer main cleaning.
View Markout Types	Markout Radius had been replaced with Markout Type. The current list is attached.
View General Searching	How to use the General Search or General Search with Mapping features. Also, how to conduct a Created By search.
View Work Descriptions-Revised	Work Descriptions changed, updated, removed based on September 15 users meeting.
View Revisit Work Order-Restoration	How to use the Revisit Work Order feature on MapCall.
View Reports-Main & Service Break Report Instructions	Reports-Main & Service Break Report instructions
View Average Completion Times	How the Average Completion Times is Calculated
View Customer RTO	Customer Water Main Break Outage Map Overview
View Construction Process Flowchart	Latest flowchart illustrating workflow for all asset records
View Construction Process Summary	Summary of the latest workflow for all asset records
View New Asset Setup Request Form	Form used to request new asset setup from Asset Control
View Asset Retirement Sheet	List of all Asset Retired during a Construction Job

Source: Information Response 180

Click software, in *Exhibit XVIII-30*, is used by the Customer Services organizations to dispatch customer request work orders initiated in SAP to Field Services organizations who use Click to make decisions about scheduling, performing, and completing the work orders. The AWWWS (American Water Works Service Company) is current field testing WORK 1, in-house developed software, as a replacement for Click. A picture of a WORK 1 screen in a Field Service Representative is given in *Exhibit XVIII-31*.⁹⁷³

**Exhibit XVIII-30
Description of Click Software
August, 2019**

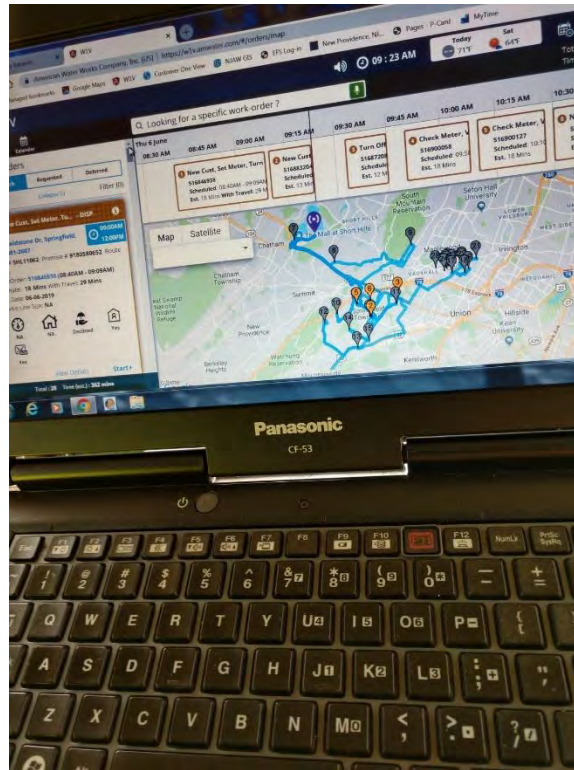
About ClickSoftware

ClickSoftware is a solution for enterprise-level field service management companies. ClickSoftware uses artificial intelligence to help in decision-making and execution and manage workforce productivity.

It offers features such as demand forecasting, shift planning and management, scheduling and dispatch and performance measurement. The demand forecasting feature helps users to estimate service requirements by ensuring availability of equipments and parts at all time.

Source: <https://www.softwareadvice.com/field-service/clicksoftware-profile/>

Exhibit XVIII-31
WORK 1 Screen in Field Service Vehicle
July, 2019



Source: Interview 52

The Water Quality / Environmental organization uses SAMSWater (Sample Analysis Management System) and Horizon LIMS (Laboratory Information Management System), in *Exhibit XVIII-32*, to track what samples are scheduled, where, and when the samples are to be collected and to track chain of custody of testing results.

Exhibit XVIII-32
Description of SAMSWater and Horizon LIMS
July, 2019

SAMSWater

SAMSWater Features

- › Automatic sample result interpretation and compliance implication feedback.
- › Automatic alerts when required monitoring is missed.
- › Automatic alerts on MCL exceedence.
- › Identify critical sampling schedules.
- › Spot and suggest potential waivers.
- › Full Microsoft Windows security and authentication integration.
- › Store your data at a single or at multiple sites.
- › Manage multiple utilities within one repository.
- › Create and manage consumer confidence reports.
- › Historical water quality trending and graphing.
- › Create user defined reports.
- › Geospatial mapping and tagging of water quality data.
- › Automated updates with regulatory changes.

Horizon LIMS

Horizon LIMS is a Laboratory Information Management System that aims to boost efficiency, configurability, and security of lab operations. The software platform helps organizations collect, sample, process, and deliver results using solutions that can be customized for multi-industry organizations – from public health, environmental, water quality, clinical, drugs of abuse and pain management labs.

Source: http://www.njbsoft.com/sams_water.php and <https://reviews.financesonline.com/p/horizon-lims/#what-is>

Microsoft Project is currently used by System Operations organizations to create the WBS (Work Breakdown Structure)¹² to manage projects in order to track progress and completion. NJAW is evaluating the use of e-Builder for project management of construction projects.⁹⁷⁴ Both are in *Exhibit XVIII-33*.

¹² / The WBS or work breakdown structure is a list of every task the team needs to complete in the project. After the project manager lists all the tasks, he or she links them with predecessor tasks that control the sequence of the tasks. Then the project manager assigns resources



Exhibit XVIII-33
NJAW Project Management Tools
July, 2019

Microsoft Project Description

Microsoft Project is a software application sold by Microsoft that provides project management tools to manage projects. The program, which has many different versions, allows users to:

- Understand and control project schedules and finances.
- Communicate and present project information.
- Organize work and people to make sure that projects are completed on schedule.

e-Builder Description

e-Builder is an online construction management solution built to address the requirements of contractors and construction companies. Its R&D zeroes in on specific and particular needs and issues of clients in the construction industry such as quality, reliability, safety assurance, and quick deployment, among others.

e-Builder offers an owner-centric project information management system, allowing owners to measure and manage every step of the capital project delivery process from planning, design, procurement, construction and operations. It is also a cloud-hosted system, it provides you shortened project times, improved savings, reduced risks, and increased productivity.

Source: <https://www.mpug.com/education/what-is-microsoft-project/>
<https://reviews.financesonline.com/p/e-builder/#what-is>

Findings & Conclusions

Finding XVIII-7 NJAW uses state-of-the-art software systems to support decision making in all organizations.

Exhibit XVIII-23 through Exhibit XVIII-33 indicate the software systems used.

Recommendations

None

G. Design and Construction Standards

Background & Perspective

New Jersey American Water's Engineering Standards for Design and Construction of new water mains, water treatment plants, sewer systems, etc. are based upon ANSI (American National Standards Institute), AWWA (American Water Works Association), ASTM (American Society for Testing and Materials), IEEE (Institute of Electrical and Electronic Engineers), and other relevant major governmental/statutory agencies.⁹⁷⁵ Material specifications, design and construction standards are provided by American Water Works Service Company Engineering Department.⁹⁷⁶ The scope of these standards is shown in *Exhibit XVIII-34*.⁹⁷⁷

Exhibit XVIII-34
Scope Design and Construction Standards
as of August 31, 2019

NJAWC has developed an extensive set of design and construction standards and detail drawings for water and wastewater utility construction. These standards govern both construction performed by NJAWC, NJAWC's subcontractors, and third-party contractors installing water and wastewater assets that will be transferred to NJAWC in the future.

NJAWC standards and details cover all aspects of standard water and wastewater buried assets such as pipelines, valves, fire hydrants, stream crossings, manholes to name a few. Additionally, these standards and details govern many different material types and construction methods that have been approved for use by NJAWC. NJAWC standards and specifications are developed and organized in accordance with industry typical design divisions (*i.e.*, general, concrete, civil, mechanical, etc.)

Standards and details used for the construction of large, complex and/or unique assets (*i.e.*, treatment plants, water tanks, pump stations, etc.) are developed on a project by project basis as required and determined appropriate by NJAWC engineering group and project specific engineering consultants. These standards and specifications are documented as part of the final design and project contract documentation.

Standards and specifications developed by NJAWC are routinely reviewed and updated as required. NJAWC engineering, inspection and field staff have access to these documents to ensure compliance.

Source: Information Response 196

When NJAWC needs to utilize an external design firm, the process is shown in *Exhibit XVIII-35*.⁹⁷⁸



Exhibit XVIII-35
External Engineering Design Firms
as of August 31, 2019

NJAWC engages external engineering firms for the design of additions, improvements, or modifications to infrastructure and facilities. According to American Water's Engineering Master Services Agreements, design consultants are required to submit copies of the design memorandum, drawings and specifications at several stages during the progress of the design. Submissions are made when the design is considered 30%, 60% and 95% complete. These progress design submissions allow the Company to provide the design consultant with input on the design in an efficient and effective manner, so that modifications to layouts or design details can be made as early as possible to minimize cost and repeat work.

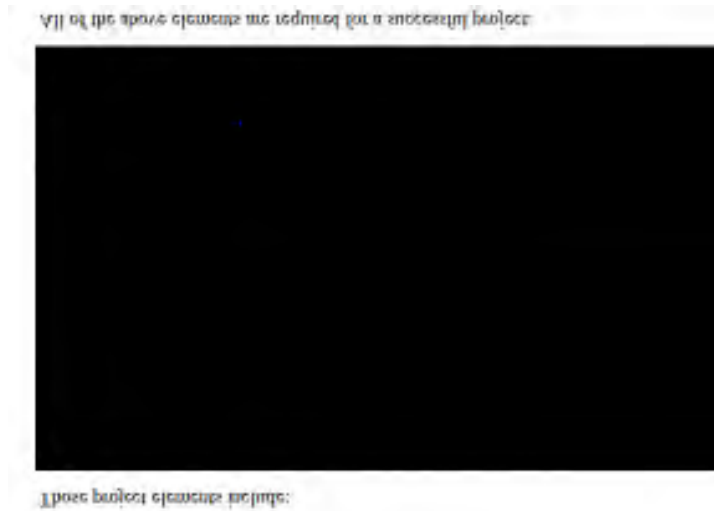
In addition, NJAWC's engineering project manager performs a technical review to identify any issues or concerns associated with the completeness of scope, level of detail, or the technical approach being depicted on the drawings or within the specs or design memo. Depending on the complexity of the project, review comments may be submitted to the design consultant as mark-ups on drawings or other design-related documents or may be compiled in a spreadsheet. Engineering consultants utilize their own internal QA/QC processes to minimize errors and omissions on design submissions. NJAWC's engineering design reviews will assess conformance to internal standards, as well as other widely accepted industry standards or to any known state or local legal or regulatory requirements.

For complex or unique multi-discipline engineering projects, NJAWC often asks American Water's Corporate Engineering department to review progress design submissions. American Water's Corporate Engineering team is comprised of technical professionals who focus on specific engineering disciplines, such as site/civil, process, structural, mechanical, electrical, and automation engineering. The team provides the Company with in-house expertise in specific engineering fields that do not exist on NJAWC's staff.

Source: Information Response 194

A summary of the of the project elements of the design process that is followed at NJAW is shown in *Exhibit XVIII-36*.⁹⁷⁹

**Exhibit XVIII-36
Project Elements
as of August 31, 2019**



Source: Information Response 83 (Confidential)

NJAW’s implementation of the Design and Construction Phase of a project is covered in detail in the Capital Project Delivery Practice, Practice number PRA_OPS05/05⁹⁸⁰, a detailed practice guide, which covers all elements of a project from inception through placing in service. *Exhibit XVIII-37 and Exhibit XVIII-38* below are several examples of the content of this 16 page (including the appendix) document.⁹⁸¹

**Exhibit XVIII-37
Preliminary Engineering and Design Proposal Phase
as of August 31, 2019**



Source: Information Response 83 (Confidential)

**1. Exhibit XVIII-38
Test, Commission and Close Out Phase
as of August 31, 2019**

	Pipe	Small	Medium	Large
1*				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15*				
16				
17				
18				

Source: Information Response 83 (Confidential)

Findings & Conclusions

Finding XVIII-8 NJAW's Design and Construction Standards and Practices are well documented and thorough.

Exhibit XVIII-34 through Exhibit XVIII-38 illustrate NJAW's comprehensive documentation.

Recommendations

None

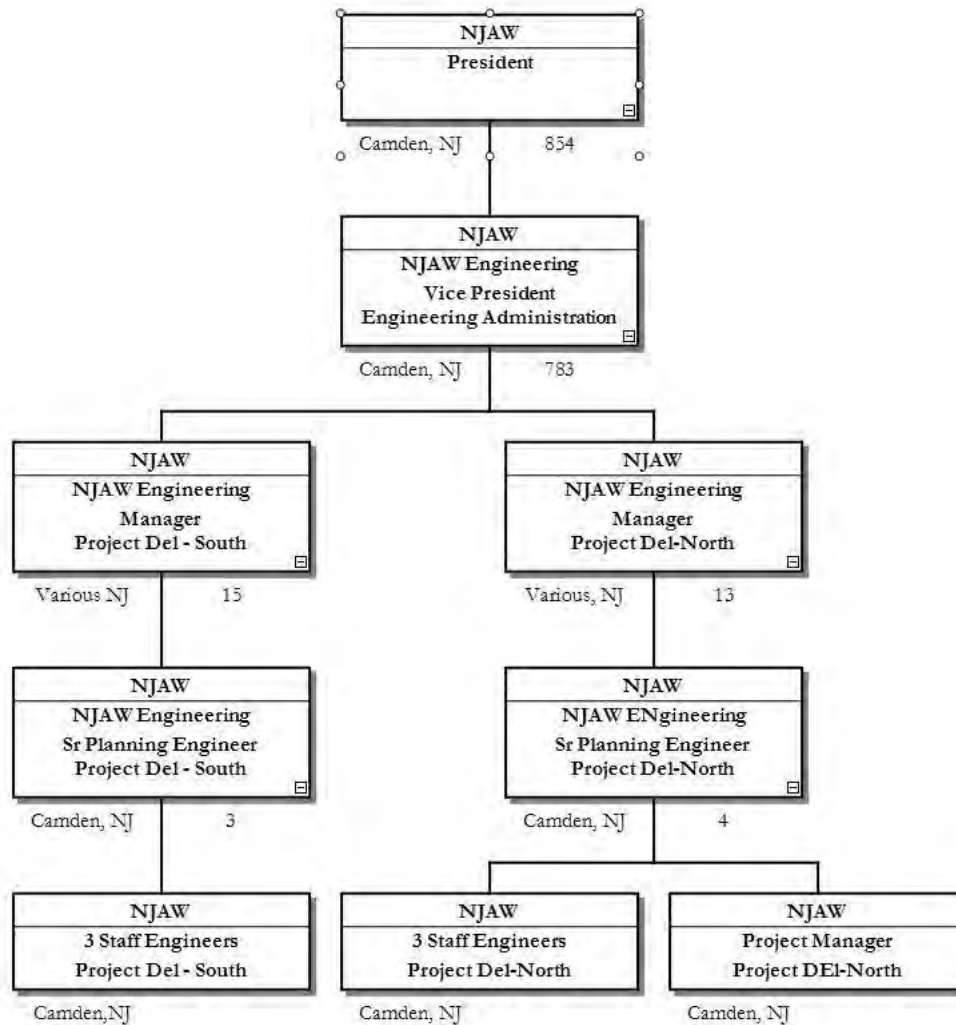
H. Asset Planning

Background & Perspective

The NJAW Vice President Engineering is responsible for strategic water and wastewater system planning (Asset Planning). The Asset Planning activities are performed by teams that are led by Sr. Planning Engineers who report to the Manager of Project Delivery – South and Project Delivery - North as shown in *Exhibit XVIII-39. The Asset Planning Teams collaborate extensively with all organizations, including Corporate*, to identify NJAW needs related to source of supply; the treatment, storage, pumping, transmission and distribution of water; and the collection and treatment of wastewater.⁹⁸² Some Supply Planning is performed by Corporate Engineering.⁹⁸³



Exhibit XVIII-39
NJAW Asset Planning Organization
July, 2019



Source: Interview 22 and Information Response 52 (Confidential)

Asset Assessment

NJAW uses several processes to assess the condition of its assets:⁹⁸¹

- ◆ **Comprehensive Planning Studies;**
- ◆ **An Annual Production Inventory Report for non-pipe assets**
- ◆ A Customized GIS Pipeline Prioritization Model for pipe assets;
- ◆ Inspection and Maintenance programs; and
- ◆ The Capital Investment Prioritization Model

The synopsis of a **Comprehensive Planning Study** is shown in *Exhibit XVIII-40*.⁹⁸⁵

Exhibit XVIII-41 provides an extract from the Executive Summary for a 423 page Comprehensive Planning Study for one of NJAW's PWSIDs.⁹⁸⁶

Exhibit XVIII-40
Synopsis of Comprehensive Planning Study
August, 2019

A Comprehensive Planning Study (CPS) is conducted for each operating area in the state every five years on average. The CPS details the capital improvement recommendations and presents a strategy for facility improvements to ensure that NJAWC can provide safe, adequate and reliable service to its customers. A report is prepared that:

- Presents customer and demand projections for the next 20 years
- Examines source of supply and production adequacy and resiliency
- Addresses existing and proposed water quality and treatment standards
- Analyzes the water system's transmission, distribution and storage adequacy
- Evaluates potential alternatives and operational savings opportunities

Prioritized recommendations are recorded and reflected in the capital planning process. The process is revisited annually to recognize any change in operational requirements, regulatory compliance or condition-based monitoring.

In addition, NJAWC currently utilizes a variety of systems (SAP, MapCall, GIS, and Infomaster) to manage a dynamic inventory of assets, track maintenance of assets, document asset failures, and prioritize the replacement of assets that have outlived their useful life.

Source: Information Response 182

Exhibit XVIII-41
Comprehensive Planning Study
Example Executive Summary Introduction
June, 2015

INTRODUCTION

This Comprehensive Planning Study (CPS) details the system improvement recommendations for [REDACTED] for projection years 2015 - 2030. This plan presents a strategy for facility improvements to ensure that NJAW can continue to provide safe, adequate, and reliable service to its customers through 2030. Demand projections were also estimated to 2060, though accuracy diminishes beyond the 15-year planning horizon.

The Executive Summary presents a high level overview of the engineering analyses, findings and recommendations for this system. The Summary presents the following:

- Key Findings
- System Overview
- Summary of CPS Criteria
- Demand Projections Summary
- Summary of the Supply and Production Analyses & Findings
- Summary of the Distribution Analysis & Findings
- Summary of Recommendations for Supply and Production Assets
- Summary of Recommendations for Distribution Assets

Facilities were evaluated based on AW Engineering Standards and Asset Management practices. The improvement plan addresses the asset management categories of: Capacity, Condition and Reliability, Performance and Service, and Efficiency.

Source: Information Response 70



The condition of all NJAW non-pipe assets are documented in the **Annual Production Inventory Report**, an example of which is shown in *Exhibit XVIII-42*. As shown, each asset in the spreadsheet report is evaluated for capacity adequacy, condition adequacy, and performance adequacy.⁹⁸⁷ Pipe assets are assessed using the GIS and InfoMaster Software as discussed in *Chapter 13 – Operations Review*.

**Exhibit XVIII-42
Example Condition Assessment in Annual Production Inventory Report
December, 2018**

Co.	Fac	Facility Name	District	Functional Loc.	Equipm.	PWS ID	Year Origin/Build	Year of Last Major Upgr.	Application	Type	Spillway Capacity (MG or MFD)	Capacity Adequacy	Condition Adequacy	Performance Adequacy
18-NJ		BSTR S 30th Street Tank Booster	1813-NJ Burlington/Camden	NJBC-DM-30TH_BST	NA	0327001			Finished Water		2.5	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Altam Road Booster Station	1815-NJ Essex/Passaic	NJCW-W2-ALLEN	NA	0710001			Finished Water		4.0	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Jammell Rd Booster Station	1815-NJ Somerset/Morris	NJPB-BM-JAMM	NA	2014002	1983		Finished Water		8.1	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Aqueduct (IC)	1810-NJ Burlington/Camden	NJLD-CH-EDK-WOC	NA	0327001			Finished Water			Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Ashbury Ave Booster Station	1815-NJ Morris/Union	NJMM-M-ASBURY	NA	1345001			Finished Water			Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Atlantic City (IA) IC Pump Station	1812-NJ Atlantic/Cape May	NJMM-M-ABMUBH	NA	010002			Finished Water		5.0	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Blenheim Hollow Booster Station	1818-NJ Morris/Union	NJMM-M-ABMUBH	NA	1345001			Finished Water			Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Burlington Booster	1813-NJ Burlington/Camden	NJBC-DM-STATI_BAF	NA	0327001			Finished Water			Inadequate (within current year)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Basking Ridge Booster Station	1815-NJ Essex/Passaic	NJCW-W2-BASKR	NA	0710001			Finished Water		7.8	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Steelmans Booster Station	1815-NJ Essex/Passaic	NJCW-BO-SSONS	NA	0710001	2004		Finished Water		3.8	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Berlin (Cooper Rd) Booster (IC)	1810-NJ Burlington/Camden	NJBC-DM-BERLI	NA	0327001			Finished Water			Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Blinn Ridge Booster Station	1816-NJ Union/Middlesex	NJPE-NE-BLIER	NA	2014002	1984		Finished Water		0.4	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Blinn Booster Station	1810-NJ Lakewood	NJDL-LK-BRICK-BS	NA	0910001			Finished Water			Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Blinn Flood Booster Station	1815-NJ Somerset/Morris	NJPB-BM-BRWNH	NA	2014002	091		Finished Water		1.2	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Camden Ground Storage Booster	1810-NJ Burlington/Camden	NJBC-DM-CASTA-VYTRK??	NA	0327001			Finished Water		0.11	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Inadequate (within next 1 year)
18-NJ		BSTR S Camden Place Booster Station	1816-NJ Union/Middlesex	NJPB-AP-CAMST	NA	2014002	1997		Finished Water		1.5	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Chatham Basins Pump Station	1815-NJ Essex/Passaic	NJCW-EZ-CHATH	NA	0710001			Finished Water		10.0	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Chatham Tank Booster	1815-NJ Essex/Passaic	NJCW-EZ-CHTKS-BE	NA	0710001			Finished Water		3.0	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Chester Booster Station	1815-NJ Essex/Passaic	NJCW-W2-CHEST	NA	0710001			Finished Water		0.6	Adequate (thru next 5 years)	Inadequate (thru next 5 years)	Inadequate (thru next 5 years)
18-NJ		BSTR S Chester Rd Booster Station	1815-NJ Essex/Passaic	NJCW-CH-CHBST	NA	0710001	1992		Finished Water		1.8	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Chives Landing (Chives Landing Pfd)	1813-NJ Burlington/Camden	NJBC-DM-CH-EWS	NA	0327001			Finished Water			Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Cimarron Ridge Booster	1815-NJ Essex/Passaic	NJCW-EZ-BENRFD	NA	0710001			Finished Water		0.5	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S 3rd Street Booster Station	1815-NJ Essex/Passaic	NJCW-EZ-3RDTB	NA	0710001			Finished Water		0.8	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Coles Ave Booster Station	1816-NJ Union/Middlesex	NJPE-NE-COLE	NA	2014002	1983		Finished Water		0.5	Adequate (thru next 5 years)	Inadequate (within current year)	Adequate (thru next 5 years)
18-NJ		BSTR S Connecticut Booster Station Pumping Station	1810-NJ Burlington/Camden	NJLD-ZH-CONM-PHF	NA	0609002			Finished Water			Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Crystal Lake-Hidden Township IC	1810-NJ Burlington/Camden	NJBC-DM-HACIC	NA	0327001			Finished Water			Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Danden Drive Booster Station	1815-NJ Essex/Passaic	NJCW-W2-DANFI	NA	0710001			Finished Water		0.1	Inadequate (within current year)	Adequate (thru next 5 years)	Inadequate (within current year)
18-NJ		BSTR S Doral Pfd Booster Station	1815-NJ Somerset/Morris	NJPB-BM-DORAL	NA	2014002	081		Finished Water		0.4	Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Desford (Clements Bridge Field) IC	1810-NJ Burlington/Camden	NJBC-GL-DEFTC	NA	0327001			Finished Water			Adequate (thru next 5 years)	Adequate (thru next 5 years)	Adequate (thru next 5 years)
18-NJ		BSTR S Delsea	1810-NJ Burlington/Camden	NJLD-EZ-DSELA	NA	0327001			Finished Water		6.0	Adequate (thru next 5 years)	Inadequate (within current year)	Inadequate (within current year)

Source: Information Response 93

Follow-up detail assessments are made for assets, examples of which are shown in *Exhibit XVIII-43*, which were flagged from the 2018 Production Inventory Report.⁹⁸⁸

**Exhibit XVIII-43
Redacted Examples of Detailed Condition Reports Prepared from 2018 Production Report
December, 2018**

1. Steel Tank – [REDACTED]
 2. Concrete Reservoir [REDACTED]
 3. Elevated Pipe Support [REDACTED]
 4. Critical Crossing [REDACTED]
 5. Pre-stressed Concrete Cylindrical Pipe (PCCP) [REDACTED]
 6. Purification Units [REDACTED]
 7. Booster Station [REDACTED]
 8. Pipe Condition Assessment prior to clean and lining [REDACTED]
- CONFIDENTIAL LOCATION IDs REDACTED

Source: Information Response 93

The company took specific actions as a result of these condition assessments. The actions taken for numbers five and six, as from *Exhibit XVIII-43*, are shown in *Exhibit XVIII-44*.⁹⁸⁹

Exhibit XVIII-44
Redacted Actions Taken Due to Detailed Condition Reports
2018-2019

5. Pre-stressed Concrete Cylindrical Pipe (PCCP) – The 60-inch PCCP [REDACTED]
[REDACTED] is one of the most critical transmission main for the Company's [REDACTED]. As such, its integrity is critical to system operations. A thorough condition assessment was completed over the span of few years, including different methods of condition assessment (CA), including acoustic analysis, electromagnetic analysis, leak detection and visual inspection. Through these CA studies, it was identified that while most of PCCP transmission main is in good condition, approximately 3% of its pipe sections were in need of attention. The Company replaced several pipe sections in the poorest condition (distressed across) immediately and repaired any noted leaks at pipeline appurtenances prior to returning the transmission main in service. It also identified an area of vulnerability that needs attention. A project is planned for the fall of 2019 to structurally line with a carbon fiber system in order to mitigate remaining concerns with this pipeline portion. Work is scheduled in the fall during a time of low demand and less stress on the system so that the pipeline can be taken out of service for several months to accomplish needed system structural lining.

6. Purification Units at [REDACTED]
The Company commissioned a thorough inspection and evaluation of the Purification Units (PU) at both water treatment plants which are the main supply/treatment source for the [REDACTED] System. The inspections identified some deterioration in the internal components of the PU units. Most deterioration, was cosmetic in nature and easily addressed by sandblasting and installing new engineered coating systems. Other areas with more severe deterioration required more significant repairs, including steel plate replacement, crack welding and steel component parts replacement. Repairs and improvements were completed during the off-season so as not to interfere with system's water supply production requirements. It is, however, widely known that the "Aldrich Units" (circular steel solids contactors with integrated filters on its perimeter) are approaching the end of their life expectancy and usefulness. As such, the Company is in the process of conducting the [REDACTED] stations comprehensive master plans. These master plan studies are expected to be completed by end of 2019.

Source: Information Response 94

Each asset, examples of which are shown in *Exhibit XVIII-43*, have detailed reports of the in-depth assessment. *Exhibit XVIII-45* presents the summary page of a 76 page report prepared by a NJAW contractor who assessed the condition of Item 1 in *Exhibit XVIII-43*.⁹⁹⁰



Exhibit XVIII-45
Redacted Summary Page of an In-Depth Assessment
2016

SUBJECT:

The subject of this report is the field evaluation of the [REDACTED] steel elevated water tank in [REDACTED]. The tank was owned by the New Jersey American Water Company and was known as the [REDACTED]. The field evaluation was performed on [REDACTED] of [REDACTED]. The Owner's representative on the site at the time of the field evaluation was [REDACTED]. The cone roof, hemispherical bottom tank was of welded and riveted steel construction. According to measurements taken in the field, the tank was approximately 18 ft in diameter and the tank shell was approximately 20 ft 9 in. high.

OBJECTIVE:

The purpose of this evaluation was to assist in determining the anticipated remaining life of this tank including the condition of the tank interior, exterior, exposed foundations, and accessories. The purpose of this report is to present the findings of the evaluation and to make recommendations for immediate and future maintenance. Budget estimates for the work, anticipated life of the coating and the structure, and the replacement cost of the tank are also included.

AUTHORIZATION:

This evaluation, disinfection, and report were authorized verbally by [REDACTED] New Jersey American Water.

EXECUTIVE SUMMARY:

It appears that the rehabilitation cost may approach or exceed the cost of a new tank. The Owner should consider all aspects, costs, time frames, foundation and site considerations associated with either option before deciding on which option to pursue. The tank was in poor overall condition and is in need of significant rehabilitation in order to remain in service long-term. [REDACTED] recommends that plans be made to replace the tank.

Source: Information Response 93 (Confidential)

Each month NJAW reviews the risk associated with specific assets listed in the High Risk Management Report/Register.⁹⁹¹ This report is updated on an as-needed basis and keeps management abreast of the status of assets ranked by risk category. A redacted excerpt from the 53 page report is shown in *Exhibit XVIII-46*.⁹⁹² A section of the report displays the Highest Risk Assets, a redacted sample of which is shown in *Exhibit XVIII-47*.

Exhibit XVIII-46
Redacted Sample of High Risk Asset Management Update
July, 2018



Source: Information Response 486

Exhibit XVIII-47
Redacted Sample of High Risk Management Report
January, 2018



Source: Information Response 486 (Confidential)

NJAW regularly assesses its assets during the five year planning process, again annually and updates monthly as emergent data becomes available. Mitigation plans both operationally and financially are created, budgeted, scheduled and implemented as risk dictates.⁹⁹³

Forecasting and Modeling

NJAW Demand Forecasting is included in its Water and Wastewater Comprehensive Planning Studies (CPS) where a 15-25 year planning horizon is used to forecast future demand. *Exhibit XVIII-48* provides an overview of subjects included in CPSs.⁹⁹⁴ The table of contents shown in *Exhibit XVIII-49* from a 279 page Wastewater CPS is typical of the scope of the planning studies.⁹⁹⁵

Exhibit XVIII-48 Redacted Comprehensive Planning Study Overview April, 2019

NJAWC develops a Comprehensive Planning Study ("CPS") as established by American Water Works Company, Inc. in its Capital Policy.

These CPSs are prepared for each water system, although where there are multiple, but relatively smaller systems, a CPS may include multiple systems. The CPS looks at a 15-year minimum planning horizon and, depending on system needs and regional impact, may extend its planning horizon to a 25-year period. While most of the CPSs address overall system needs, from time to time there is a need for a more specific planning study to address a major facility within a water system (e.g. the [REDACTED]).

[REDACTED] These are referred to as "Targeted CPSs."

The CPS Overview

The CPS details the capital improvement recommendations for NJAWC's System through 2030. The CPS presents a strategy for facility improvements to ensure that NJAWC can continue to provide safe, adequate and reliable service to its customers.

The CPS:

- Presents customer and demand projections for each system through the year 2030.
- Examines the need for additional sources of supply and production capacity.
- Addresses existing and proposed water quality and treatment standards, and
- Analyzes the water systems' transmission, distribution and storage needs.

The executive summary provides an introduction to the planning process and summarizes key findings. Section 1 provides descriptions of the recommended capital improvement projects for each system. Section 2 consists of an overview of the comprehensive planning process. The remaining sections discuss the following analyses: Section 3 - Customer and Demand Projections; Section 4 - Source of Supply and Production; and Section 5 - Distribution. Supplemental information, such as detailed planning criteria, cost estimate breakdowns for project recommendations, additional demand projection analyses, detailed well descriptions, groundwater allocation data, and production studies, is provided in the appendices.

Source: Information Response 73

Exhibit XVIII-49
Table of Contents from Typical Wastewater CPS
2017

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Source: Information Response 70

NJAW uses Water and Wastewater System Modeling for both planning and operational decision making. *Exhibit XVIII-50* provides an overview of NJAW’s use of its modeling capability.⁹⁹⁶

**Exhibit XVIII-50
System Modeling
as of August 31, 2019**

System Modelling

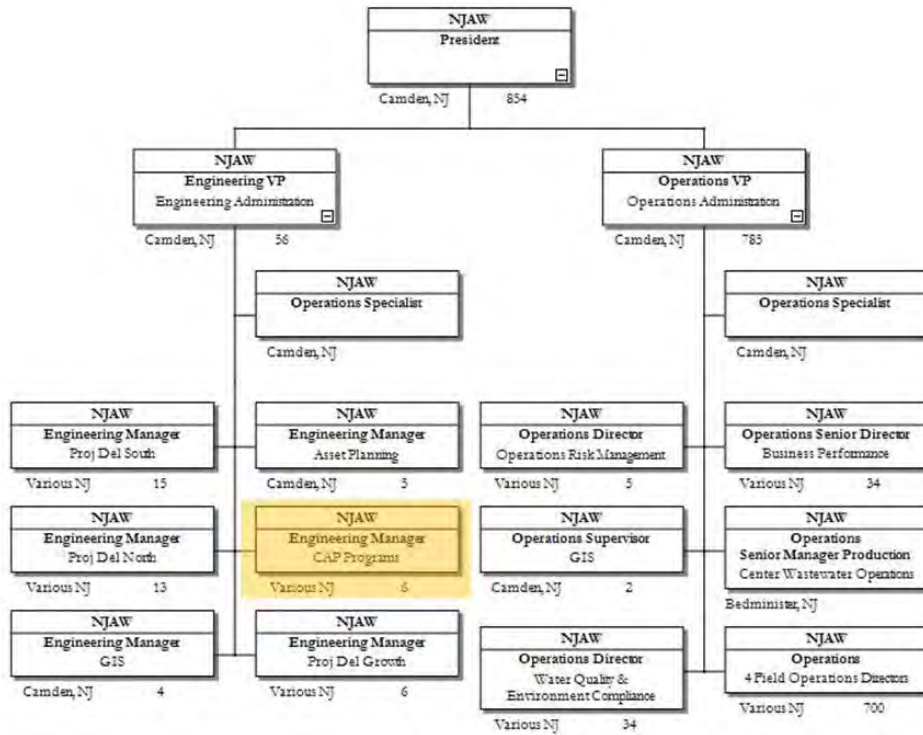
Each public water system and large wastewater collection system have calibrated hydraulic models created. The Company uses the Bentley Hydraulic modeling software (WaterGen and WaterCAD). Each water system is calibrated using SCADA outputs, pump curves, storage/reservoirs dimensions/characteristics, and all pipes (as opposed to skeletal) attributes. The system is calibrated for Extended Period Simulation (EPS), typically involving a 48-hour period or more for each hydraulic model scenario run. The hydraulic model is used to evaluate any demand scenario that may be required whether it be a new fire flow load evaluation or a transmission main being out of service. System analysts are able to run simulated conditions to determine adequacy of pipe sizes, pumps or storage in a fire demand scenario which are quite routine and every case is evaluated via hydraulic modeling. Routine hydrant flow tests for fire flow evaluation are discouraged and not accepted as means of availability of fire flow needs because the hydrant test does not reliably indicate availability of water under all system conditions. The system analyst may, on occasion, request a hydrant flow test under well controlled conditions only to validate local pipe hydraulic characteristics (i.e. friction coefficient or C-factor), but individual hydrant flow tests are not used for fire flow adequacy determination.

Source: Information Response 64

Capital Investment Management and Project Budgeting

The Capital Programs Organization (CAP) highlighted in *Exhibit XVIII-51* uses the CPSs and assessment of the condition of the assets coordinated by the Asset Planning Organization shown in *Exhibit XVIII-39* to manage the capital investment portfolios from which annual budgets and 3-5 year capital forecasts are prepared. The CAP collaborates continuously with NJAW Engineering, Operations, and other NJAW and AWWWS organizations to manage the list of potential capital investment projects and gain consensus about the projects to be included in the annual budgeting and forecasting process.⁹⁹⁷

**Exhibit XVIII-51
Capital Programs Organization
July, 2019**



Source: Information Responses 2 and 52 (Confidential)

The CAP uses the capital investment/budgeting process that is documented in Policy Number POL-OPS05⁹⁹⁸, the purpose and policy statements of which are shown *Exhibit XVIII-52*.⁹⁹⁹

Exhibit XVIII-52
Capital Investment Policy
July, 2019

PURPOSE

This policy provides the requirements for the planning, implementation, and overall management of capital investments. It addresses timing, key methods, approvals, reporting, and roles/responsibilities. It does not apply to the investment of new Operating Units, or extension of existing service area by acquisition; however, it is applicable to post-acquisition capital investments. With the exception of reporting needs for roll-up to the Company level, this policy does not apply to the market-based businesses (MBB).

POLICY STATEMENT

This section contains guidance related to the capital process including asset planning, business planning (capital), and project delivery. Unless otherwise specified, this policy establishes requirements that are to be followed by all employees involved in capital investment management activities. More detailed guidance is found in the applicable practices, which are referenced in the Appendix section of this policy.

Capital Guidelines

The Company has established guidelines and processes for Capital. A cross-functional team including the Engineering Department, Finance Department, and Operations develops these guidelines, which are communicated to the Company by the Engineering Department.

Source: Information request 79

The implementation of the capital budget is spelled out in the company's practice document PRA-OPS05/03. A summary of the practice document is shown in *Exhibit XVIII-53*.¹⁰⁰⁰

Exhibit XVIII-53
Capital Investment Management Practice
July, 2019

I. PURPOSE

This practice outlines the key enterprise activities required to perform capital business planning and ongoing management of the capital program, which aligns with the Capital Policy. High-level practice variances related to market-based business (MBB), if any, are outlined in section IV of this document.

II. SUMMARY

This document covers activities involving capital investment management, which includes maintaining the capital project portfolio, capital business planning, and ongoing capital program management.

The following are the major sections covered within the Key Activities area (III) of this practice:

- Section 1: Capital Project Portfolio
- Section 2: Capital Business Planning
- Section 3: Capital Program Management

This practice contains appendices for the following:

- Appendix A – Types of Projects
- Appendix B – Stages and Limits of Tolerance for Investment (IP) and Centrally Sponsored (CS) Capital Projects
- Appendix C – Stages and Limits of Tolerance for Recurring Projects (RP) and Developer Projects (DV) Capital Projects
- Appendix D – Supplementary Tools and Guidance

Key definitions are detailed in Section VI.

Source: Information request 79

NJAW uses four categories of capital projects, as described in *Exhibit XVIII-54*.

**Exhibit XVIII-54
Types of Capital Projects
as of July 31, 2019**

Centrally Sponsored (CS): Same as an IP; however, these are managed centrally, usually by the Service Company, with the costs charged directly to each Operating Unit rather than through a Service Company bill.

Developer Projects (DV): Similar to RP Projects (perpetual groups of smaller projects which are budgeted and managed on a yearly basis), but with external funding (typically by a developer) in part or in whole.

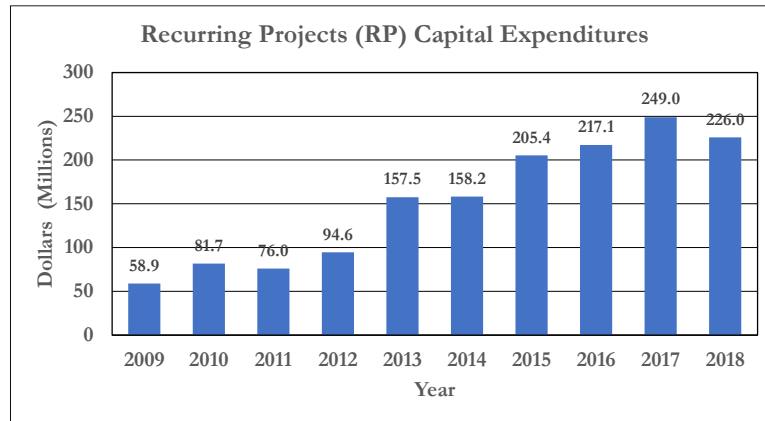
Investment Projects (IP): Unique, one-time projects having a definitive start and stop with total funding typically >=\$250K.

Recurring Projects (RP): Routine, perpetual groups of sub-projects which are budgeted and managed on a calendar year basis.

Source: Information Response 81

The type of capital project that needs some discussion is the Recurring Projects (RP). These are capital projects of a recurring nature which include all main replacement and renewal projects. As shown in *Exhibit XVIII-55*, RP spending increased 163.2% (94.6 in 2012, the year that DSIC was implemented, to 249.0 in 2017) with a slight decrease in 2018, reflecting the increase in replacement and life extension projects for water mains.¹⁰⁰¹

**Exhibit XVIII-55
Recurring Project Capital Expenditures
2009 to 2018**



Source: Information Response 77

Findings & Conclusions

Finding XVIII-9 NJAW's Asset Assessment Process is timely and thorough.

Exhibit XVIII-40 through *Exhibit XVIII-47* provide examples of the comprehensive process.

Finding XVIII-10 NJAW's Forecasting and Modelling process is comprehensive and fully integrated into its Asset Planning Process.

The company's forecasting and modeling practices are illustrated in *Exhibit XVIII-48* through *Exhibit XVIII-50*.

Finding XVIII-11 NJAW has well document policies and practices, which it is following, for the management of its capital budgeting process and the creation of its capital budget.

Overviews of the policy and practices used for capital budgeting are presented in *Exhibit XVIII-52* through *Exhibit XVIII-54*.

Recommendations

Recommendation XVIII-2 Implement a practice of running a System Wide InfoMaster risk level report during the same month every year and plotting the results to trend the percentage of pipe in each risk category. (Refer to Finding XVIII 4.)

Use the trend to prioritize capital budget expenditures in the pipe replacement and renewal areas to reflect trends in risk with the goal of reducing/eliminating high risk pipe and improving the condition of pipe systems.

Recommendation XVIII-3 Include a leaks per mile of main, including targets, in the Management Reports.

There is presently no measure of leaks per mile of pipe (water main). Without continuous, repetitive leak survey data of the entire system it is not possible to develop meaningful trend lines for system risk levels.

Recommendation XVIII-4 Implement measures to indicate if the condition of the water and sewer distribution systems is improving or degrading as guidance in determining the level of capital investment.

From *Exhibit XVIII-55*, the increased expenditures were justified given the under investment prior to 2012. The question that remains is:

“Is the amount of money being invested in renewing and replacing water and sewer main systems appropriate?”

The amount invested should be based on trends in measures that indicate the condition of the main systems, both water and sewer. NJAW has an excellent set of tools, GIS and InfoMaster, to identify high risk pipe for water main and recommend projects for investment in infrastructure improvement. InfoMaster relies heavily on leak data to arrive at the risk rating. Because the InfoMaster system is relatively new and presently does not cover sewer main (NJAW plans to include sewer in the future), there are no trend lines of the risk levels for the water main system and sewer main system. In addition, as previously discussed in this report under the Water Loss Management section, there is no recurring, repeatable leak survey of the entire water main systems in place.



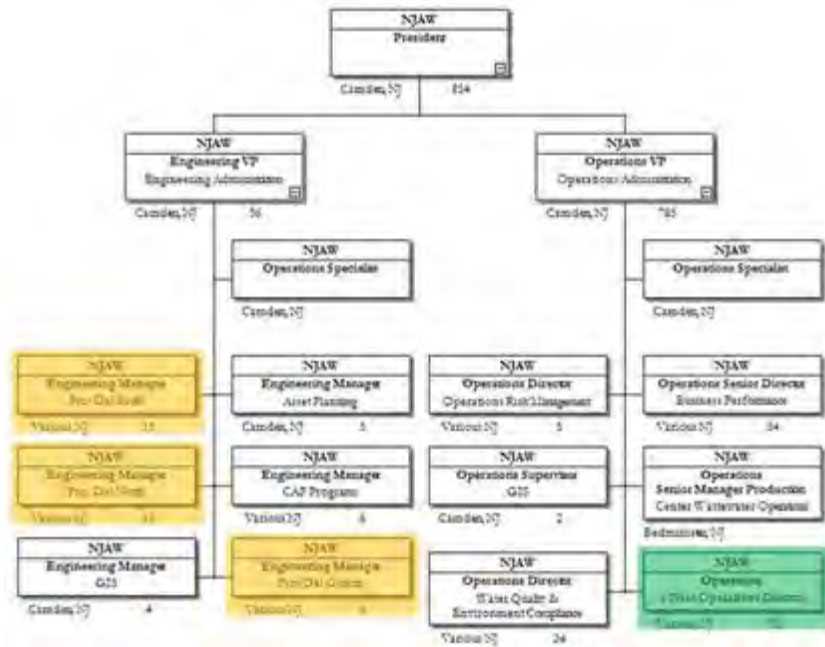
I. Construction Management

Background & Perspective

Generally, NJAW projects are originated from Comprehensive Planning Studies and/or assessment of asset conditions and are evaluated in the Asset Planning Process. A preliminary scope of work and estimate is developed for each project. Based on historical information such as main break data, water quality data, asset age, asset condition assessments, and other similar data, each project receives a score based on a pre-determined weighted scoring system. The resulting project score is then used to prioritize and rank each project based on need. Ranked projects are then programmed into NJAW's 5-year capital plan based upon the prioritized ranking and available annual capital program funding. Prioritized projects are entered into the NJAW's Work Management System (MapCall). During the Asset Planning Process, a Project Manager (PM) is named to guide the project to a successful completion.¹⁰⁰²

At the beginning of each calendar year, current year capital projects are started based upon the 5-year capital plan. The Engineering Project Delivery Organizations shaded in orange (EPDs) and each of the four Field Operating Regions shaded in green (FOR) in *Exhibit XVIII-56* are responsible for the delivery of NJAW's capital projects. The delivery activities for an approved capital project are coordinated by a PM generally from one of the EPDs. Project design is done by one of the EPDs or contracted to an approved design firm. FORs have dedicated construction supervisors and construction crews and a team of construction inspectors that that provide field oversight of contract crews.¹⁰⁰³

**Exhibit XVIII-56
Construction Management Organizations
July, 2019**



Source: Interview 2 and Information Response 52

NJAW PMs use Practice Number PRA-OPS05/02 (“Capital Project Delivery Practice”), the summary of which is shown in *Exhibit XVIII-57*, to design and construct water and sewer capital projects. The practice is written to cover contracted design and construction activities but the process is followed, as applicable, for internally designed and constructed projects.¹⁰⁰⁴

Exhibit XVIII-57
Summary of Capital Project Delivery Practice
May 2013

II. SUMMARY

This document covers activities involving the capital project delivery phases, which include the preliminary engineering, design, bidding/procurement work, award, pre-construction, construction, and test, commission and closeout of the project. The phases are used for all investment projects (IP) and applicable recurring projects (RP). The tasks identified in Appendix A of this practice are completed and documented based on the size, type and complexity of the project as determined by local operating unit management.

The following are the major sections covered within the Key Activities area (III) of this practice:

- Section 1: Preliminary Engineering
- Section 2: Design
- Section 3: Bidding/Procurement
- Section 4: Award
- Section 5: Pre-Construction
- Section 6: Construction
- Section 7: Test, Commission, and Closeout

This practice contains appendices for the following:

- Appendix A – Project Delivery Task Sequence
- Appendix B – Contingency Allocation
- Appendix C – Tools and Templates
- Appendix D – Summary of Policies Related to the Capital Project Delivery Practice

Key definitions are detailed in Section VI.

Source: Information Response 197

The EPDs in *Exhibit XVIII-56* are mainly responsible for Project Management and Sections 1 -5 in *Exhibit XVIII-57*:

- ◆ Preliminary Engineering;
- ◆ Design;
- ◆ Bidding/Procurement;
- ◆ Award; and
- ◆ Pre-Construction.

The FORs in *Exhibit XVIII-56* are mainly responsible for Inspection and Sections 6-7 in *Exhibit XVIII-57*:

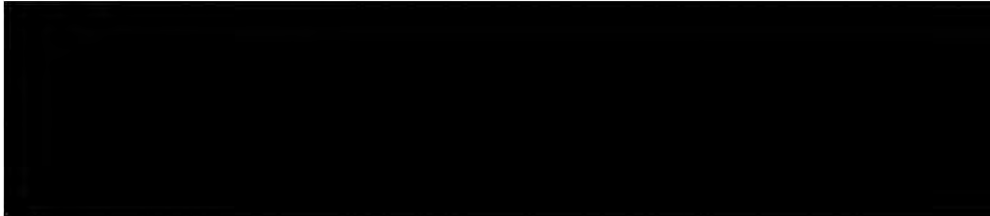
- ◆ Construction; and
- ◆ Test, Commission, and Closeout.

Once a project is funded through the annual budgeting process, The PM initiates Preliminary Engineering, the overview of which is shown in *Exhibit XVIII-58*.¹⁰⁰⁵

Exhibit XVIII-58
Capital Project Delivery Practice
Overview of Preliminary Engineering Activities
July, 2019

Section 1: Preliminary Engineering

Overview



Source: Information Response 197 (Confidential)

After Preliminary Engineering, the project moves to the **Design** phase as summarized in *Exhibit XVIII-59*.¹⁰⁰⁶ Design is completed in accordance with standards discussed in the Standards section earlier in this chapter.¹⁰⁰⁷

Exhibit XVIII-59
Capital Project Delivery Practice
Overview of Design Activities
July, 2019

Section 2: Design

Overview



Source: Information Response 197 (Confidential)

After Design is completed, the project progresses to the Bidding/Procurement phase, *Exhibit XVIII-60*. The Bidding process is bypassed for in-house construction crews.¹⁰⁰⁸



Exhibit XVIII-60
Capital Project Delivery Practice
Overview of Bidding/Procurement Activities
July, 2019

Section 3: Bidding/Procurement

Overview



Source: Information Response 197 (Confidential)

Construction work is performed by both NJAW crews and Contractor crews with the majority being performed by contractors. Decisions related to the selection of employees versus contractors are made after considering the equipment and associated equipment maintenance required to perform such work, the workforce capability to perform and manage such work, quality of work, seasonal volume of work, the cost to perform the work, and resources available to perform the work. Furthermore, some types of work are not performed continuously, or perhaps on as needed basis, therefore, it would not be cost effective to maintain employees with the qualifications to perform such work. Specialized work that is rarely needed by NJAW is generally outsourced to contractors, which perform such type of work frequently. The decision is made on a case by case basis; as it is not always one or the other but sometimes a hybrid approach.¹⁰⁰⁹

NJAW contracts for a wide variety of services from third party vendors based on their technical competency, quality, workmanship, safety record and overall value to the Company. In most cases and depending on the type of work being performed, contractors are put through a thorough screening process and are vetted to ensure they meet or exceed NJAW standards. This process includes but is not limited to commercial, technical and safety qualification and reviews. In most cases, before work begins, a contract is initiated. The contract will include all required commercial and legal terms and conditions, scope of work, pricing and safety requirements. Subject matter experts in Supply Chain, Legal, Safety, Engineering and Operations are consulted and provide input into the contracts. In some cases, Master Service Agreements (MSA) are used for contractors that perform work for NJAW on a continuous basis. The contract owner, typically a PM designee from either Operations or Engineering, is responsible for the day-to-day management of the contractor. Company Inspectors, Foreman, and Supervisors observe the work to ensure the work is completed pursuant to the contract requirements, specifications, quality standards, and laws and regulations are followed. The contract owner is responsible for reviewing and approving invoices for payment for work completed.¹⁰¹⁰

Approximately 70 to 80 percent of work is completed through the use of master services agreements¹⁰¹¹. The balance of contracted work is handled through job specific contracts. Current agreements are three years long. The company is moving to a two year policy on Master Service Agreements. There are

several policies and procedures that govern the acquisition of vendors. These policies have been in place since 2012-13: a screening package, a safety package, technical package and a sourcing package. There is no formal quality control program between operations and this group. Quality control is the responsibility of Operations. The company outsources the safety and insurance aspect of vendors to a company named Avetta.¹⁰¹² Avetta monitors the vendors' safety record and insurance certificates and submits monthly updates to this group. During the audit, NJAW was evaluating alternatives to Avetta. Change orders are managed by PMs.¹⁰¹³

NJAW FORs use contractors for work that is competitively bid through "framework agreements" (Master Service Agreements) that define the unit cost for an array of discrete services including, but not limited to:

- ◆ Pipe Installation;
- ◆ Emergency Repair Services;
- ◆ Meter Installation Services;
- ◆ Restoration / Paving;
- ◆ Removal / Disposal of Street Spoils / Concrete & Asphalt; and
- ◆ Utility Locates.

The NJAW Water Quality and Environmental Management Organization (WQ) uses outside contractors primarily to conduct special environmental engineering and consulting services such as site assessments, spill plan certifications and other similar specialized environmental engineering services only where in-house expertise are not available or regulations require third party certification. NJAW Production Organizations contracts work that includes, but not limited to:¹⁰¹⁴

- ◆ Facility landscaping;
- ◆ Water treatment residuals processing;
- ◆ Chemical feed system equipment maintenance;
- ◆ Instrumentation calibration and maintenance;
- ◆ Filter media refurbishment;
- ◆ Pump and motor maintenance and repair;
- ◆ Electrical and facilities maintenance;
- ◆ High voltage equipment maintenance;
- ◆ Generator maintenance;
- ◆ Water meter testing and calibration for finished water, well discharge, purchased water, bulks sales, various types of meters within the treatment plants;
- ◆ Security guards and facility monitoring; and
- ◆ Janitorial services.

Exhibit XVIII-61 indicates that the value of NJAW Contract Construction Services has increased 65.1% from 2013 (\$206.9 mil) to 2018 (\$341.6 mil). This increase correlates with the increased capital spending



approved under the DISC program approved in 2012.¹⁰¹⁵

**Exhibit XVIII-61
Contract Construction Services
2013 to 2018**



Source: Information Response 58

If the project design or construction is being contracted, the evaluation of bids and **Award** of the contract is a major milestone. A summary of Award activities is given in *Exhibit XVIII-62*.¹⁰¹⁶

**Exhibit XVIII-62
Capital Project Delivery Practice
Overview of Award Activities
July, 2019**



Source: Information Response 197 (Confidential)

Prior to actual construction starting in the field, the PM conducts a Pre-Construction conference, *Exhibit XVIII-63*, with all stakeholders involved in the project.¹⁰¹⁷

Exhibit XVIII-63
Capital Project Delivery Practice
Overview of Pre-Construction Activities
July, 2019

Section 5: Pre-Construction
Overview



Source: Information Response 197 (Confidential)

The actual construction, *Exhibit XVIII-64*, of the project is performed by either contractor or NJAW in-house construction crews. The PM and Field Operations Inspectors monitor quality of work by contract construction crews. The PM and Field Operations Management and Supervision monitor the quality of work by in-house construction crews.

Exhibit XVIII-64
Capital Project Delivery Practice
Overview of Construction Activities
July, 2019

Section 6: Construction
Overview



Source: Information Response 197 (Confidential)

On June 6, 2019, the consultant visited a work site where a contract for pipe lining was in progress by a contractor. The project covered approximately 7,000 feet of 8 inch cast iron pipe. The job included installing a bypass for main and services to keep customers supplied with water. Five hundred foot segments were lined at a time. Each pipe segment has to be cleaned, dried out and inspected via an internal camera. The lining material heated then sprayed into the pipe by a spray nozzle drawn through the pipe. Speed of the spray nozzle determines the thickness of the liner. The service connections are then cleared and the line inspected again with a camera. If the inspections are acceptable, the line is tested, placed in service and the services reconnected¹⁰¹⁸ The job was safe, neat, holes were shored, and personnel at site all had required safety equipment in place. The job was well managed and the inspector and contract personnel were knowledgeable regarding the processes involved.¹⁰¹⁹



Daily job huddles are conducted, safety checks, and job specifications are followed. The job can be stopped by NJAW personnel for safety violations. Daily reports are filled out which include any inspections made and testing done. Picture taking each day is encouraged and pictures placed in the job folder. All manuals, safety, standards, shoring, etc. are available on line via the computer in the inspector's vehicle. Contractors are all pre-approved in AVETA, outside firm, for specific certifications and training such as rail road, hazmat and welding when required for a specific job. Material is checked for quantities, type and damage when delivered. As build drawings are coordinated and completed with the contractor. All requests for change orders are communicated to the PM for resolution. There are no formal quality control inspections.¹⁰²⁰

Exhibit XVIII-65
Capital Project Delivery Practice
Overview of Test, Commission, and Closeout Activities
July, 2019



Source: Information Response 197 (Confidential)

Findings & Conclusions

Finding XVIII-12 NJAW's Construction Management Process is systematically documented in its Capital Project Delivery Practice.

Project Managers use the processes summarized from *Exhibit XVIII-57* to *Exhibit XVIII-65* to guide projects from initiation to in-service completion.

Recommendations

None

J. Field Operations

Overview

The NJAW Vice President Operations is responsible for the Company's Field Operations:¹⁰²¹

- ◆ Water Plants and Wells
- ◆ Water Transmission, Distribution, Customer Service, and Sewer Collection, and
- ◆ Sewer Plants.

- ◆ Field Services

- ◆ Construction

NJAW Operational Activities are managed by a Director who reports directly to the Vice President Operations of each of four (4) geographic areas (Op Area) as shown in *Exhibit XIII-4*.¹⁰²²

Exhibit XVIII-66
NJAW Operating Areas
 as of July, 2019



Source: Interview 13 and Information Response 52

The Operation Area Directors are supported by other organizations who report directly or indirectly to the VP Operations:¹⁰²³

- ◆ Safety and Health;

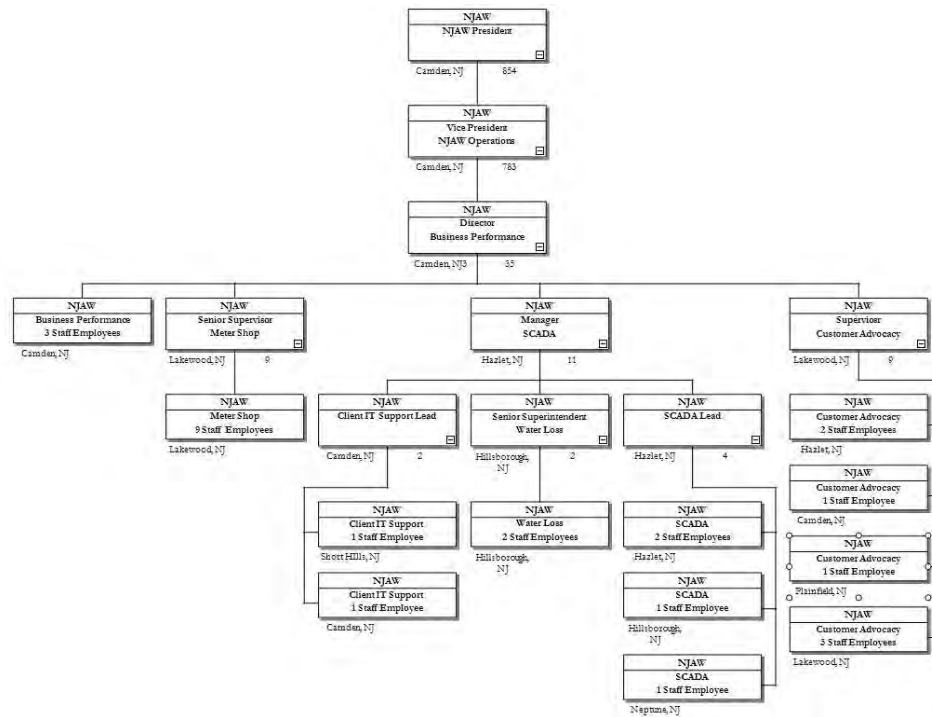


- ◆ Water Quality Management, and
- ◆ Water Loss Management.

All, of which, were reviewed earlier in this chapter.

Other support activities are provided by the Business Performance organization, whose Director also reports to the VP Operations, as shown in *Exhibit XVIII-67*. As can be seen in the exhibit, most members of the organization are located remotely closer to Operations Area activities.¹⁰²⁴

**Exhibit XVIII-67
Business Performance Organization
August, 2019**



Source: Interview 2 and Information Response 52 (Confidential)

The Meter Shop is responsible for testing and stocking meter activities and is reviewed in *Chapter XIII – Operations Review*. The Client IT Support group provides assistance to Operations employees in resolving issues related to computers and related hardware.

The Water Loss team activities are discussed in the previous *Water Loss Management* section of this chapter.

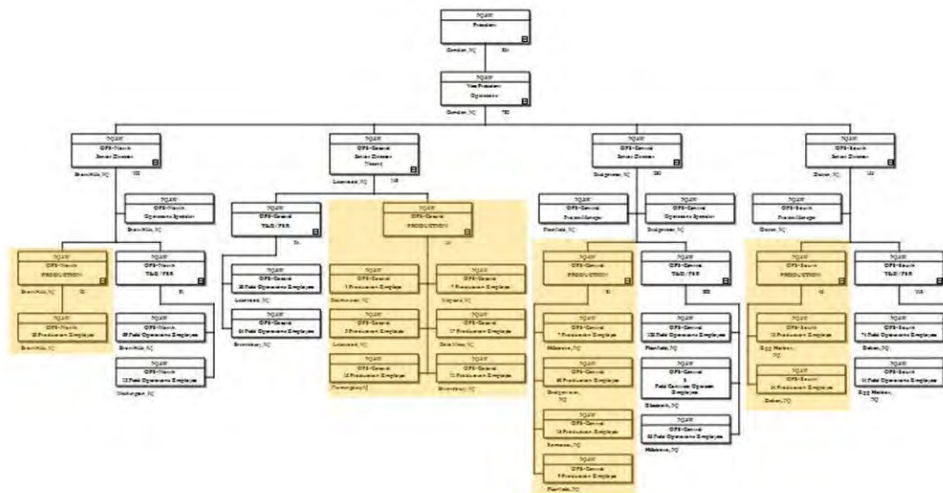
The SCADA team installs and supports the operation of equipment that automatically monitors in real time the operational flows of the water and sewer systems.

The Customer Advocacy group assists the Customer Call Centers and Operations Area Field Services organization in resolving Customer Complaints.

Background & Perspective

Water Plant and Well Operations

Exhibit XVIII-68
 NJAW Water Plant and Well Operations Organization²
 July, 2019

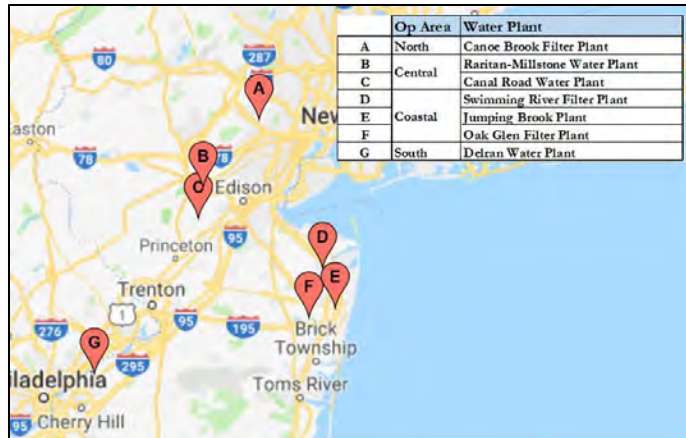


Source: Interview 2, Information Response 52, and Consultant Analysis

Production Organizations (highlighted in *Exhibit XVIII-68*) in each of the four (4) Op Areas are responsible for operation, inspection, and maintenance of 258 wells and seven (7) water plants, location of which are shown in *Exhibit XVIII-69* and aerial views of which are presented in *Exhibit XVIII-70*. The combined capacity of the seven water plants is 360 MGD (Million Gallons per Day) and capacity of the 258 wells is 155 MGD.¹⁰²⁵



**Exhibit XVIII-69
NJAW Water Plant Locations
July, 2019**



Source: Information Responses 52 and 453, <https://batchgeo.com/>, and Consultant Analysis

Exhibit XVIII-70
NJAW Water Treatment Plants
July, 2019

A – North
Canoe Brook
Filter Plant



B – Central
Raritan-Millstone
Water Plant



D – Central
Canal Road
Water Plant



E – Central
Swimming River
Filter Plant



E – Coastal
Jumping Brook
Plant



F – Coastal
Oak Glen
Filter Plant



G – South
Delran
Water Plant



Source: Information Responses 52 and 453, <https://www.google.com/maps/>, and Consultant Analysis

Production inspection and maintenance practices were evaluated in *Chapter XIII – Operations Review* and were found to be in compliance with documented procedures and were found to be -to-date. A sample Production inspection and corrective maintenance work order is shown in *Exhibit XVIII-71*.¹⁰²⁶



**Exhibit XVIII-71
Sample Production Work Orders
July, 2019**

Sample Production Inspection Work Order

Production Work Orders : 15994

WORK ORDER | EMPLOYEE ASSIGNMENTS | MATERIALS | ADDITIONAL | ACCOUNT | PREREQUISITES | EQUIPMENT | READING POINTS | NOTES (0) | DOCUMENTS (0)

LOG

Operating Center: NJS - Burlington / Camden
 Planning Plant: P203 - NJS - Burlington Camden Prod
 Facility: [203PACT-Operations-Prod-Burlington-Township-PL-NJS-203](#)
 Functional Location: NJS0-80-DRMTP
 Equipment Class:
 Equipment:
 Coordinate: 
 Priority: Routine
 Work Description: NJS0-80-DRMTP-SKILL-HELP 1M
 Production Skill Set: M
 Notes:
 SAP Work Order: [00000841371](#)
 SAP Notification Number: 17162576
 Prerequisites:
 Breakdown Indicator: No
 Basic Start: 2/1/2019
 Basic Finish: 2/1/2019

Status:

SAP Status: Confirmation of order 102815991 saved Successfully
 Date Received: 1/30/2019 12:00:00 AM
 Materials Planned On:
 Date Completed: 3/7/2019 9:46:09 AM
 Completed By: 
 Approved On:
 Approved By:
 Materials Approved On:
 Materials Approved By:
 Date Cancelled:
 Cancellation Reason:

Sample Production Corrective Work Order

Production Work Orders : 24396

WORK ORDER | EMPLOYEE ASSIGNMENTS | MATERIALS | ADDITIONAL | ACCOUNT | PREREQUISITES | EQUIPMENT | READING POINTS | NOTES (0) | DOCUMENTS (0)

LOG

Operating Center: NJS - Burlington / Camden
 Planning Plant: P203 - NJS - Burlington Camden Prod
 Facility: [203PACT-Operations-Prod-Burlington-Township-PL-NJS-203](#)
 Functional Location: Gravity Thickener
 Equipment Class: TAN-FUEL - FUEL TANK
 Equipment:
 Coordinate:  42.015, -74.9736
 Priority: High Priority
 Work Description: GENERAL REPAIR
 Production Skill Set: PE
 Plant Maintenance Activity Type:
 Override:
 WBS Element:
 Requested By: 
 Notes: Pump out, snow water in wall
 SAP Work Order:
 SAP Notification Number:
 Prerequisites: Job Safety Checklist
 Breakdown Indicator: No
 Basic Start:
 Basic Finish:
 Capitalized From:

Status:

SAP Status: Enter confirmation number or order/requirement/operation/suboperation
 Date Received: 4/15/2019 11:11:21 AM
 Materials Planned On:
 Date Completed: 4/15/2019 2:05:23 PM
 Completed By: 
 Approved On:
 Approved By:
 Materials Approved On:
 Materials Approved By:
 Date Cancelled:
 Cancellation Reason:

Source: Information Responses 550 and 551

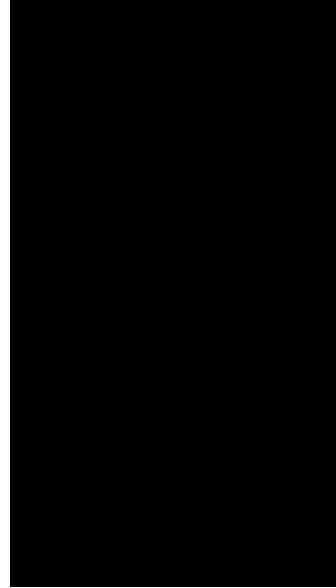
Consultant observations indicate that production facilities are well maintained and that housekeeping is above average as shown in *Exhibit XVIII-72*.¹⁰²⁷

Exhibit XVIII-72
Example Production Housekeeping
May - June, 2019

Delran Water Plant



Raritan-Millstone Water Plant



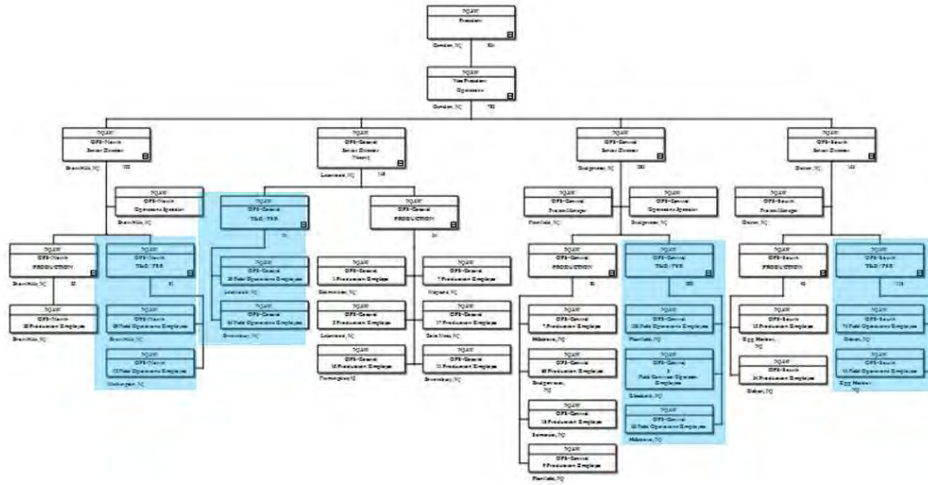
Source: Interviews 48 and 51 (Confidential)

Water Transmission, Distribution, Sewer Collection, and Field Service

The Transmission, Distribution, Sewer Collection, and Field Service (TDFS) Organizations are highlighted in *Exhibit XVIII-73* for each of the four Operations areas. The Transmission, Distribution, and Sewer Collections (TD) groups in each area have responsible for operation, inspection, and maintenance of a total of 9,600 miles of water and sewer pipe, 166 water storage tanks, 136 water booster pumping stations, and 60 sewer lift stations. The Field Service (FS) groups have responsibility for daily service and monthly meter reading activities for 647,000 customers (93% residential and 7% commercial and industrial) and 49,000 sewer customers. *Exhibit XVIII-74* shows the locations of the 11 TDFR operating centers and *Exhibit XVIII-75* provides an aerial view of each center.¹⁰²⁸

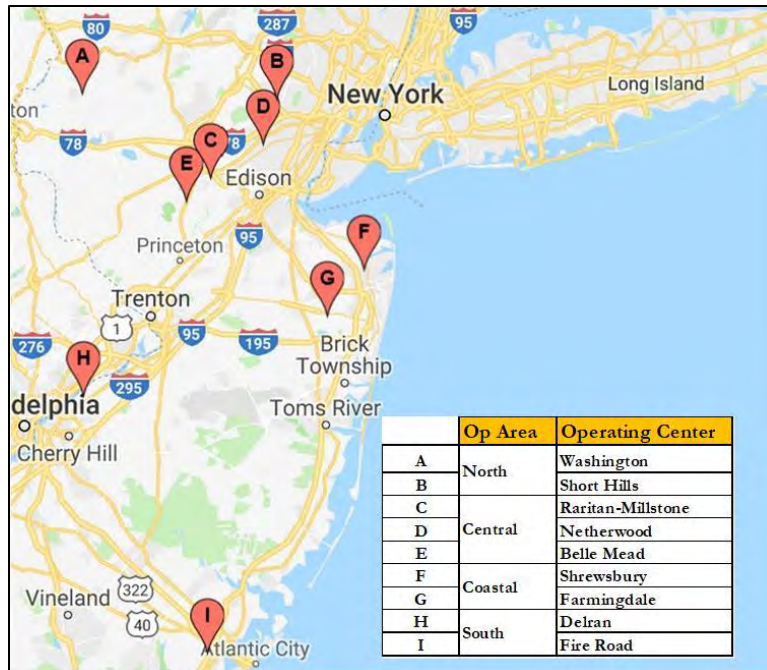


**Exhibit XVIII-73
NJAW Water Transmission, Distribution, Field Service, and Sewer Collection Organization
July, 2019**



Source: Interview 2, Information Response 52, and Consultant Analysis (Confidential)

**Exhibit XVIII-74
NJAW TDFR Operating Center Locations
July, 2019**



Source: Information Responses 52 and 453, <https://batchgeo.com/>, and Consultant Analysis

Exhibit XVIII-75
Aerial View of NJAW TDFR Operating Centers
July, 2019

A – North



B – North
Short Hills



C – Central
Rairtan-Millstone



D – Central
Netherwood



E - Central



F - Coastal



G – Coastal



H –South
Delran



I – South



Source: Information Responses 52 and 453, <https://www.google.com/maps/>, and Consultant Analysis

TD construction activities are discussed in the previous *Construction Management* section in this chapter. TD inspection and maintenance practices were evaluated in *Chapter XIII – Operations Review* and were found to be in compliance with documented procedures and were found to be to-date.



The Operation Area FS organizations are responsible for:¹⁰²⁹

- ◆ New meter installation, meter replacement, and meter repairs;
- ◆ Turn on/turn off for customer moves, plumbing repairs, seasonal customers, etc.;
- ◆ Turn off/turn on for non-payment;
- ◆ Miscellaneous inquiries; and
- ◆ Meter Reading.

The customer's perception is a good indicator of performance of non-meter reading FS activities.

Exhibit XVIII-76 shows customer perceptions for FS organizations:¹⁰³⁰

- ◆ *% Appt Met* – Percent of customers surveyed that agreed that NJAW FR employees arrive by a pre-scheduled appointment time; and
- ◆ *FSR Satisfaction* – Percent of customers that rated their interface experience with FS employees as “Extremely” or “Very” Satisfied.

NJAW has established an internal target of 90% for both indicators it can use as a reference point for improvement to analyze why results are above or below the target.¹⁰³¹ NJAW has achieved its % Appt Met target three out of the last five years but has never achieved its FSR Satisfaction during the same period.¹⁰³²

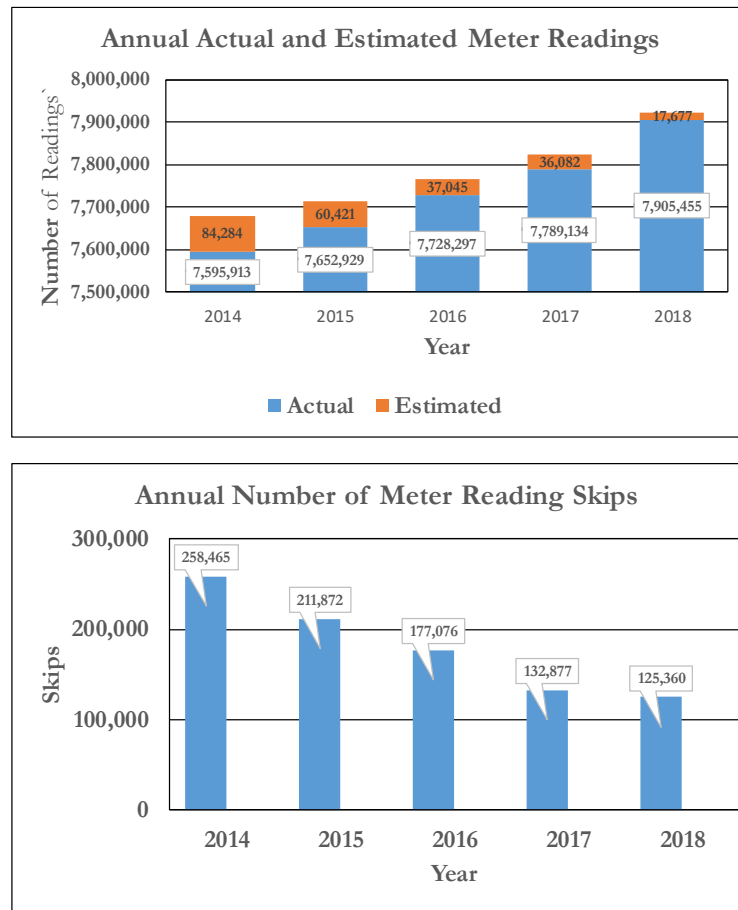
Exhibit XVIII-76
Customer Survey Results
2014 to 2018



Source: Information Response 60 (Confidential)

NJAW uses a drive-by meter reading system that utilizes radio transmitters and FATHOM¹⁰³³ meter reading technology to read meters remotely from a vehicle. The company's goal is to have 100% of its meters connected to the system. Presently approximately 99% of meters are connected to the system. The lack of 100% saturation is caused by customer rejection and/or scheduling issues with installing necessary equipment.¹⁰³⁴

**Exhibit XVIII-77
Meter Reading Statistics
2014 to 2018**



Source: Information Response 250

There is a 3 day window to get meter reading data loaded into SAP for Customer Billing. Error reports from FATHOM provides indications of “Flow Errors” which are generally caused by changes of customer usage patterns. SKIP reports from FATHOM provides indication of “No Read” generally caused by equipment issues. Abnormalities and non reads are field investigated and resolved.¹⁰³⁵

From *Exhibit XVIII-77*, NJAW has increased its number of annual actual meter readings by 4.1% (7,595,913 to 7,905,455) from 2014 to 2018 and decreased its number of annual estimated readings by 79.0% (84,284 to 17,677) during the same period. During the same period, NJAW has reduced its number of “SKIP” errors from its drive-by meter reading process by 51.5% (258,465 to 125,360). As expected, there is a strong correlation between the level of reduction in “SKIPS” and the level of reduction of estimated readings.¹⁰³⁶









A ride-along with a Field Service Representative (FSR) was conducted on May 6, 2019. Six jobsites were visited during the 2.5 hour ride along:¹⁰³⁷

- ◆ Job #1 was to be a new meter install but the customer's plumber had not prepared plumbing for a meter. Instructions and hook-up equipment were left with the customer's general contractor;
- ◆ Job #2 was to obtain a read out for previous tenant and read in for new tenant;
- ◆ Job #3 was water shutoff to a repossessed house;
- ◆ Job #4 was a read out / read in for a house being flipped;
- ◆ Job #5 was to obtain correct RF transmitter IDs for 2 – 2 inch water meters that had been replaced at a Country Club; and
- ◆ Job #6 was to get meter reading from a customer's fire sprinkler system meter because customer believes excessive usage.

Pictures from the ride-along are shown in *Exhibit XVIII-78*.¹⁰³⁸

**Exhibit XVIII-78
Pictures from FSR Ride-along
May 6, 2019**

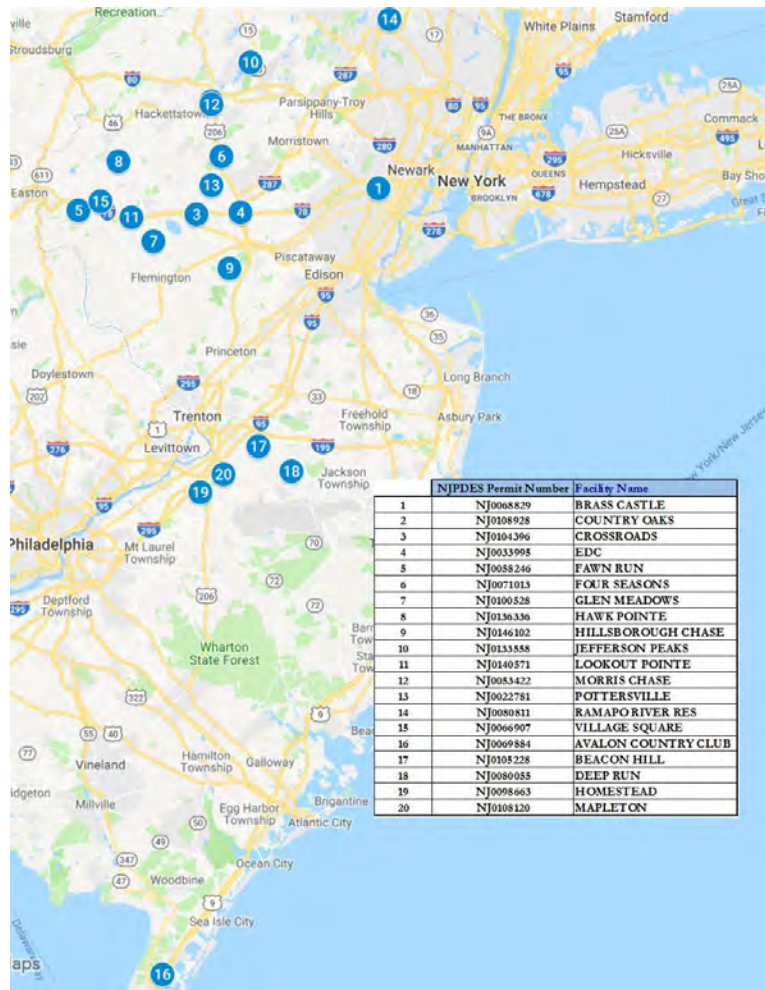
WORKI Route to First Job	NJAW Door Hanger	Typical Shut off
		
Commercial Meter Installation	WORKI Customer Usage Profile	WORKI Enter Meter and RF Readings
		
	NJAW Door Hanger	Typical Shut off

Source: Interview 52 (Confidential)

Sewer Treatment Plants

The Vice President Operations is responsible for the operation and maintenance of NJAW's 20 Waste Water (Sewer) Treatment Plants, for which the location of each is shown in *Exhibit XVIII-79*.¹⁰³⁹

**Exhibit XVIII-79
NJAW Waste Water Treatment Plant Locations
August, 2019**



Source: Interview 60, Information Response 497, Google Maps, and <https://www13.state.nj.us/DataMiner/Search/SearchByCategory>

NJAW contracts with Applied Water Management, a subsidiary of Natural Systems Utilities (NSU) to operate and maintain the 20 plants. The current contract with NSU expires on 10/31/2021.

Exhibit XVIII-80 and *Exhibit XVIII-81* give the list of operation and maintenance service provided by NSU.¹⁰⁴⁰

Exhibit XVIII-80
Basic Services Provided by NSU to NJAW
August, 2019

Basic services

Provide operations coverage of the Facilities, performed by a New Jersey Department of Environmental Protection ("NJDEP") licensed operator at the appropriate grade or classification of the Facility

Perform Facility Maintenance

Complete and submit monthly Discharge Monitoring Reports ("DMR"), as required by each Facility NJPDES Permit.

Complete and submit routine (standard-form) NJDEP

Respond to any non-routine correspondence received from NJDEP.

Manage facility cross connection programs related to the operations of the Facility.

Collect samples and perform regulatory sample testing for which the Operator is certified to perform. All such samples must be taken and tested in accordance with Applicable Law.

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.

Order/oversee the delivery of chemicals required for each Facility. Provide usage and delivery data to.

Attend a maximum of two inspections per year, per Facility, by officials from NJDEP or other agencies with regulatory authority over the Facilities.

Emergency Call-Outs to Facility alarms outside of Normal Business Hours.

Respond to Service Orders generated as a result of customer calls and enquiries, and conveyed to Operator by NJAWC.

Exercise each Facility generator at least once per month, and in accordance with Applicable Law.

Coordinate facility access and oversee the activities of third-party generator maintenance technicians.

Order, schedule and coordinate the pumping and hauling of sludge, greywater, or other wastewater residuals by third-party service providers at the Facilities.

Provide access and coordinate with any third-party service providers authorized by NJAWC to provide services at any of the Facilities.

Provision of facility consumables including light bulbs, paper products charts, ultraviolet bulbs, small service parts, pump tubes and repair kits; filters, batteries, membrane hoses and fittings.

Immediate notification, or notification as soon as is practically possible, to NJAWC of an event which violates, or could potentially violate, the Facility NJPDES Permit or Applicable Law.

Notify the NJDEP Hotline for any issues that require to be reported in accordance with Applicable Law.

Source: Information Response 608



Exhibit XVIII-81
Additional Services Provided by NSU to NJAW
August, 2019

Additional services

Labor associated with the oversight of trash trap cleaning operations at the Mapleton Facility and the Jefferson Peaks facility.

Facility Repairs.

Meter Calibrations

Landscaping and snow removal.

Customer shut-offs for non-payment.

Labor associated with the oversight of the emptying, cleaning, transportation and disposal of wastewater from individual connection septic tanks located within the Brass Castle, Fawn Run, Hillsborough Chase, Lookout Pointe and Village Square systems, and any landscaping required to complete this work.

Labor associated with the oversight of subcontractors conducting collection system repairs or maintenance

Source: Information Response 608

A Senior Manager Production, based at the EDC sewerage treatment plant, and reports directly to the Senior Director North Operations, manages the contracts with and interfaces daily with NSU. The Sr. Production Manager and a NSU Representative hosted the consultants on a tour of the Mapleton Sewer Treatment Plant (number 20 in *Exhibit XVIII-79*) on July 22, 2019.¹⁰⁴¹

The Senior Manager Production indicated that Mapleton operation is typical of the 20 plants:¹⁰⁴²

- ◆ Mapleton is a fully automatic three stage Activated Sludge Membrane Filtration wastewater treatment facility serving 926 customers;
- ◆ The facility has an operator on-site five days a week for a minimum of 20 hours. At least four hours of the minimum 20 have to be by an operator that has an S-2 license. A C-2 license is for collection system only; and
- ◆ Daily samples are taken and analyzed by a third party laboratory which provides daily reports. Sludge samples are taken and analyzed each month. Monthly and Yearly reports go to the DEP. DEP inspects annually.¹⁰⁴³

Exhibit XVIII-82 provides pictures from the Mapleton Sewer Plant Tour.¹⁰⁴⁴

Exhibit XVIII-82
Pictures from Mapleton Sewer Plant Tour
July 22, 2019

Mapleton Screening Separator



Mapleton Activated Sludge & Membrane Filtration



Mapleton Purification



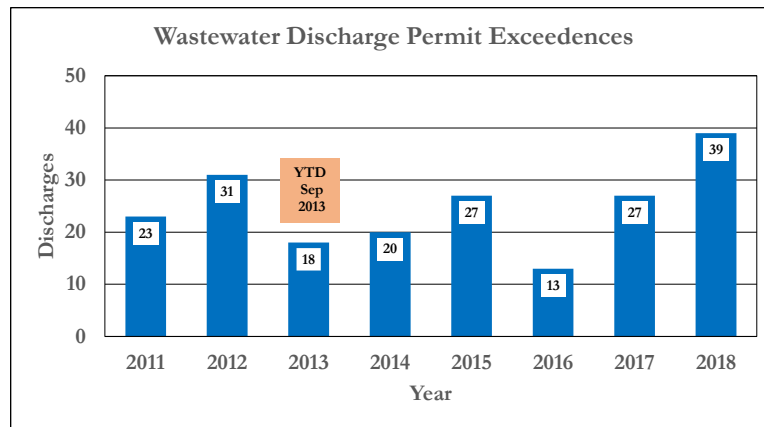
Mapleton Release Pond



Source: Interview 60 (Confidential)

Sewer plant operators have to report occurrences when a sewer plant effluent exceeds its permit specification. *Exhibit XVIII-83* gives the annual number of exceedances for NJAW 20 sewer plants from 2011 – 2018. The lowest number (13) occurred in 2016 and the highest number (39) occurred in 2018. The annual average for the 2011 – 2017 period (excluding 2013) was 24.¹⁰⁴⁵

**Exhibit XVIII-83
NJAW Sewer Plant Discharge Permit Exceedances
2011 to 2018**



Source: Information Response 60

Findings & Conclusions

Finding XVIII-13 NJAW Field Operations is appropriately organized and staffed.

Organization charts throughout this chapter indicate the workforce is organized and located to facilitate centralized and de-centralized management.

Finding XVIII-14 All locations toured indicated facilities were well maintained and housekeeping was above average.

Examples of the housekeeping is given in *Exhibit XVIII-72* and *Exhibit XVIII-82*.

Finding XVIII-15 NJAW has not consistently achieved its internal target for % Appt Met or overall FSR Satisfaction.

Exhibit XVIII-76 indicates the inconsistent achievement of internal targets.

Finding XVIII-16 NJAW has reduced the number of estimated meter readings.

The number of estimated meter reading has been reduced by 79% from 2014-2018, as shown in *Exhibit XVIII-77*.

Finding XVIII-17 NJAW's 2018 Sewer Plant Discharge Permit Exceedances was above average.

The 39 exceedances was 52.5% higher than the 2011-2017 (excluding 2013) average of 24 as presented in *Exhibit XVIII-83*.

Recommendations

Recommendation XVIII-5 Implement a plan, based on root cause analysis, to improve customer perception. (Refer to Finding XVIII-15.)

Exhibit XVIII-76 indicates that the company survey results of customer perception has never achieved internal targets.

Recommendation XVIII-6 Implement a plan, based on investigations, to stabilize the level of Discharge Permit Exceedances. (Refer to Finding XVIII-17.)

Exhibit XVIII-83 indicates a spike of Discharge Permit Exceedances occurred in 2018 compared to the 2011-2017 (excluding 2013) average.



XIX. Customer Service

New Jersey American Water Company (NJAW) provides an essential service to its customers – and must provide this service in a prompt, accurate, and responsive manner. Planning, organization, procedures, and philosophy are all essential components in delivering appropriate and effective customer service. In performing a review in the *Customer Service* area, we also sought answers to the following questions:

- ◆ Are the customer service center(s) appropriately configured and adequately staffed for the level of telephone inquiries and customer visits?
- ◆ Do customers who contact NJAW with a question, complaint, or request receive a prompt, courteous, consistent, timely, and accurate response?
- ◆ Are formalized credit and collection procedures in place?
- ◆ Are special programs for payment-troubled customers available and managed effectively?
- ◆ Is information from customer complaints collected and used to identify the underlying root causes of customer questions and problems?
- ◆ Are customer service standards utilizing both quantitative and qualitative measures established?
- ◆ Is there a visible and formal appeal process through a review officer within NJAW for responding to customers who remain dissatisfied after a front line contact?

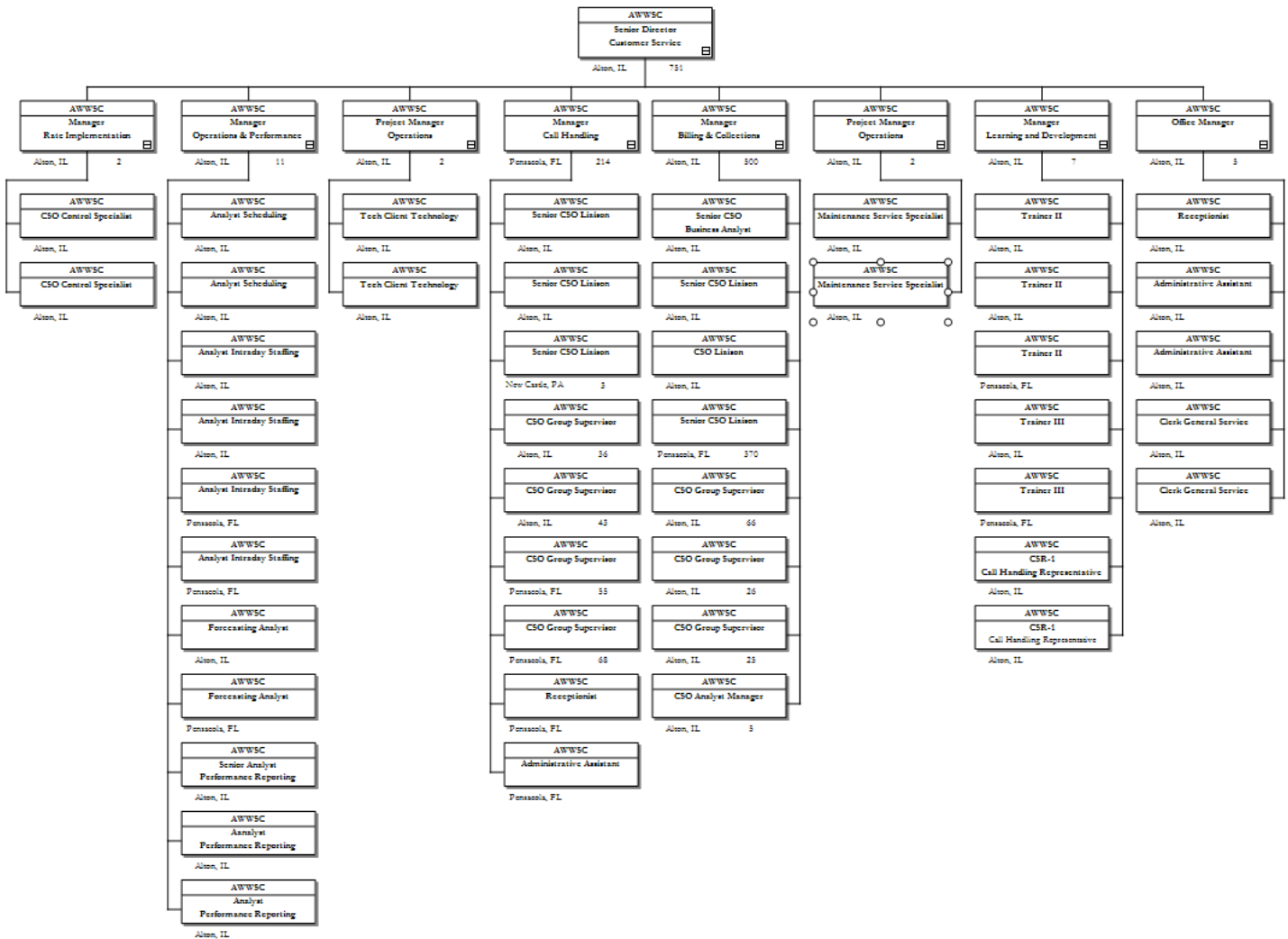
A. Background & Perspective

Organization

The American Water Works Service Company (AWWSC or Service Company) Customer Service organization (CSO) is displayed in *Exhibit XIX-1*.¹⁰⁴⁶



**Exhibit XIX-1
Customer Service Organization
August 2019**



Source: Interview 80

The current Director of Customer Service has been in Alton, Illinois for roughly five years, but Pensacola, Florida previously. This is okay for him to be in Alton, Illinois, as given the total number of Customer Service employees, most are in Alton, Illinois, which includes other types than just Call Handlers, as shown in the organization chart above.¹⁰⁴⁷

Call Handling

The Manager, Call Handling, who is located in Pensacola, Florida, has been with American Water for roughly 14 years, plus four years with another call center, and previously with the Navy.¹⁰⁴⁸ In his group, three Senior CSO Liaisons and four CSO Group Supervisors of Call Handlers report to him. Two CSO Group Supervisors are in Pensacola, Florida and two are in Alton, Illinois. There is typically four to six Supervisors reporting to Group Supervisors and six to 10 Call Handlers reporting to Supervisors.¹⁰⁴⁹ In total, however, there's approximately 202 Call Handlers, including 79 in Alton, Illinois and 123 in Pensacola, Florida.¹⁰⁵⁰

Call Handlers

Call Handlers take eight to 12 weeks of training when new, then followed by nesting with another call handler to help them and the time varies, and then followed by going to the regular call center floor. According to the Manager, Call Handling, there is no turnover statistics, only if people showing and stopping.¹⁰⁵¹ All Call Handlers must be considered proficient for all types of calls.¹⁰⁵²

American Water is talking to vendors about having more information being available on the Interactive Voice Response (IVR), which customers call, as NJAW is always looking for ways to enhance the IVR system. There are five call types coming on the IVR, including, which was implemented in 2018:¹⁰⁵³

- ◆ Emergency (priority)
- ◆ Payments
- ◆ Billing
- ◆ Service
- ◆ Other

Customers are entered into the IVR when calling in and can make selections or can talk with a call handler/CSR. If Call Handlers are not available, customers can go into a queue for talking future with Call Handlers. The telephone number 800-272-1325 is only for NJAW, but typically calls American Water call centers in Pensacola, Florida and possibly Alton, Illinois, if Pensacola, Florida is too busy to answer.¹⁰⁵⁴ Even with multiple 800#s, the calls typically go to the same place.¹⁰⁵⁵ The CSC is only available for emergency calls on the weekends, so weekend demand for other types usually leads to the highest call volume being on Mondays.¹⁰⁵⁶

The website has the ability to provide:¹⁰⁵⁷

- ◆ Start service
- ◆ Pay billings
- ◆ Information about balances

Web self-service has allowed customers to conduct business with American Water without having to contact CSC Call Handlers. There general trends of calls is that the number of calls is down due to use of IVRs (~40%) and website. Mostly calls are service related, which, for example, was ~33% last week before our interview, including emergencies. There is a suggested script for Call Handlers to use.¹⁰⁵⁸



Starting in 2017, there have been move-ins and move-outs of Call Handlers during the summer time. Both Monday and Friday are also busy days during the year. From 6 a.m. to 10 p.m. on Monday to Friday is considered “regular” work and 10 p.m. to 6 a.m. “overnight” work. There is a call-in list of volunteers for emergencies.¹⁰⁵⁹

In New Jersey for NJAW customers, 7 a.m. to 7 p.m. on Monday to Friday is considered regular business hours for usage involving regular calls, plus customers can call 24 hours/7 days a week for emergencies, including Saturday and Sunday, for emergency calls,¹⁰⁶⁰ however, as follows:¹⁰⁶¹

Some of the Call Handlers work at home. This capability was started in August 2018, but only if employees work first in the office before going home for working.¹⁰⁶² Call Handlers who work at home may also have to come into the office occasionally for training.¹⁰⁶³

For those working from home, American Water provides computer and telephone equipment, in which in information responses, the “inventory” wording refers to desktops and regular telephones. all Handlers are required to come into the CSC either for special events or training days, but American Water is also trying to conduct some of these activities from home as well.¹⁰⁶⁴ Also, all Overnight Supervisors and staff work at home. They are also starting to answer other questions, if asked.¹⁰⁶⁵

The CSO Group Supervisors managing Call Handlers can handle any state.¹⁰⁶⁶ There are two overflow locations, which are in Kentucky and Tennessee, and are third-party call centers, not American Water employees.¹⁰⁶⁷

The target for average speed of answer (ASA) of customers is 60 seconds; however, it’s not the customer service level percentage, as it’s a metric which is met some, but not all months.¹⁰⁶⁸ It’s different what Call Handlers can see if they’re assisting a customer from what a customer can go see on the customer portal for website service.¹⁰⁶⁹

Regarding meter sets, customers call CSO not the group that does meter changes itself, as the CSC schedules the meter changes, creates a service order, and the field works the service order. CSC management indicates that it would be ineffective for the local field office to handle the customer calls directly.¹⁰⁷⁰

State Liaisons

State Liaisons are the dedicated point of contact to talk to within this Customer Service group.¹⁰⁷¹

One of the Senior Divisional Liaisons/CSO Business Services in the Call Handling group is located in New Castle, PA and is responsible for NJ, PA, VA, and MD states. She is responsible for going to states for:¹⁰⁷²

- ◆ Extended service
- ◆ Quality of service
- ◆ Billing
- ◆ Communications to customers

She has been in this position for approximately 13 years, plus has had prior experience with Customer Service activities in the past. About 29 years ago, she was involved with Pennsylvania American Water Company (PAWC). There are three liaisons reporting to her and other CSO Group Supervisors in this group have Call Handlers, who are all trained. Also, the New Jersey specific water cooler goes out as a training document for Customer Field Representatives (CFRs). She has also worked with education and development activities. She sends emails to supervisors, then reviews them with employees.¹⁰⁷³

Her employees support states, including any areas from within NJ/PA/VA/MD, who may contact them to this Senior Division Liaison or an employee in Pensacola, Florida, but her other two employees (one in Pensacola, Florida and one in Alton, Illinois) support other states.¹⁰⁷⁴ There's a lot of interactions with states. It's not just with employees, as sometimes customers call this group, if they've previously used, but often NJAW has group call customers¹⁰⁷⁵

The Customer Advocacy group in New Jersey handles NJ disputes, but this group can help them. Her group gets with the Customer Advocacy group monthly and reviews disputes.¹⁰⁷⁶

Operations & Performance Management

The Operations and Performance Manager has been at American Water for approximately 20 years. She is responsible for scheduling and reporting. The number of employees reporting to this person includes 11 employees, including:¹⁰⁷⁷

- ◆ Two Analyst Scheduling employees (Alton, Illinois)
- ◆ Four Analyst Intraday Staffing employees (2 Alton, Illinois and 2 Pensacola, Florida)
- ◆ Two Analyst Forecasting employees (1 Alton, Illinois and 1 Pensacola, Florida)
- ◆ Three Analyst Performance Reporting employees (Alton, Illinois)

The groups' activities include call forecasting and workforce scheduling of Call Handlers by day, including knowing vacation and overtime. American Water's website portals are now more robust for customer usage.¹⁰⁷⁸

Scheduling

This group uses the Calabrio system for scheduling and paid time off (PTO) for Call Handlers, who must work five days per week in which each day is for eight hours, but different schedule times exist for each call handler. Typically start times are every 15 minutes, which can begin 6 a.m. Every call handler must work on Monday due to American Water's high volume. The schedulers can change at least twice annually, as shift bids are received from the union twice annually, but they typically put out schedules to Call Handlers two weeks in advance. The forecasting for scheduling is done by reviewing the same day or week in past. There are calls earlier in the winter time, so early shifts occur in the winter and later afternoon shifts in the spring.¹⁰⁷⁹ Also, Call Handlers typically have had different shifts in the April and October months of a year due to higher volume.¹⁰⁸⁰ As previously discussed, for the past five years, emergencies are considered Saturday and Sunday calls, plus evening calls.¹⁰⁸¹



Call times stay steady as unproductive team time dropped, because there are more and more people at home.¹⁰⁸² Only one person in Pensacola, Florida works part-time.¹⁰⁸³

Given the eight hours of work for Call Handlers, Alton, Illinois provides a half-hour lunch and Pensacola, Florida provides a one hour lunch. Both locations have the same union, but different contracts.¹⁰⁸⁴

Reporting

The group can look at real-time live detail of Call Handlers on the computer. The group also provides reporting, which reporting comes from the Cisco telephones, not Calabrio system. This group can look at what people are doing and they're eight different reports they typically provide.¹⁰⁸⁵

A listing and samples of the primary reports provided by the Operations and Performance group include:¹⁰⁸⁶

- ◆ Call Handling Performance
- ◆ Billing Accuracy
- ◆ Account Counts
- ◆ Installment Plan Counts and \$
- ◆ Locks

Examples of these reports are displayed in *Exhibit XIX-2*.¹⁰⁸⁷

Exhibit XIX-2 Sample Operations & Performance Group Reports

Call Handling Performance												
1	Call Type	Calls Offered	Calls Handled	Longest Call	Aband Calls	Aband %	% Service Level	ASA Time	Avg Rank Time	Avg Hold Time	Avg ACW Time	AHT
2	CSC_NJ_MAKEPAYMENT_Q_CT	2,642	2,227	0:45:23	412	15.59%	45.26%	04:07	6:41	0:28	1:01	8:10
3	CSC_NJ_BILLING_Q_CT	9,967	8,853	0:45:31	1,124	11.28%	27.63%	05:28	6:35	0:46	1:08	8:29
4	CSC_NJ_EMERGENCY_Q_CT	5,272	5,093	1:04:33	174	3.30%	92.13%	00:47	5:16	0:37	1:08	7:01
5	CSC_NJ_SERVICE_Q_CT	17,162	15,468	0:53:32	1,751	10.20%	25.23%	05:41	6:13	0:40	0:58	7:51
6	CSC_NJ_OTHER_Q_CT	16,309	13,321	0:45:31	2,998	18.38%	26.82%	05:25	6:18	0:43	1:01	8:02
7	Total	51,352	44,962	1:04:33	6,459	12.58%	34.74%	04:55	6:14	0:41	1:02	7:57

Billing Accuracy							
1	Month	State	State Code	Bill Statements	Corrections	Manual Bills	Accuracy Rate
1	1/1/19	NJ	1018	649,733	617	1,885	99.61%
6	2/1/19	NJ	1018	645,727	675	614	99.80%
1	3/1/19	NJ	1018	660,489	19,010	1,196	96.94%
6	4/1/19	NJ	1018	656,479	643	907	99.76%
1	5/1/19	NJ	1018	664,290	678	1,012	99.75%
6	6/1/19	NJ	1018	652,496	588	750	99.79%
11	7/1/19	NJ	1018	659,870	677	516	99.82%
6	8/1/19	NJ	1018	673,449	748	1,190	99.71%

Account Counts				
1	Date	State	Account Count	Ran On (only populated from May 2015 forward)
1	Aug-19	1018	703409	9/3/2019
4	Jul-19	1018	702875	8/1/2019
9	Jun-19	1018	700427	7/1/2019
4	May-19	1018	699773	6/3/2019
9	Apr-19	1018	698512	5/1/2019
4	Mar-19	1018	697127	4/1/2019
9	Feb-19	1018	696811	3/1/2019
4	Jan-19	1018	696547	2/1/2019
9	Dec-18	1018	692338	1/2/2019
4	Nov-18	1018	692319	12/3/2018
9	Oct-18	1018	692906	11/1/2018
4	Sep-18	1018	693169	10/1/2018
9	Aug-18	1018	693255	9/4/2018
4	Jul-18	1018	692577	8/1/2018
9	Jun-18	1018	691706	7/2/2018
4	May-18	1018	690988	6/4/2018
9	Apr-18	1018	689584	5/1/2018
4	Mar-18	1018	688239	4/2/2018
9	Feb-18	1018	687924	3/1/2018
4	Jan-18	1018	687565	2/1/2018

Installation Plan Counts														
1	Year	State	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
70	2016	1018 - NJ	3421	2547	2705	2803	2362	2555	2252	2177	2633	3076	3082	3899
85	2017	1018 - NJ	3249	3000	2883	2938	2427	2512	2984	3087	3279	3053	3252	3108
100	2018	1018 - NJ	3322	3283	2796	2481	2369	2238	2172	2260	2581	2841	2793	2365
115	2019	1018 - NJ	2679	2485	2250	2088	2119	2054	2004	2150				

Installation Plan \$														
1	Year	State	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
0	2016	1018 - NJ	\$ 922,859.39	\$ 662,227.04	\$ 865,987.61	\$ 851,602.76	\$ 714,521.85	\$ 786,199.00	\$ 626,083.68	\$ 673,246.83	\$ 789,892.60	\$ 929,150.61	\$ 952,051.08	\$ 904,714.16
5	2017	1018 - NJ	\$ 855,005.46	\$ 792,852.68	\$ 744,697.33	\$ 769,809.17	\$ 654,616.45	\$ 648,818.04	\$ 795,473.43	\$ 792,486.09	\$ 799,967.84	\$ 725,828.49	\$ 988,764.10	\$ 912,057.71
10	2018	1018 - NJ	\$ 954,156.17	\$ 971,019.08	\$ 701,972.56	\$ 633,802.78	\$ 654,015.43	\$ 608,829.47	\$ 582,184.34	\$ 623,522.11	\$ 747,187.43	\$ 635,143.13	\$ 722,344.35	\$ 636,717.89
15	2019	1018 - NJ	\$ 730,283.95	\$ 677,294.85	\$ 599,178.65	\$ 566,363.93	\$ 637,762.59	\$ 631,893.04	\$ 496,387.48	\$ 539,871.03				

Locks													
Year	State	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
2016	1018 - NJ	8,784	4,239	5,008	3,786	7,076	8,493	8,222	12,100	3,661	10,171	4,686	3,330
2017	1018 - NJ	3,662	3,780	3,554	2,643	2,478	2,802	4,102	24,038	14,853	14,631	15,160	13,538
2018	1018 - NJ	15,562	9,163	4,671	4,102	2,068	3,022	3,409	3,359	3,835	3,099	3,618	15,952
2019	1018 - NJ	16,392	4,178	#####	3,660	4,683	3,137	3,036	6,809				

Source: Information Response 664 Attachment



Billing & Collections

The Manager, Billing & Collections has the following employee positions report to her:¹⁰⁸⁸

- ◆ Three Group Supervisors in which one manages the internal Collections Department, and is involved with collection agencies, and two in billings, in which the two involved with billings do:
 - One does core billing with Supervisors and team
 - One does account resolution with a team and takes it to next step for customers.
 - One does collections with supervisor and team.
- ◆ Two Project Managers/who are involved in technology projects
- ◆ Customer Service Senior Liaison manages the Contracted Collection Agencies.
- ◆ One Analyst Manager involved with Sarbanes-Oxley Act (SOx) controls
- ◆ Two Business Analysts involved with technology tickets

This group's responsibility is:¹⁰⁸⁹

- ◆ Collections (Billings), including reversing payments or refunds, or if bankruptcy, then doing manual work, or if deceased, closing accounts
- ◆ Collections, in which it's administration of outsource organizations performing collections, including:
 - Two first parties involving active accounts
 - One third party involving closed accounts

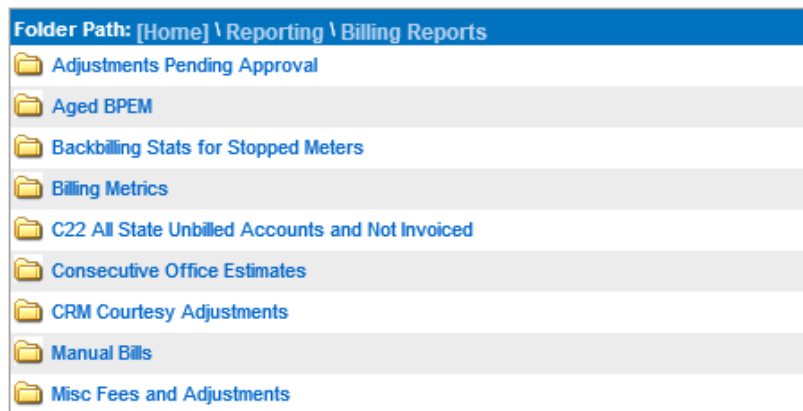
There are special accounts for organizations like municipalities.¹⁰⁹⁰

There are numerous reports available in the Instant Data Access (IDA) system related to the Billing & Collections function, which provides New Jersey and the Customer Service Center a central location for information. Several of the reports are automatically generated by the system and other reports are manually run from time to time to meet the needs of the business. The reports are grouped into the categories displayed in *Exhibit XIX-3*.¹⁰⁹¹

Exhibit XIX-3
Categories for Reports Groups



H2Online IDA: Online Library



Source: Information Response 650

Two of the most utilized reports for NJAW are the Collections Summary Report and the Billing Metrics Report.¹⁰⁹² For example, the Billing Metrics Report shows:¹⁰⁹³

- ◆ RBL (Read For Billing) Service Orders
- ◆ Count of Billing Exceptions
- ◆ Stopped Metered Completed Cases
- ◆ Leak Tool Adjustments
- ◆ Courtesy Adjustment
- ◆ Out of Balance Invoices
- ◆ Customer Billing Inquires
- ◆ Account Resolution Follow Up
- ◆ Bill Corrections & Unbilled Accounts



Billing errors by type are shown below in *Exhibit XIX-4*,¹⁰⁹⁴ which are actually potential billing errors. This group attempts to make sure bills are accurate. The 638,655 five-year total shown in the information response involves amounts before customers get invoices. For example, the 117,386 regarding the Billing Document Outsort error type (first line item in response) reflects situations where the billing \$ is below or above a maximum. When below, customers typically call in when usually having a leak. The Manager, Rate Implementation wasn't sure, however, how many of these inaccurate bills actually happen. The Outsort was changed previously to \$1,000 for the last four months, but there was a different but same time last year and last month.¹⁰⁹⁵ The group has three days to look at bills each month, but different based on meter reading.¹⁰⁹⁶

**Exhibit XIX-4
Billing Errors by Type
2014 to 2018**

Error Type Counts	2014	2015	2016	2017	2018	Total (5 Yrs)
BI - Billing Document Outsort	27,371	36,641	25,378	18,670	9,326	117,386
BI - Enter/Modify Move-In Reading(s)	2,093	1,382	1,664	1,618	2,306	9,063
BI - Field Followup		2,631	1,104	598	1,363	5,696
BI - Invalid / Missing Operand Values	272	89	208	187	98	854
BI - Legacy bill adjustment workflow rejection	4	3	8	7	7	29
BI - Missing Meter Read Results	13	1	5	5	5	29
BI - MR results are incorrect for device/register	704	355	586	503	267	2,415
BI - No contract allocated to installation	504	497	751	847	757	3,356
BI - No MR results marking end of billing period	4,974	11,644	28,502		22	45,142
BI - No MR results marking start of billing period	1					1
BI - No Rate was found for the period &1 to &2	22	1	2	14	1	40
BI - Operand WQT-ICGL error	360	66	56	58	33	573
BI - Operand division by Zero - incorrect reading	6			36	2	44
BI - Previous contract must be billed first	38		1	2	33	74
BI - Rental price not checked	29	23	25	26	61	164
BI - Reverse the final invoice & include final MR	1	16	1			18
BI - Utility 99 Error	1,560	2,169	1,983	1,924	2,097	9,733
BI-Billing Review			3,805	4,412	3,484	11,701
Billing Leak adjustment			20	123	277	420
Billing Leak adjustment : Threshold exceeded			5	45	121	171
BI-More than 3 bill docs found for over estimation	752	1,221	1,016	391	259	3,639
BORD - BI - Late Billed Account					1,931	1,931
BOU - BI - Late Billed Account					1,449	1,449
CS - Add to Collective Bill Request		11	8	4	11	34
CS - Billing Follow-up	17,255	16,066	11,332	7,881	7,563	60,097
CS - Bulk/Hydrant Billing	18	301	157	42	16	534
CS - Cancel/Re-bill	100	88	202	110	12	512
CS - Escalation Billing Follow Up				92	153	245
CS - New Collective Bill Request		51	26	29	36	142
CS - Ocean City Sewer Refund	1	1				2
CS - Remove from Collective Bill Request		2	2	4	2	10
CS - Update tax exemption certificate				4	4	8
CS-Special Accounts			62	68	163	293
IMPR - BI - Late Billed Account					4,549	4,549
IN - Incomplete correspondence address	25					25
IN - Invoice is out of balance.	3,503	733	314	345	645	5,540
IN - invoice outsorted	11,625	828	986	929	337	14,705
INVT - BI - Late Billed Account					6,298	6,298
IOU - BI - Late Billed Account					51	51
MR- Implausible Meter Reads			29,367	1,604	1,349	32,320
MR-Meter Read Above Maximum tolerance Limit	70,048	67,748	32,149	5,655	3,305	178,905
MR-Meter Read Below Minimum tolerance Limit	6,705	7,734	6,204	68	15	20,726
MR-Must Read Account Estimation	580	64	53	93	18	808
MRR - BI - Late Billed Account					441	441
MRU - BI - Late Billed Account					167	167
MTRO - BI - Late Billed Account					803	803
PRDT - BI - Late Billed Account					81	81
Reading device read differs from Register read					58	58
SO - Stopped Meter Confirmed		3,214	4,501	3,605	3,478	14,798
SO-Large Meter Test SO Completed	29	29	10	15	4	87
SO-Meter Edit service order completed	1,974	11,700	11,321	13,813	11,709	50,517
SO-Must Read MetersBillingUseOnly SO completed		2	57	17	32	108
SO-Read Consecutive Estimate SO completed	8,068	11,515	4,792	3,651	2,790	30,816
SO-Read Meter SO completed	236	138	193	239	241	1,047
Grand Total	158,871	176,964	166,856	67,734	68,230	638,655

Source: Information Response 230 Attachment



Regarding systems, previously American Water used ECIS, then in 2013 it went to SAP/ Customer Relationship Management (CRM) for Call Handlers to use and SAP/ERP Central Component (ECC) for her group to use.¹⁰⁹⁷

A description of customer portal changes to CRM software anticipated to make it easier to use were provided by CSO management as displayed in *Exhibit XIX-5*.¹⁰⁹⁸

Exhibit XIX-5
CRM Customer Portal Changes



Source: Information Response 662

A lot of customers are signing up for e-billing, plus many use electronic payments via credit cards or checks. For example, in NJAW, approximately 138,000 customers are paperless for billing and 564,000 accept paper bills.¹⁰⁹⁹ Late payments add charging to bills, but New Jersey is considered the best state. Collection documents are sent if five days late and notification says should be paid in 10 days, or it will be paid differently. Bills are turned over to outside collection agents four days after notification, so nine days past due. Then five days after collection, plus 10 days, typically equals 15 days. After 17 days disconnected for residential customers. It is the same for non-residential customers, but not sure what changes if sewer or other public authority (OPA) account.¹¹⁰⁰ This is comparable in 2019 to prior years.¹¹⁰¹ The more that customers use, the more they pay, which is typically during the summer and winter periods, but not time of day.¹¹⁰²

There is a program with United Way that says they can help and put on 30 days hold for customers to pay. Also, NJ Shares for electricity and gas gets money first, but pays afterwards.¹¹⁰³

An Operations support team is in Scranton, PA, plus third-part agency in Kentucky and Tennessee, as discussed above.¹¹⁰⁴

Exhibit XIX-6 lists Billing & Collections SOx controls,¹¹⁰⁵ in which a couple of SOx control types exist for the Billing & Collections functions, including:¹¹⁰⁶

- ◆ All bills go out and looked at monthly
- ◆ Consecutive estimates

**Exhibit XIX-6
Billing & Collections SOx Controls**

Control	Significance	Frequency (Control)	Control Description
REV.C44: Meter Reading Estimation	Key Control	Continuous	The system is configured to estimate/ calculate all open meter reading orders.
COL.C12: Allowance for Doubtful Accounts	Key Control	Annually	The Controller or delegate reviews and approves the final uncollectable percentages annually, as evidenced by signature and date.
COL.C22: Contract Acct Segr From Payment	Key Control	Continuous	Access to create/ maintain contract account is segregated from access to process incoming payment.
COL.C23: Unbilled Revenue Report Review	Key Control	Monthly	The Unbilled Revenue Report is reviewed monthly by the Operating Unit Director of Financial Analysis and Decision Support ("FADS") to determine if the unbilled revenue amount is reasonably calculated. The unbilled revenue analysis, including supporting documentation, is approved by the Director of FADS as evidence of review.
COL.C25: AUR Billing Simulation Routine	Key Control	Continuous	The system is configured with valid business rules and billing simulation routine (EAMS01) to obtain unbilled revenue for all applicable contract accounts related to prior usage.
COL.C32: Automated Write Off Process	Key Control	Continuous	The system is configured to perform an automatic write-off (FP04M) 90 days after the final bill due date for all contract accounts after final dunning.
REV.C12: Lookback Calc Review	Key Control	Quarterly	Quarterly, Director of Budgeting, Internal Reporting & Revenue Analytics ("BIRR") or delegate reviews the look-back calculation and unbilled revenue accrual. The Calculation is approved by Assistant Control or delegate as evidenced via signature and date.
REV.C22: Billing Exception Report Review	Key Control	Weekly	The billing exceptions included in the billing package are reviewed weekly by the Billing Specialist to determine if billing exceptions are resolved timely and the correct action has been performed. The Billing Specialist signs the cover sheet of the billing package as evidence of review. The billing package includes the following: - Accounts not Billed (Unbilled Contract Account Report- ZINV_UNBILL_ACNT) - Account that Fail Validation Outsourcing Checks (BPPEM Case Detail Report)
REV.C24: BPPEM MR Exceptions Review	Key Control	Weekly	The Business Process Exception Management (BPPEM) Case Detail Report is reviewed weekly by the Billing department, in coordination with Operations Support, to determine if the critical meter reading exceptions are resolved timely. The Billing department selects a weekly sample of 20 accounts to determine if the correct action has been performed. Critical meter reading exception types include the following: - Zero Consumption - Consecutive Estimate (3rd consecutive estimate or higher) - Inactive with Consumption (also includes disconnected installation) - Implausible Meter Read (standard) - fails tolerance limits for validation class (i.e. residential, commercial) - Implausible Meter Read (custom) - includes consecutive declining usage (3"+) for water/irrigation meters and significant increasing consumption for fire The BPPEM Case detail report is electronically signed and dated by the Billing Team Lead as evidence of review.
REV.C29: Maintain Meter Reads-RA	Key Control	Continuous	Access to maintain meter reads (manually adjust actual meter reads from handheld, enter manual meter reads, reverse meter reads, etc) is restricted to authorized personnel.
REV.C36: Validation-Technical Mstr Data	Key Control	Continuous	The system is configured to require data entry for the following critical technical master data fields: - Rate Category - Billing Class - Service - Meter Reading Unit, and Division Account Determination ID, Invoice Outsort Checkgroup, Company Code, and Payment Terms in the customer master data are automatically derived from Rate Category and Billing Class during the move in process.
REV.C37: Rate Change Review	Key Control	Monthly	The Rate Sheet Validation report is reviewed by the Manager of Rates and Regulations and Rates Director to determine if rate changes, including discounts and surcharges were accurately processed in the system. The Rates Manager and Director approve the Rate Sheet Validation Package as evidence of review and that issues are resolved via SharePoint.
REV.C39: Validation Checks-Meter Reading	Key Control	Continuous	The system is configured to perform key validation checks on meter reads. Validation checks on meter reads include: - Consecutive Estimate - Inactive with Consumption - Zero Consumption - Implausible Meter Read (high/ low tolerance levels) - Declining Usage
REV.C43: Validation Check- Invoice Stage	Key Control	Continuous	The system is configured to perform a high dollar validation check during the billing and invoicing stage, including reversals and cancel/ re-bills.
REV.C54: Acct Adj DOA Table Review	Key Control	Quarterly	The Z_APPR_Matrix table is maintained by the Billing Department Supervisor/Manager and reviewed quarterly by a designated member of the Customer Service Management staff (reviewer) who does not have access to provide billing adjustments. Change request information will be saved electronically on the Master Approval Matrix as evidence of the request. The change log is used to validate that account adjustments (including credit refunds) are routed to the correct approver and processed in accordance with the Delegation of Authority (DOA).
REV.C55: Meter Invtr Packet is reviewed	Key Control	Monthly	The Meter Inventory Packet is reviewed by the Operations Support Supervisor or equivalent to confirm that all revenue impacting fields have been properly input into the system. The Meter Inventory Upload Checklist is signed and dated by the reviewer as evidence of review.

Source: Information Response 650 Attachment 3



Rate Implementation

The Rate Implementation (RI) group is in transition, as the Manager, Rate Implementation has been roughly six months in this group, and was in the Billing group in Alton, Illinois for roughly 20 years. This group of two employees reporting to Manager, Rate Implementation is involved in rate implementation activities, such as making changes in systems, such as SAP/Customer Relationship Management (CRM), including customer service and billing functions, due to filing of rate cases in which state commissions have made changes. Examples now in 2019 include one NJ rate case and two IL rate cases in progress. These employees will soon be reporting to the VP, Customer Service & Solutions, not the Senior Director, Customer Service.¹¹⁰⁷

This group makes changes for all states by telling the AWWSC Technology & Innovation (T&I) group what coding changes to do, plus possibly Deloitte, but not the RI group, if necessary.¹¹⁰⁸ This group meets daily via Skype with the T&I group to talk through if any issues exist. The T&I group works closely with Rate Managers. They also check if the T&I does work correctly during:¹¹⁰⁹

- ◆ Testing
- ◆ Staging
- ◆ Production

This group also has had SOx controls, specifically one involving rate changes. They review monthly, which was previously by the Revenue Analytics group, but as soon as transitioned, this group will be totally responsible for it.¹¹¹⁰ The newly formed Tariff Implementation team does not formally own any SOx controls; however, the team does execute rate changes and new rates for all American Water regulated operations, including NJAW. Monthly, the NJAW Rates and Regulatory lead validates REV.C37 Rate Change Review (below), which the Tariff Implementation team is responsible for executing and the 2018 validation of this control has been approved.¹¹¹¹

“Control Description: The Rate Sheet Validation report is reviewed by the Manager of Rates and Regulations and Rates Director to determine if rate changes, including discounts and surcharges were accurately processed in the system. The Rates Manager and Director approve the Rate Sheet Validation Package as evidence of review and that issues are resolved via SharePoint.”

This group is attempting to be more aligned with states to provide more input as to what would look like earlier in process rather than just after rate cases approval by state commissions, such as NJBPU, in which the Manager, Rate Implementation believes that NJAW has a straightforward rate. She also goes to Camden, NJ a couple times a year.¹¹¹²

This group also coordinates with the Billing & Collections group about corrections, customer communications, and rate case changes.¹¹¹³

Learning & Development

New or returning Customer Service hired employees receive training while they're considered contingent workers. This training typically takes roughly three to four weeks before going out to the call handling floor to work.¹¹¹⁴

Project Management & Operations

The Customer Service group has two T&I employees in one of the PMO groups, who are business experts with T&I contact. Two other maintenance service specialists are in the other PMO group.¹¹¹⁵ This group also oversees facility group in Pensacola, Florida.¹¹¹⁶

Customer Service, Complaints, & Inquiries (Call Center)

Calls

Each of the Call Handlers have a suggested script for customer calls, which includes.¹¹¹⁷

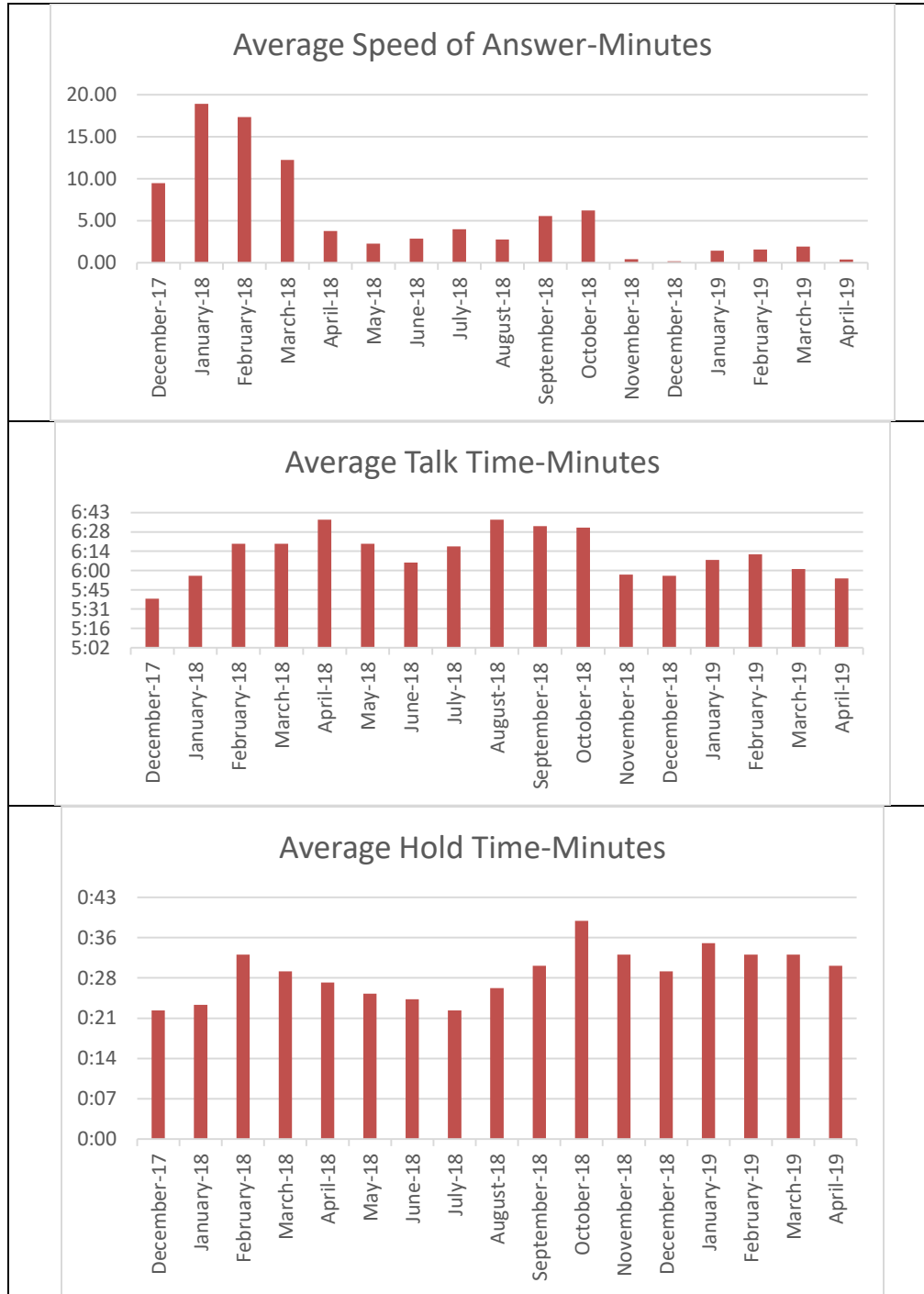
- ◆ *Supervisor Escalations* - Gain the customer's permission to assist the customer and reassure the customer that if you are not able to assist the issue will be escalated.
- ◆ *Call Opening* - American Water has established a standard greeting to establish a rapport with its customers:
- ◆ *Acknowledging Statements* – After the greeting when the customer tells the call handler how to assist them, the call handler must provide an ICARE statement.
- ◆ *Obtaining Phone Numbers and Email Address* - To ensure making every attempt to update customer accounts with the best contact phone number, one of six scripting options must be used on every call when asking for phone numbers, plus asking for an email address, if applicable.
- ◆ *Explanation of Liability Scripting* – Three possible scripting options exist, plus a sample.
- ◆ *Telephone Numbers for Service Orders* – A sample scripting exists for contacting customers on the day of service.
- ◆ *Safety Concerns* - To ensure the safety of field service personnel, Call Handlers are to include suggested scripting when scheduling any service order or creating an emergency script.
- ◆ *Service Order Email Reminders* – Indicating that the customer will receive a confirmation email confirming any appointments as well as two follow-up reminders, but if they do not want to provide an email address, the call handler is to have a discussion with the customer about the benefits of the program.
- ◆ *Estimating Bills* – Suggesting scripting exists to help explain an estimated bill.
- ◆ *Rate Change* – Suggesting scripting to assist in explaining the need for a rate increase involving infrastructure upgrades, EPA new standards, and/or increased operating costs.



- ◆ *High Bill Scripting* – Sample exists.
- ◆ *Calls to the PUC or a Lawyer* – Suggested scripting exists.
- ◆ *Auto Pay (Electronic Funds Transfer) and Paperless Billing* - Suggested scripting exists.
- ◆ *Third Parties* - Suggested scripting exists.
- ◆ *Keeping Accounts Current* - Suggested scripting exists.
- ◆ *Low Pressure Complaints and Water Softeners* - Suggested scripting exists.
- ◆ *Loss Control Issues* - Suggested scripting exists.
- ◆ *Submitting Water Quality Concern/ Complaint* – Sample exists.
- ◆ *Closing a Call* - American Water has established a CSR sample scripting for ending a call.
- ◆ *IVR Call Back* - If the call is unanswered, the call handler is supposed to leave a voice mail for the customer based on suggested wording.

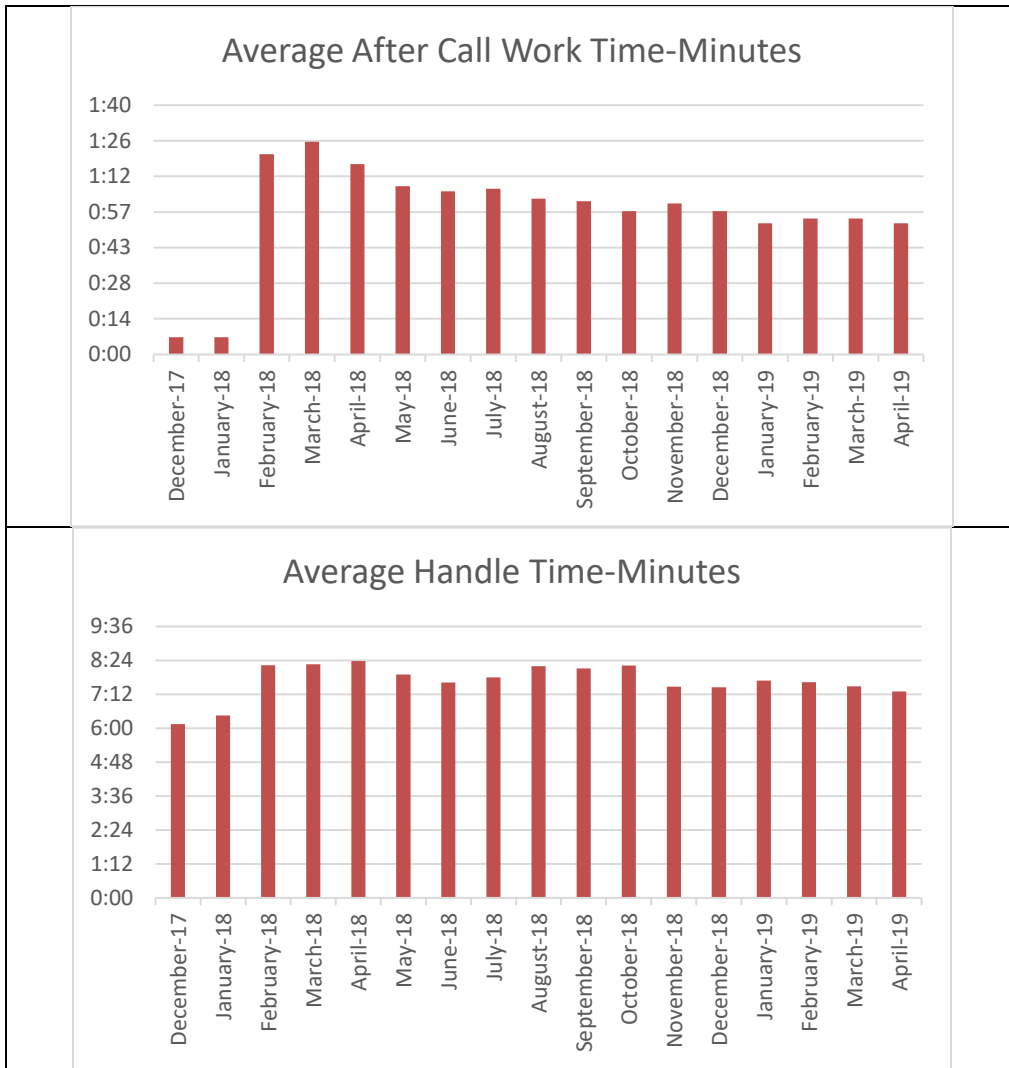
Monthly call information from December 2017 to April 2019 are shown in *Exhibit XIX-7 and Exhibit XIX-8*.¹¹¹⁸

**Exhibit XIX-7
NJAW Monthly Calls
December 2017 to April 2019
Page 1 of 2**



Source: Information Responses 207

**Exhibit XIX-8
NJAW Monthly Calls
December 2017 to April 2019
Page 2 of 2**



Source: Information Responses 207

Exhibit XIX-9
Description of Telephone Equipment, System Configuration, and Inventory

User	Telephone Equipment	System Config	Inventory
CSR / BSR / Sup / Lead	Cisco Jabber v11.8.4 / Plantronics DA70 Hookswitch adapter / Plantronics EncorePro 540	Windows 10 OS / Cisco Finesse / SAP CRM / Bucher and Suter	323
BA / Liason / Group Sup / Manager / Director / Other	Cisco 8841 Deskphone / Plantronics CS540XD Headset	Windows 10 OS	72

Source: Information Response 208

BPU-Investigated Customer Complaints

Exhibit XIX-10 provides the annual number of complaints related to billing for 2014 to 2018.¹¹¹⁹ According to AWWSC Customer Service management, they are simply issues not complaints; plus they are not necessarily calls to the Customer Service organization.¹¹²⁰

Exhibit XIX-10
Annual Numbers of Complaints Related to Billing
2014 to 2018



Source: Information Response 210

A sample of up to 100 records for NJBPU-investigated customer complaints during last year is shown in *Exhibit XIX-11*.¹¹²¹ They are reviewed by the Customer Advocacy group in New Jersey, which is headed up by the Supervisor, Customer Advocacy in Lakewood, NJ.¹¹²²

Exhibit XIX-11
NJBPU-Investigated Complaints
January 2018 to April 2019

Year	Total	Complaint Categories			
		Billing	Collections	Field Services	Other
JAN-DEC 2018	666	226	248	142	10
JAN-APR 2019	178	71	71	35	1

Source: Information Response 211

The NJAW Customer Advocacy Group team classifies BPU disputes in four categories: Billing, Collections, Field Services, and Other. Billing and Collections are self-explanator, Field Services represents all field and customer service related disputes, such as curb box issues, pressure issues, and main breaks, and Other represents mostly disputes regarding water quality.¹¹²³

NJAW records all customer interactions in the customer's account within SAP; however, the company does not separately track the non-NJBPU disputes by office or type.¹¹²⁴

The classification by operating center of NJBPU-investigated complaints for 2014 to 2018 is shown in *Exhibit XIX-12*.¹¹²⁵

Exhibit XIX-12
Classification by Operating Center of NJBPU-Investigated Complaints

	2014	2015	2016	2017	2018
NJAW Total	696	689	618	578	666
Central Operations	242	203	184	160	188
Belle Mead	53	50	56	41	56
Plainfield	189	153	128	119	132
North Operations	76	80	87	86	82
Short Hills	66	74	80	81	79
Washington	10	6	7	5	3
Southwest Operations	95	114	101	89	98
Delran	95	114	101		98
Coastal Operations	283	292	245	242	298
Fire Road	97	95	90	92	113
Lakewood	78	73	68	52	66
Shrewsbury	108	124	87	98	119
Statewide Sewer	0	0	1	1	0

Source: Information Response 219 Attachments 1, 2, and 3

NJAW was unable to provide formal, written reports showing analyses performed by NJAW on NJBPU-investigated customer complaints for the last year (2018).¹¹²⁶




























Policies and Procedures Documentation

Customer Service Policies and Procedures Manual Documentation

American Water's Customer Service has a policies and procedures manual is voluminous and subjective documentation. In *Exhibit XIX-13* is a listing of the sections included with the documentation.¹¹²⁷



Exhibit XIX-13
Customer Service Policies and Procedures Manual Documentation

 Appendix	 Unit 13 - Higher Than Expected Bills
 Unit 01 - Training Expectations	 Unit 14 - Rates and Adjustments
 Unit 02 - Introduction to American Water	 Unit 15 - Wastewater Billing
 Unit 03 - Ergonomics	 Unit 16 - Customer Reads
 Unit 04 - Customer Service Skills	 Unit 17 - Avoiding PUC Complaints
 Unit 05 - System Tools Overview	 Unit 18 - Collections
 Unit 06 - Greet the Customer	 Unit 19 - Installment Plans
 Unit 07 - Customer Account Maintenance	 Unit 20 - Disconnection Service Orders
 Unit 08 - Correspondence	 Unit 21 - Notifications
 Unit 09 - BPEMs	 Unit 22 - New Contracts
 Unit 10 - Basic Plumbing Devices	 Unit 23 - End Contracts
 Unit 11 - General Service Orders	 Unit 24 - Emergency Notifications
 Unit 12 - General Billing	 Unit 25 - Water Quality
 Unit 12A - Advanced Billing	

Source: Information Response 247

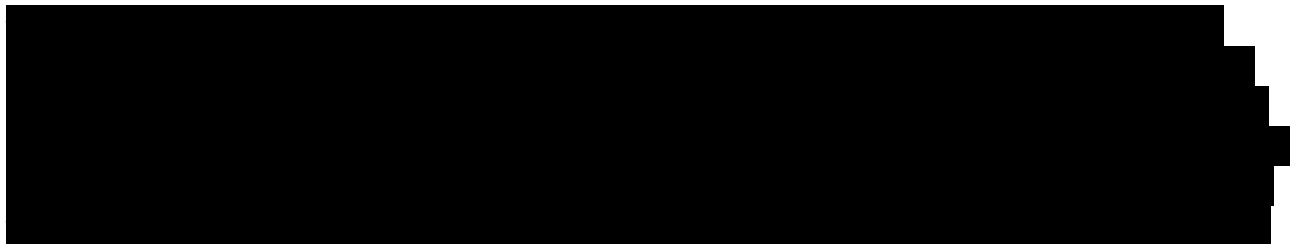
Customer Dispute Policies

NJAW does not have a formal, documented policy regarding the handling of customer disputes; however, it has a guideline that has been developed for the Customer Advocacy group and Supervisors/Team Leads, which details the process steps for handling customer disputes.¹¹²⁸

The Customer Advocacy group researches, responds to, and resolves inquiries and complaints submitted by:¹¹²⁹

- ◆ New Jersey Board of Public Utilities (NJBPU)
- ◆ Better Business Bureau (BBB)
- ◆ Senior management team/corporate office
- ◆ Government agencies
- ◆ Customer Service Center
- ◆ First party collections agency
- ◆ Local operations

The following seven paragraphs are considered confidential by the company.



[REDACTED]

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[REDACTED]

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[REDACTED]

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[REDACTED]

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[REDACTED]

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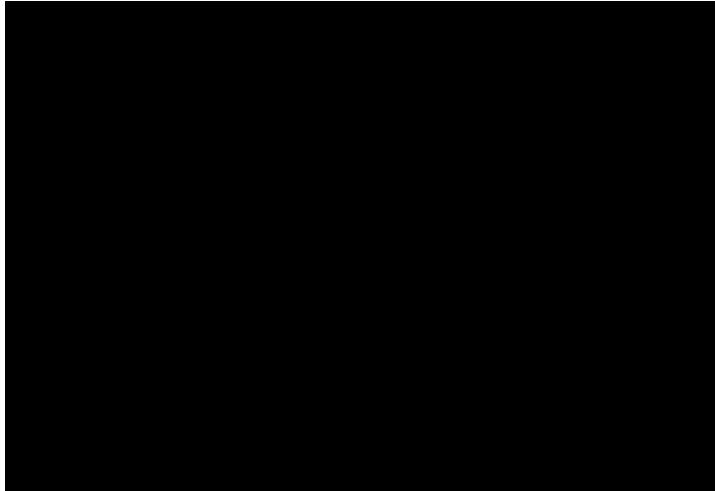
[REDACTED]

1136



Exhibit XIX-14 shows the steps required by Supervisors/Team Leads.¹¹³⁷

Exhibit XIX-14
Supervisor/Team Lead Steps for Customer Resolution Process



Source: Information Response 217 Attachment 2 (Confidential)

Customer Options Surveys

NJAW, as a subsidiary of American Water, is always soliciting feedback from its customers in an effort to better serve them. Some examples are below:¹¹³⁸

- ◆ American Water conducts quarterly customer satisfaction surveys via phone calls at random in each of its regulated states. American Water also conducts quarterly service quality surveys via phone calls to customers who have had a service request in each state. The results of these surveys are used to help the company improve its customer service efforts.
- ◆ In addition, American Water conducted a series of focus groups in one service area of each state several years ago to learn customers' perceptions of the value of the service the company provides and to measure effectiveness of customer communications. The feedback helped inform customer communications content and delivery. For example, results showed customers prefer receiving more information about infrastructure projects. As a result, NJAW developed postcards to inform customers about projects happening in their neighborhoods.
- ◆ American Water more recently created online neighborhoods of customers, who volunteer to participate in optional online focus groups. These research opportunities help inform NJAW about customers' preferences.
- ◆ Lastly, specific customer-focused projects, such as the new customer web portal, are designed using customer feedback and input to increase their usefulness and effectiveness.

Also, pulse surveys are taken after calls, plus at least two of the quarter surveys are done by the Camden, NJ AWWSC staff, including the Manager of Customer Experience.¹¹³⁹

Systems

Call Centers

In November 2017, American Water began using Cisco for its telephone systems instead of Avaya, but the Manager, Call Handling was unsure what was previously used.¹¹⁴⁰ In January/February to May 2018, American Water was changing its telephone system around the same time that major storms happened in early 2018.¹¹⁴¹ In May 2018 American Water was out of Calabrio and refined reporting in Cisco, but the Operations and Performance Manager uses Calabrio (a customer experience intelligence system) for scheduling and pay time out (PTO) information and data. American Water has been using SAP/ Customer Relationship Management (CRM) system for approximately five years. The Bucher & Suter section has connection now with software telephones.¹¹⁴²

Other Functions

Other information technology and systems utilized by the field service and other functions includes:¹¹⁴³

- ◆ Field Services
 - *Customers, Meters* – Work orders are initiated in SAP (host system) by a customer call, regulatory requirement, or asset failure. The work is planned, prioritized, and scheduled in Click software based on the needs of the customer, regulatory driver, and available resources. Work is dispatched through Click software to field technician computers. Technicians complete the work and close the Click software order. Results are captured in SAP.
 - *Meter Reading* – Monthly meter reading schedules are set up and scheduled in SAP based on a billing schedule. Weekly meter reading schedules are uploaded into Fathom system for technicians to execute. Technicians gather reads via drive by RF and few manually via touchpads. Reads are reviewed in Fathom system and uploaded into SAP daily.
- ◆ Other
 - In addition, NJAW has loaded its facilities into a geographic information system (GIS) so that maps of its water and wastewater systems are accessible on its internal network. The information available via 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 impacted by related service issues and allows the Company to more effectively communicate the impact directly with customers.
 - NJAW has also implemented MapCall, an application that provides a more intuitive interface among NJAW's enterprise software, GIS and its employees in the field. The MapCall system provides the flexibility to create work orders, configure workflows and report progress while in the field.



- Customer One View (CIV) has also been implemented by the company to better serve its customers in a way that also improves our efficiency. CIV provides a one-stop shop for customer information (e.g., premise and service order history, meter details, billing and payment information) that can be accessed by employees that regularly interact with our customers. This means that employees in the field can view the same information as those in the Customer Service Center (CSC) while interacting with customers during a service visit. This allows our field service representatives (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 to follow up with the CSC for information. Field employees 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 will support our continued efficiency. Meter Ops monitors over 20 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 be updated by, employees while they're in the field so they also have a full, real-time, view of information they can use to better serve our customers.

Customer Accounting & Billing

In 2018, American Water embarked on a new bill redesign project across all states, including New Jersey. The goal was to provide a bill influenced by customer needs and preferences. The major objectives of the bill were to improve ease of understanding and bill presentation, and increase customer knowledge around water and water related services. The project included bill comparisons with other utilities across the United States, such as ComEd, PG&E, Southern Company, Pennsylvania Power; and Light, Ameren, Aqua, and several municipalities, as well as non-utility bill designs. Workshops were held internally using other utility redesigned bills as a baseline for determining likes and dislikes. Customer feedback was also solicited on a subset of preferred bills based on workshop output. Responses were measured on the goals of (a) overall ease of understanding, (b) overall visual appeal, (c) ability to quickly locate amount due and payment date, and (d) ability to easily understand breakdown of charges and usage. The newly designed customer bill was launched to New Jersey American Water customers in May 2018. While state-specific feedback has not been measured, American Water solicited feedback from customers from all states that launched the new design. Of the 450 customers who provided feedback, 83 percent responded that the new bill was easy to understand and 76 percent responded that it was visually appealing.¹¹⁴⁴

The SAP Industry Solution for Utilities (SAP ISU) and SAP Finance (SAP FI) within SAP ECC 6.0 is used for customer accounting. In addition, from a tax management perspective, SAP is integrated to Sabrix, which calculates tax during customer invoice generation.¹¹⁴⁵

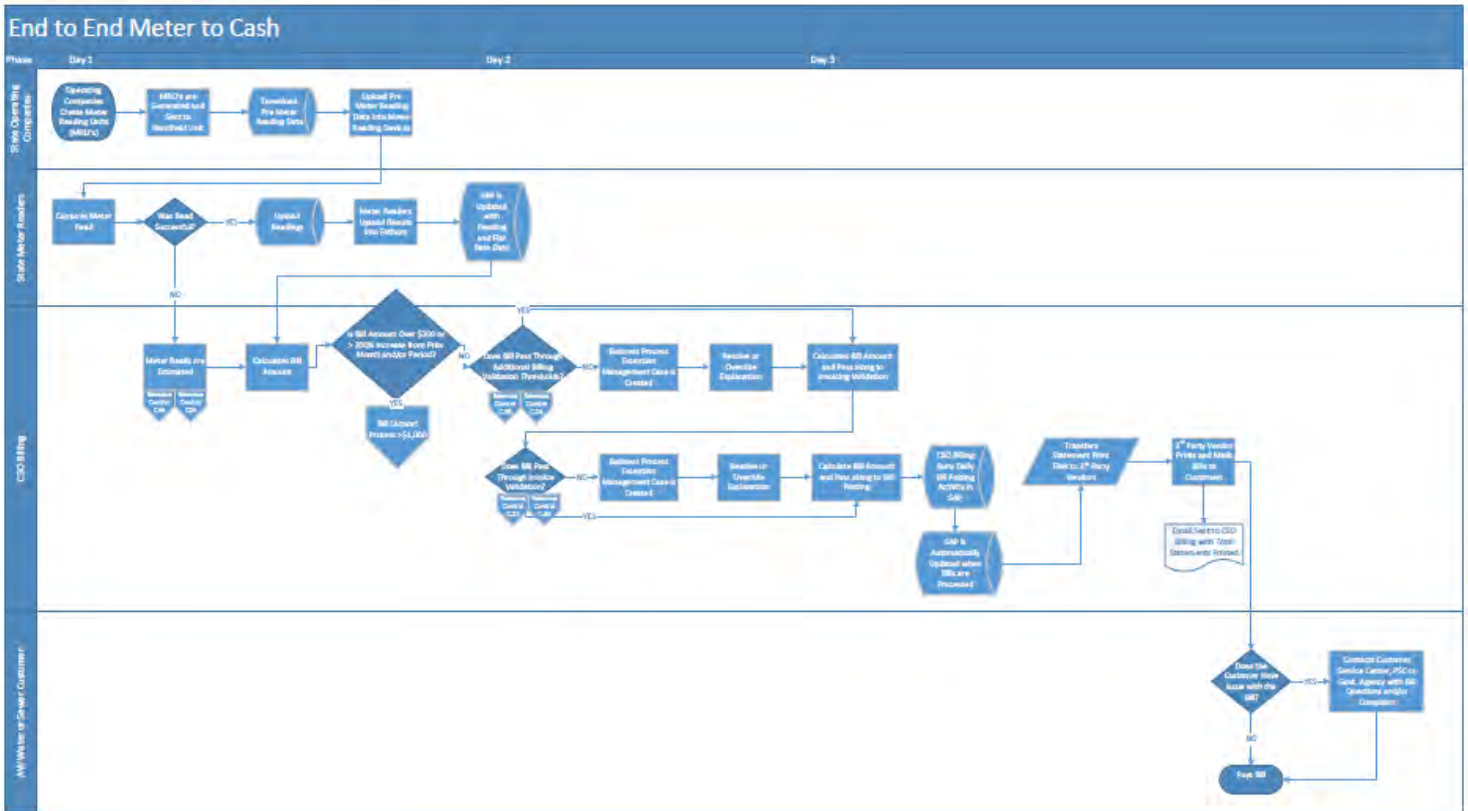
The customer billing is done on the backend of SAP, then the Billing & Collections group gets involved before bills go out to customers, plus after bills go out, as necessary, for making resolutions or making credit refunds. Based on threshold limits, if a bill is higher than before, the Billing & Collections group looks to see if errors, which is possibly inaccurate meter reading, so it can be fixed before going out to a customer. Another issue may be a customer delaying moving in or billing adjustments required due to leaks. During the middle of billing accuracy projects, root causes are developed and the group works with states operations groups.¹¹⁴⁶

According to AWWSC management, almost all customer bills are issued on a regular monthly schedule depending on the scheduled read date of their particular read route. Many of NJAW's large bulk sales-for-resale accounts bill on a calendar month end for consistency and in compliance with the contracts that govern the accounts.¹¹⁴⁷

Analysis of actual durations of each element of the billing cycle is displayed in *Exhibit XIX-15*.¹¹⁴⁸



**Exhibit XIX-15
Billing Cycle Element Durations**



Source: Information Response 228

The CSO organization does not perform formal analysis on bill preparation costs over time; however, management does evaluate costs on annual basis. For example, 2019 expected costs is roughly 67 cents per bill.¹¹⁴⁹

Annual Number of Bills Processed and Revenues

The annual number of bills processed and associated revenues provided in recent years are illustrated in *Exhibit XIX-16*.¹¹⁵⁰

**Exhibit XIX-16
Annual Bills and Revenues**

Net Bills Invoiced									
	12 Mos 2011	12 Mos 2012	2 Mos 2013	12 Mos 2014	12 Mos 2015	12 Mos 2016	12 Mos 2017	12 Mos 2018	YTD April 2019
	N/A	N/A	1,164,636	7,331,602	7,380,924	7,496,723	7,622,800	7,759,042	2,609,443
Revenues									
	12 Mos 2011	12 Mos 2012	12 Mos 2013	12 Mos 2014	12 Mos 2015	12 Mos 2016	12 Mos 2017	12 Mos 2018	YTD April 2019
Water and Sewer Revenues	\$606,937,997	\$632,345,327	\$623,666,937	\$656,484,961	\$694,311,219	\$721,763,603	\$729,120,897	\$715,854,370	\$222,562,552
Other Revenues	5,421,502	4,820,745	6,087,866	7,830,421	5,703,884	5,505,810	7,992,670	5,956,077	1,560,805
Total Revenues	\$612,359,498	\$637,166,071	\$629,754,803	\$664,315,382	\$700,015,103	\$727,269,413	\$737,113,568	\$721,810,447	\$224,123,357

Source: Information Response 226 Attachment

Note: No invoice data prior to November 2013 available due to implementation of the new CIS system in October 2013.

Note: Revenue numbers for all years exclude unbilled revenues and 2018 includes the TCJA Adjustment of -\$10.3 million.

Office Estimates

Office estimates occur when meter reading cannot be done.¹¹⁵¹

American Water has a practice documentation to ensure the proper use of office estimates in the customer bill generation process. An office estimate may be used by the Customer Service Center (CSC) Billing Department in certain situations when the field read provided would potentially generate an inaccurate bill to the customer. Office estimates should only be used when all other means of read verification and bill review have failed to validate the accuracy of the pending charge. The goal for both Field Operations and the CSC Billing Department is to eliminate situations in which an office estimate may be required.¹¹⁵²

American Water management indicates that consecutive use of office estimates should be avoided, as office estimating for multiple billing periods can result in loss of revenue and customer complaints for the company, especially if the field reading provided proves to be correct.¹¹⁵³

This practice documentation applies to all regulated and non-regulated metered service billing previously supported in Enterprise Customer Information System (ECIS), now SAP. It is also considered acceptable to remove a field reading and office estimate for one billing period for the following reasons if the concern cannot be resolved within three (3) business days through Billing Read (BILRD)/ Meter Read Edit (MREDT) service order results or escalation:¹¹⁵⁴

Items below are considered confidential by company, but not sure Schumaker & Company agrees.

◆ [REDACTED]

- ◆ [REDACTED]
- ◆ [REDACTED]
- ◆ [REDACTED]
- ◆ [REDACTED]
- ◆ [REDACTED]
- ◆ [REDACTED]
- ◆ [REDACTED]
- ◆ [REDACTED]
- ◆ [REDACTED]

As mentioned in *Chapter XVIII – Systems Operations*, NJAW has reduced the number of estimated meter readings in recent years.

Credit & Collections

Payment Options and Costs

NJAW customers have six options to pay their bills, as shown below for 2018 data:¹¹⁵⁵

- ◆ ACH (initiated from customer’s bank account) (2,022,706 annual payments)
- ◆ Credit Card (internet or phone) (356,165 annual payments)
- ◆ Direct Debit/Auto-pay (debited from customer’s bank account on due date) (1,287,949 annual payments)
- ◆ Electronic Check (internet or phone) (669,408 annual payments)
- ◆ Paper Check (mailed to lockbox) (2,314,256, annual payments)
- ◆ Over-the-Counter (walk in locations; cash or check) (45,477 annual payments)

NJAW has agreements with approximately 90 merchants in NJ service areas where a customer may pay their bill in person. These locations include supermarkets, drug stores, and other local merchants.

There is a link on American Water’s website (Payment Locations Link-

<https://amwater.com/njaw/customer-service-billing/billing-payment-info/payment-location-results>)

where customers can input their zip code to find the closest payment location.¹¹⁵⁶

In addition to mailing payments or doing in person, payments can be made by customers as follows:¹¹⁵⁷

- ◆ Online via American Water's web self-service's (myWater) - <https://wss.amwater.com/selfservice-web/login.do>
- ◆ Online via Paymentus (<https://ipn.paymentus.com/rotp/awk>)
- ◆ 800 telephone # (Customer Service 1-800-272-1325)
- ◆ Call handlers can do over telephone by transferring to Paymentus or customers can do directly to Paymentus by calling 1-855-748-6066.

The costs of remittance processing by method includes:¹¹⁵⁸

- ◆ NJAW
 - Electronic (ACH, Direct Debit) - \$0.0189
 - Lockbox - \$0.1118
 - Over the counter (walk in payment locations) - \$0.8116
- ◆ Customers
 - Credit Card – Customer pays \$1.95 to directly to vendor Paymentus
 - E-Checks – Free to the customer if logged onto American Water website; otherwise, customer pays \$1.95 to Paymentus

The company does not require security deposits from its customers.¹¹⁵⁹

The majority of NJAW operating centers do not accept payments, and do not have dedicated Customer Service representatives. There are locked boxes located outside the offices in Belle Mead and Plainfield for customers to drop-off payments. However, the former Shorelands office in Hazlet remains open, with two Customer Service representative, for customer inquiries and payments. NJAW does not track walk-in customers. Below is an estimated average of customer walk-ins per office:¹¹⁶⁰

- ◆ Central Operations
 - Belle Mead – No walk-in customers.
 - Plainfield – Two to seven weekly walk-in customers, who are directed to use the phone in the lobby, which puts them in direct contact with Customer Service.
- ◆ North Operations
 - Short Hills – Three walk-in customers per week.
 - Washington – No walk-in customers.
- ◆ Southwest Operations
 - Delran – One walk-in per week.
- ◆ Coastal Operations
 - Fire Road – Two walk-in customer per week.
 - Lakewood – Unknown, possibly no walk-in customers.
 - Shrewsbury – Three walk-in customers per week.
 - Farmingdale – No walk-in customers.
 - Shorelands – 25-30 per week.



NJAW's operating centers are not widely utilized by customers to conduct business. Only a small number of walk-ins visit the local offices to make inquiry or to transact business. Accordingly, NJAW does not have any meaningful analyses regarding the ratios of customers per office or per employee.¹¹⁶¹

Late Payments

Exhibit XIX-17 illustrates the late payment revenues for the past eight years.¹¹⁶²

Exhibit XIX-17
NJAW Late Payments Revenues
2011 to 2018

Year	Late Payment Revenues
2011	\$68,085
2012	\$86,259
2013	\$81,118
2014	\$205,573
2015	\$201,318
2016	\$220,991
2017	\$187,182
2018	\$194,713

Source: Information Response 237

Collection documents and notices are provided to delinquent customers;¹¹⁶³ however, NJAW has not performed any studies to determine why so many late payments occur.¹¹⁶⁴

Also, the variances between the Aging Report and the G/L Accounts Receivable (A/R) balance are attributable to batch posting errors, which prevent the timely posting of A/R activity to the ledger. These batch posting errors are monitored daily and resolved as quickly as possible.¹¹⁶⁵

Bad Debt History and Write-offs

American Water has *Regulated Utility Accounts Receivable Write-off Practice* documentation, which outlines the key enterprise activities related to performing the Accounts Receivable write-off process, which aligns with the *Revenue and Receivables Policy* documentation. This documentation covers activities related to regulated utility A/R write-offs, which involve identifying and reviewing receivables that are deemed uncollectible and processing the write-off of these accounts. This document also includes the manual write-off of deceased or bankrupt accounts and the recovery of write-off balances. The following are the major sections covered within the Key Activities area this practice, plus it contains an appendix for a summary of related policies and/or practices, which includes the *Revenue and Receivables Policy* documentation:¹¹⁶⁶

- ◆ Section 1: Regulated Utility A/R Write-off Process
- ◆ Section 2: Deceased or Bankrupt A/R Write-off Process
- ◆ Section 3: Regulated Utility A/R Write-off Recovery Process

Exhibit XIX-18 illustrates bad debt history and write-offs as a percentage of billed revenue for past eight years.¹¹⁶⁷

Exhibit XIX-18
Bad Debt History and Write-offs as a Percentage of Billed Revenue
2011 to 2018

Year	(1) Uncollectible Expense	(2) Reserve Balance Beginning of Yr	(3) Reserve Balance End of Yr	(4) Net Write-Offs col. 1 - 2 + 3
2011	\$2,131,284	(\$4,083,755)	(\$3,342,975)	\$2,872,064
2012	4,376,545	(3,342,975)	(4,665,483)	3,054,037
2013	3,277,148	(4,665,483)	(5,142,105)	2,800,526
2014	3,358,542	(5,142,105)	(5,040,633)	3,460,013
2015	4,652,307	(5,040,633)	(6,275,069)	3,417,872
2016	2,938,993	(6,275,069)	(5,843,806)	3,370,255
2017	2,257,373	(5,843,806)	(5,024,888)	3,076,292
2018	2,328,171	(5,024,888)	(4,106,105)	3,246,954

Year	Net Write-Offs	Billed Revenues	Percent of Billings
2011	\$2,872,064	\$612,359,498	0.47%
2012	3,054,037	637,166,071	0.48%
2013	2,800,526	629,754,803	0.44%
2014	3,460,013	664,315,382	0.52%
2015	3,417,872	701,746,816	0.49%
2016	3,370,255	727,254,559	0.46%
2017	3,076,292	737,478,115	0.42%
2018	3,246,954	722,615,284	0.45%

Source: Information Response 243 Attachment

Regarding net write-offs on billed revenues, the goal is .8%. New Jersey has consistently performed better than the target.¹¹⁶⁸

Customers can have their payment agreements deactivated if they fail to make the required payments (“Deactivated by Dunning Run”) or if their payments are returned/rejected (“Returned Payment”), as shown in *Exhibit XIX-19*.¹¹⁶⁹



Exhibit XIX-19
Payment Agreements Deactivation
2014 to 2019

2014		
Deactivation reason	# of Installment Plans	Open Deactivation Amount
01 - Deactivated by Dunning Run	18,107	\$ 5,426,446.98
03 - Returned Payment	512	\$ 211,261.95
Grand Total	18,619	\$ 5,637,708.93

2015		
Deactivation reason	# of Installment Plans	Open Deactivation Amount
01 - Deactivated by Dunning Run	14,246	\$ 3,958,156.03
03 - Returned Payment	328	\$ 128,393.87
Grand Total	14,574	\$ 4,086,549.90

2016		
Deactivation reason	# of Installment Plans	Open Deactivation Amount
01 - Deactivated by Dunning Run	13,364	\$ 3,799,023.91
03 - Returned Payment	262	\$ 130,801.01
Grand Total	13,626	\$ 3,929,824.92

2017		
Deactivation reason	# of Installment Plans	Open Deactivation Amount
01 - Deactivated by Dunning Run	15,815	\$ 4,259,257.51
03 - Returned Payment	179	\$ 68,471.16
Grand Total	15,994	\$ 4,327,728.67

2018		
Deactivation reason	# of Installment Plans	Open Deactivation Amount
01 - Deactivated by Dunning Run	14,659	\$ 3,863,004.08
03 - Returned Payment	213	\$ 90,304.45
Grand Total	14,872	\$ 3,953,308.53

2019		
Deactivation reason	# of Installment Plans	Open Deactivation Amount
01 - Deactivated by Dunning Run	4,072	\$ 1,112,017.69
03 - Returned Payment	55	\$ 12,702.96
Grand Total	4,127	\$ 1,124,720.65

Source: Information Response 245

Regarding above, items are deactivated by Dunning Run working, if not paid in timeframe of five days or \$5 short of billing amount, so typically the Billing & Collections group needs to reach to customers.¹¹⁷⁰

Troubled Customers Assistance and Discount Programs

NJAW participates in NJ Shares, a utility assistance program in New Jersey. The H2O Help to Others Assistance Program, administered by NJ Shares, is a grant program in which customers who qualify may receive a grant of up to \$500 to help pay their water bill for indoor water use only. The following is the criteria for participation:¹¹⁷¹

- ◆ Only residential customers may apply. Commercial and industrial customers are not eligible.
- ◆ The customer must be delinquent at least \$100, but no more than \$500, and have received a termination notice.
- ◆ The customer must have made a \$100 payment within the past 90 days.
- ◆ The maximum grant is \$500. If the amount due is over \$500, the customer must pay all but \$500 prior to receiving a grant.
- ◆ Customers can only receive one grant within a three-year period.

The H2O Help to Other Assistance Program provided grants to NJAW customers totaling \$57,039, \$71,026, and \$11,717 in 2017, 2018 and 2019 (through June 2019), respectively.¹¹⁷²

The following is the application and grant data for NJ Shares:¹¹⁷³

- ◆ 2017 – 1516 customers applied
 - 680 eligible applicants
 - 225 customers received grants
- ◆ 2018 – 1428 customers applied
 - 924 eligible applicants
 - 267 customers received grants
- ◆ 2019 (through June 2019) - 233 customers applied
 - 153 eligible applicants
 - 43 customers received grants

NJ Shares also administers the H2O Help to Others Low Income Payment Program (LIPP). Customers who qualify may also receive a 100% discount on their monthly fixed service charge for water (not greater than 1-inch meter charge). If the company provides both water and wastewater service, customers are eligible to receive a discount on their wastewater service equal to their water service discount. The following is the criteria for participation in NJ Shares – LIPP:¹¹⁷⁴

- ◆ Customers can be enrolled regardless of account balance.
- ◆ Customers who receive Social Security benefits or Medicare coverage, who qualify for the LIPP, are also qualified for a credit equal to the current DSIC surcharge (not greater than the current 1-inch meter charge).
- ◆ Customers must recertify every two years for the discount program.

The following is the application and grant data for LIPP:¹¹⁷⁵

- ◆ 2017 – 1516 customers applied
 - 594 customers approved for the discount
 - 177 customers recertified for the discount
- ◆ 2018 – 1428 customers applied
 - 671 customers approved for the discount
 - 160 customers recertified for the discount



- ◆ 2019 (through June 2019) - 233 customers applied
 - 139 customers approved for the discount
 - 12 customers recertified for the discount

The low income discounts to NJAW customers were \$363,576, \$362,239 and \$221,728 in 2017, 2018, and 2019 (through June), respectively.¹¹⁷⁶

Customer participation in the available assistance and discount programs is considered minimal by company management.¹¹⁷⁷

Accounts Turned Over to Outside Collection Agencies

Exhibit XIX-20
Accounts Turned Over to Outside Collection Agencies
January to May 2019

First Party Collection Agency - GC	19-Jan	19-Feb	19-Mar	19-Apr	19-May	Totals
# of Acct to Agency	9,315	5,975	6,177	7,683	7,591	36,741
\$ Placed	\$4,836,090.54	\$6,319,563.86	\$4,925,580.77	\$5,639,466.98	\$5,959,755.58	\$27,680,457.73
\$ Collected	\$724,785.19	\$735,365.07	\$717,220.04	\$605,723.75	\$658,576.91	\$3,441,670.96
# Accts Collected	3,605	3,330	3,568	3,136	3,212	16,851
% of Recovery	14.99%	11.64%	14.56%	10.74%	11.05%	12.43%

First Party Collection Agency - EOS	19-Jan	19-Feb	19-Mar	19-Apr	19-May	Totals
# of Acct to Agency	15,013	10,926	8,679	10,896	12,486	58,000
\$ Placed	\$7,986,157.11	\$4,964,837.27	\$4,139,889.15	\$5,530,221.48	\$6,205,649.06	\$28,826,754.07
\$ Collected	\$662,942.44	\$536,282.86	\$452,971.98	\$394,185.09	\$538,226.57	\$2,584,608.94
# Accts Collected	3,106	2,504	2,196	1,980	2,374	12,160
% of Recovery	8.30%	10.80%	10.94%	7.13%	8.67%	8.97%

Source: Information Response 239

# of Acct to Agency	Number of accounts that were sent for collections to GC Services and EOS.
\$ Placed	Dollars placed with GC Services and EOS that is past due.
\$ Collected	Dollars of the placed amount to GC Services and EOS that was collected.
# Accts Collected	Number of accounts that were collected by GC Services and EOS.
% of Recovery	Out of the placed and dollars, this is the percentage that was collected.

Meter Reading & Meter Management

Meter Reading

Meter reading statistical summaries by district such as no-reads, reading errors, meters read per day, and number of meters for the past five years is shown in *Exhibit XIX-21*.¹¹⁷⁸

**Exhibit XIX-21
Meter Reading Statistical Summaries
2014 to 2018**

Meter Reads													
District	NJ0312	NJ0410	NJ0515	NJ0525	NJ0530	NJ0615	NJ0655	NJ0715	NJ0716	NJ1100	NJ2100	Unk	Grand Total
2014	771,907	431,618	1,269,337	82,639	156,269	1,061,439	78,820	1,145,156		1,683,148	901,695	13,885	7,595,913
2015	773,098	440,733	1,311,931	82,675	164,063	1,057,774	82,155	1,155,326		1,672,209	912,965		7,652,929
2016	779,147	453,521	1,339,910	82,963	161,593	1,064,091	77,129	1,156,478		1,690,627	922,838		7,728,297
2017	780,514	466,260	1,348,308	83,065	161,614	1,064,552	77,912	1,162,947	45,260	1,681,987	916,715		7,789,134
2018	786,430	477,587	1,338,399	83,072	161,692	1,068,514	79,365	1,161,341	135,180	1,694,417	919,458		7,905,455
Grand Total	3,891,096	2,269,719	6,607,885	414,414	805,231	5,316,370	395,381	5,781,248	180,440	8,422,388	4,573,671	13,885	38,671,728

Meter Reads Estimated													
Districts	NJ0312	NJ0410	NJ0515	NJ0525	NJ0530	NJ0615	NJ0655	NJ0715	NJ0716	NJ1100	NJ2100	#N/A	Grand Total
2014	15,454	5,937	9,981	697	994	9,184	439	13,787		16,089	11,636	86	84,284
2015	8,546	8,647	6,244	408	603	6,221	313	8,315		15,395	5,729		60,421
2016	3,320	3,647	2,819	177	263	8,285	89	7,429		8,310	2,706		37,045
2017	5,708	788	2,722	150	261	2,342	534	1,987	136	17,382	4,072		36,082
2018	2,818	868	2,642	115	363	2,660	50	1,640	802	3,479	2,240		17,677
Grand Total	35,846	19,887	24,408	1,547	2,484	28,692	1,425	33,158	938	60,655	26,383	86	235,509

Districts	
NJ0312	NJ-Atlantic/Cape May
NJ0410	NJ-Lakewood
NJ0515	NJ-Burlington/Camden
NJ0525	NJ-Burlington/Camden
NJ0530	NJ-Burlington/Camden
NJ0615	NJ-Essex/Passaic
NJ0655	NJ-Hunterdon/Warren
NJ0715	NJ-Monmouth
NJ0716	NJ-Shorelands
NJ1100	NJ-Union/Middlesex
NJ2100	NJ-Somerset/Mercer

Source: Information Response 250 Attachment

Meter Maintenance or Repairs

NJAW generally performs maintenance or repairs on meters that are larger than 2". Large meters may be tested in-place or pulled from service and tested at NJAW's large meter testing facility in Plainfield or offsite by certified meter testing contractors. If the meter passes (+/- 1.5% as per N.J.A.C. 14:9-4.1), the large meter shall remain in service (in the case of in-place tests) or is placed back into inventory for re-deployment (for pulled meters), with a new four-year length of service certification. If a meter fails, the meter may be repaired, tested again, and (if passed) placed back into inventory for re-deployment with a new four-year length of service certification.¹¹⁷⁹

Some samples of recent large meter tests are shown in *Exhibit XIX-22*. Information from these reports is input into SAP and attached to the device (i.e. the meter in SAP).¹¹⁸⁰



**Exhibit XIX-22
NJAW Plainfield Meter Shop Test Form
Sample**

Pass											
ADDRESS [REDACTED]			PREMISE# [REDACTED]			VERIZON					
START READ C= 00000197.3 D= 0000008.51			MANUFACTURER [REDACTED]			TEST TAKEN BY TRIBUS					
FINISH READ C= 00000722.7 D= 0000181.38			METER TYPE & SIZE COMPOUND 3"			TEST DATE 5/6/19					
METER# 7057538 (OLD)			GEAR# C-4436 D-3026			PSI					
TEST 1: STANDARD - LOW FLOW TEST			TEST 2: STANDARD - INTERMEDIATE			TEST 3: STANDARD - FULL FLOW					
LINE NUMBER 1			LINE NUMBER 2			LINE NUMBER 3					
FLOW RATE 4 GAL			FLOW RATE 20 GAL			FLOW RATE 150 GAL					
PSI 100			PSI 95			PSI 80					
FINISH READ		CREST	DISC	FINISH READ		CREST	DISC	FINISH READ		CREST	DISC
START READ				START READ				START READ			
VOLUME FIN-START				VOLUME FIN-START				VOLUME FIN-START			
METER VOLUME (DISC VOL + CREST VOL)				METER VOLUME (DISC VOL + CREST VOL)				METER VOLUME (DISC VOL + CREST VOL)			
TRUCK VOLUME (FROM BATCHER)				TRUCK VOLUME (FROM BATCHER)				TRUCK VOLUME (FROM BATCHER)			
% ACCURACY				% ACCURACY				% ACCURACY			
METER ACCURACY= % ACCURACY + 100				METER ACCURACY= % ACCURACY + 100				METER ACCURACY= % ACCURACY + 100			
		197.3	108.32			260.2	144.97			722.7	181.38
		197.3	8.51			197.3	108.32			260.2	144.97
		0	99.81			62.3	36.65			462.5	36.41
		99.81				99.55				498.8	
		100				100				500	
		+ .2%				- .4%				- .9%	
		100.2%				99.6%				99.1%	
Fail											
ADDRESS [REDACTED]			PREMISE# [REDACTED]			PLAINFIELD					
START READ C= 0030937.8 D= 171086.25			MANUFACTURER [REDACTED]			VERIZON					
FINISH READ C= 0030982.4 D= 171103.17			METER TYPE & SIZE COMPOUND 3"			TEST TAKEN BY TRIBUS					
METER# 7057538			GEAR# C-2934 D-3844			TEST DATE 5/6/19					
TEST 1: STANDARD - LOW FLOW TEST			TEST 2: STANDARD - INTERMEDIATE			TEST 3: STANDARD - FULL FLOW					
LINE NUMBER 1			LINE NUMBER 2			LINE NUMBER 3					
FLOW RATE 7 GAL			FLOW RATE 20 GAL			FLOW RATE 150 GAL					
PSI 100			PSI 95			PSI 80					
FINISH READ		CREST	DISC	FINISH READ		CREST	DISC	FINISH READ		CREST	DISC
START READ				START READ				START READ			
VOLUME FIN-START				VOLUME FIN-START				VOLUME FIN-START			
METER VOLUME (DISC VOL + CREST VOL)				METER VOLUME (DISC VOL + CREST VOL)				METER VOLUME (DISC VOL + CREST VOL)			
TRUCK VOLUME (FROM BATCHER)				TRUCK VOLUME (FROM BATCHER)				TRUCK VOLUME (FROM BATCHER)			
% ACCURACY				% ACCURACY				% ACCURACY			
METER ACCURACY= % ACCURACY + 100				METER ACCURACY= % ACCURACY + 100				METER ACCURACY= % ACCURACY + 100			
		937.8	95.35			941.7	99.90			982.4	103.17
		937.8	86.25			937.8	55.35			941.7	99.90
		0	9.10			3.9	4.55			40.7	3.27
		9.10				8.45				43.97	
		10				10				50	
		- 8.6%				- 15.4%				- 12.7%	
		91.4%				84.6%				87.3%	

Source: Information Response 252 Attachment

An agreement between NJAW and Allied Meter Service, Inc. for hauling and disposing of obsolete water meters exists.¹¹⁸²

Theft of Service Prevention

To prevent theft of service in the field, NJAW does the following:¹¹⁸³

- ◆ Locks the meter horn
 - ◆ Plugs the curb box
 - ◆ Inserts quarters in connection of old meter horns that can't be locked
-

Field Service

Field Services is the customer facing function within the NJAW Operations Department. It services customers on an operating center basis and works closely with the Field Resources Coordination Center to complete customer appointments, respond to customer inquiries, and support revenue management. The primary responsibilities include:¹¹⁸⁴

- ◆ New meter installation
- ◆ Meter replacement
- ◆ Meter repairs
- ◆ Meter reading
- ◆ Turn on/turn off for customer moves, plumbing repairs, seasonal customers, etc.
- ◆ Turn off/turn on for non-payment
- ◆ Miscellaneous inquiries

Contractors

List of contractors involved in field service and field operations activities, their functions, and last year and year to date payments are illustrated in *Exhibit XIX-24*.¹¹⁸⁵

**Exhibit XIX-24
Contractors in Field Service and Field Operations Activities
January 1, 2018 to March 31, 2019**

Contractor Name:	Sum of Total Spend	Primary Functions:
Pioneer Pipe Contractors Inc		
J Fletcher Creamer & Son Inc		
Montana Construction Co Inc		
CRJ CONTRACTING INC		
Perna Finnigan Inc		
Asphalt Restoration Enterprises LLC		
Vollers Excavating & Construct		
HENKELS & MCCOY INC		
MEASURING & MONITORING		
Valvetek Utility Services Inc		
SOUTH STATE INC		
NATIONAL METERING SERVICES		
JF KIELY CONSTRUCTION CO		
Hoff & Son Plumbing Sewer &		
Ernest Renda Contracting Co Inc		
Utiliquest		
CCM Contracting Inc		
IN LINE SERVICES INC		
Danella Construction Corp		
Renda Roads Inc		
ATLANTIC INFRATRAC LLC		
FW SHAWL SONS INC		
Lenegan Plumbing & Heating LLC		
A V NATIONAL WATER UTILITY SER.		
DEWCON INC		
K Moorea LLC		
MeterTek Utility Services Inc		
	\$196,160,175.86	

Source: Information Response 257 Attachment (Confidential)

Key Performance Indicators and Targets

Emergency response times are not tracked as a key performance indicator. Emergency issues are processed in the call centers and work orders are sent electronically to a field resource center (FRC), which dispatches the work order to an available field technician’s computer. The life of an emergency work order is time stamped throughout the process; creation, dispatch, acceptance, enroute, on-site, and completion. Individual work order history can be reviewed in SAP when required to answer any customer inquiries.¹¹⁸⁶

B. Findings & Conclusions

Finding XIX-1 American Water does (not) compare NJAW to other utilities in New Jersey.

NJAW does not have a comparison of NJAW relative to other comparable utilities within the state. As NJAW does not have a formal process for comparing itself to other peer utilities; however, informal comparisons and benchmarking does take place as part of routine business.¹¹⁸⁷

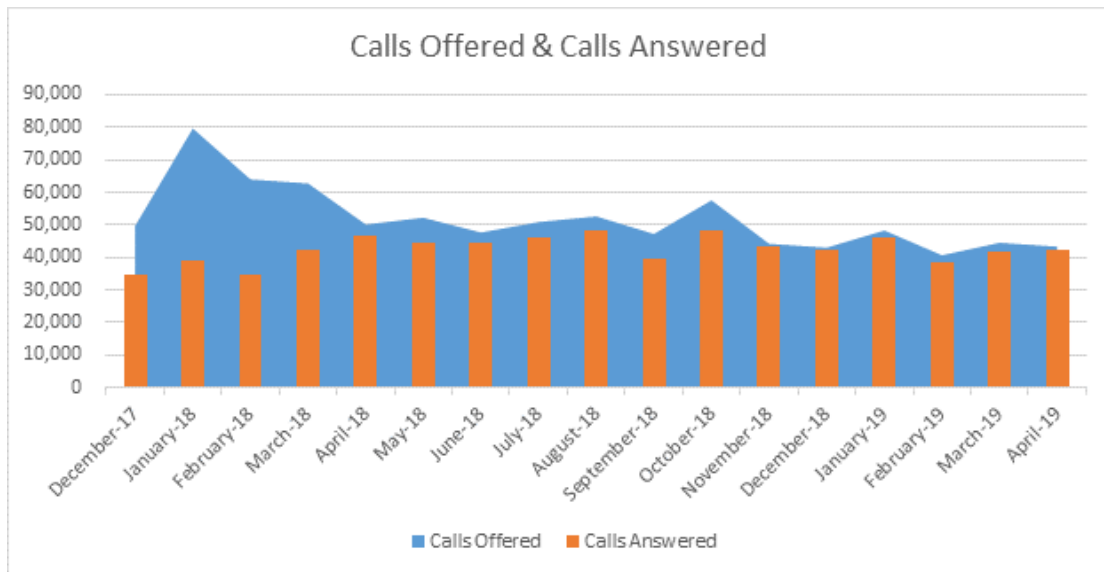
Finding XIX-2 Customers cannot chat with Call Handlers on the American Water website.

Customers can go up to NJAW's portion of the website, but can't chat on the website. They must make telephone calls to discuss with American Water, but the company is looking into the possibility. American Water is coordinating responses, but not having them created recently.¹¹⁸⁸

Finding XIX-3 Although NJAW had some difficulty achieving its Average Speed of Answer (ASA) in the early 2018 timeframe, the results in 2019 have improved.

As was shown in *Exhibit XIX-7*, the ASA objective was significantly missed in the January 2018 to March 2018 timeframe. According to NJAW management, they experienced some significant weather conditions which drove up call volumes during this timeframe as shown in *Exhibit XIX-25*. As shown in *Exhibit XIX-25*, call volumes peaked in the January 2018 timeframe which also happens to be the timeframe that ASA was at its highest level in looking at *Exhibit XIX-7*. Starting in November 2018, call volumes returned to a more consistent level and ASA was more closely being met. It appears that the call handler staffing levels are at an appropriate level. It is also important to note that in January/February to May 2018, American Water was changing its telephone system which could have also had some additional impact.¹¹⁸⁹

**Exhibit XIX-25
Call Volumes
as of December 31, 2019**



Source: Information Response 207

Finding XIX-4 No YouTube or Chat features have been incorporated into American Water websites.

NJAW websites have changed significantly since Schumaker & Company consultants had last reviewed these websites while performing a review of another America Water company in 2008 timeframe, customers can inquiry regarding the account balances and make payments among other things. However, customers cannot chat with a representative if they have a problem or issue. Similarly, if there is a need for instruction on certain aspects of the website or American Water in general, there are no links to YouTube or imbedded videos available on the website.

Finding XIX-5 Reasonable calls were made by Call Handlers during audit interviews.

When listening to calls with Call Handlers, some examples of calls included:

- ◆ Requested a need for Leak Adjustment Request form.
- ◆ Call back calls asked that supposed to do something on Monday for starting activation, in which there as a survey afterwards, so customer was given an Account #, but had no email address for sending it, so given verbally.



- ◆ Restored \$75.66, plus \$40, to \$115.66 for bill a few months ago, in which the customer paid verbally but also had to pay \$1.95 fee for paying over the telephone with Paymentus for security purposes, which the call handler transferred the customer to. The call handler waited to get confirmation that done, but we couldn't tell if that happened.
- ◆ There was a change in account in which the customer wanted to take out his old wife and put in his new wife. He was given a new Account # verbally, as he had no email address. Then customer paid via telephone, by adding \$1.95 to his \$63.39 bill, for a total of \$65.34.
- ◆ Based on the call information, the customer was sent a medical certificate by email message. He was also told to have the doctor sign it, then fax or email it back.
- ◆ The caller was a construction company (Pineland Construction) saying he wanted to disconnect service for a customer, which was Demo Company in Ocean City, NJ. The caller was sent a Disconnect Request form, but was told it was better for the owner to call back.
- ◆ The caller indicated it was his third attempt to discuss, as he has missed the 5/19-6/20 invoice, so the call handler indicated that NJAW will be emailing him the bill, which the call handler did.

Call Handlers who complete a call must indicate that he/she is available for a next call.¹¹⁹⁰

Finding XIX-6 Although NJAW has guidelines for handling customer disputes, it does not have a formal, documented policy.

NJAW does not have a formal, documented policy regarding the handling of customer disputes; however, it has guidelines that have been developed for the Customer Advocacy group and Supervisors/Team Leads, which details the process steps for handling customer disputes.¹¹⁹¹

Finding XIX-7 Three billing projects for the 2019 to 2020 timeframe are in progress.

These three billing projects for the 2019 to 2020 timeframe are as follows:¹¹⁹²

- ◆ *MyBilling App* – The App will provide:¹¹⁹³
 - The Billing Team at the CSO and states daily visibility to key performance billing indicators.
 - Detailed insight to these KPIs and the relevant measure for proactive action.
 - Predictive analysis for key KPIs such as # of invoice locks, # of open billing orders, estimated meter reads, billing exceptions such high/low meter reads, # and dollar of unbilled accounts, # and dollar of how many bills generated daily.
 - This information will be available at the state and district level.

The second phase of this App will be to add collections and provide the same information as stated above for billing.

- ◆ *OutSort Project* – The OutSort project will add a level of customer-based validation to the billing validation process. Historically the company has utilized a “one size fits all” approach to outsorts (billing exceptions) based on bill class, but not all customers within each bill class have the same usage history. With a more customer-based process approach, the following changes are becoming apparent.¹¹⁹⁴
 - Action
 - Analysis was based on customer experience (calls to the CSC), unnecessary cases to billing and ways to reduce truck rolls.
 - The residential threshold from a “one size fits all”, to what the state analysis showed.
 - Created a more customized high bill letter for the customers that fall into the new threshold.
 - Opportunity
 - Immediate benefit achieved by seeing a decrease in repeat billing exceptions such as high usage every month.
 - A daily benefit achieved by increasing the visibility into billing problems.
 - Long term benefit by providing a better customer experience (communication) and reducing lost revenue caused by leaks.
- ◆ *Billing Accuracy Project (100% Accurate Bills)* – The Billing Accuracy project began with a start date of 7/10/19. The project involves state input, meter reading, billing, collections, cash, rates, and tax teams. It is expected to be a 30-60-90 day initiative with long-term recommendations. Categories include:¹¹⁹⁵
 - Premise Creation
 - Data Model for Technical Master Customer Data
 - Customer Master Data Creation
 - Customer Billing Data
 - Customer Tax Jurisdiction
 - New and Existing Service Installation
 - New Meter Data Setup
 - Meter Set/Replace
 - Recording Usage
 - Meter Reading Schedules
 - Meter Reading Order Download
 - Meter Reading Upload
 - Meter Reading Validation and Estimation
 - Perform Bill Computation
 - Bill Computation
 - Bill Holds
 - Bill Validations
 - Bill Exceptions
 - Collective Billing (billing multiple accounts on one invoice for the same customer)



- Bill Presentment
 - Bill Print Generation
 - Bill Print Layout
 - Bill Messages
- Cash Application
 - Payment Files
 - Direct Debit Returns
 - Bankruptcy

Finding XIX-8 Regulated Utility Accounts Receivable Write-off Practice documentation has not changed since 2013, which differs from expected three-year intervals.

Date wording in the *Regulated Utility Accounts Receivable Write-off Practice* documentation shows that it has not been changed since 2013, as it was last approved in May 20, 2013 and the next review date was May 20, 2016. However, there is no indication that it was subsequently reviewed or updated.

C. Recommendations

Recommendation XIX-1 Regularly compare NJAW to other utilities in New Jersey. (Refer to Finding XIX-1.)

AWWSC and NJAW should work together to regularly compare NJAW to other utilities in New Jersey.

Recommendation XIX-2 Allow customers to chat with Call Handlers on the American Water website. (Refer to Finding XIX-2.)

Most utility organizations these days allow customers to not only make telephone calls for questions, but also use an ability to chat with a Customer Service Representative while they're on the website. Therefore, NJAW customers should also have that capability.

Recommendation XIX-3 Provide incorporation of video content on the website. (Refer to Finding XIX-4.)

This video content could be done by imbedding videos on the website or linking the customer to a YouTube locations for the videos. Videos could be created for such things as to show a customer how to make a payment on the website, inquiry on a balance, obtain and install a backflow preventer, etc.

Recommendation XIX-4 Create a formal policy documentation for handling customer disputes. (Refer to Finding XIX-6.)

NJAW should be able to create a formal policy documentation quickly, which also incorporates the guidelines which it uses handling customer disputes.

Recommendation XIX-5 Review and update, as needed, Utility Accounts Receivable Write-off Practice documentation regularly, at least no longer than every two years. (Refer to Finding XIX-8.)

As mentioned in other chapters, AWWSC management doesn't regularly review and update policies and practices documentation, such as Utility Accounts Receivable Write-off Practice documentation, so this practice documentation should be reviewed and updated frequently, at least no longer than every two years.



XX. External Relations

External Relations covers a wide range of issues, starting with establishing and developing relations with new partners, marketing research, project preparation and its realization, public relations, protocol issues and negotiation skills to corporate training services. An increasingly important aspect of utility management is management of the external relations function – the methods by which a company relates to its various constituencies in the fulfillment of its corporate objectives. The need to create new services and rates, both in reaction to changes in market conditions and in anticipation of such changes, demands a much more open and flexible relationship with regulators and other constituencies. In addition to regulators, such constituencies include government, investors, the media, and the general public. How a company relates to its various constituencies in the fulfillment of its corporate objectives is the essence of this portion of the management audit.

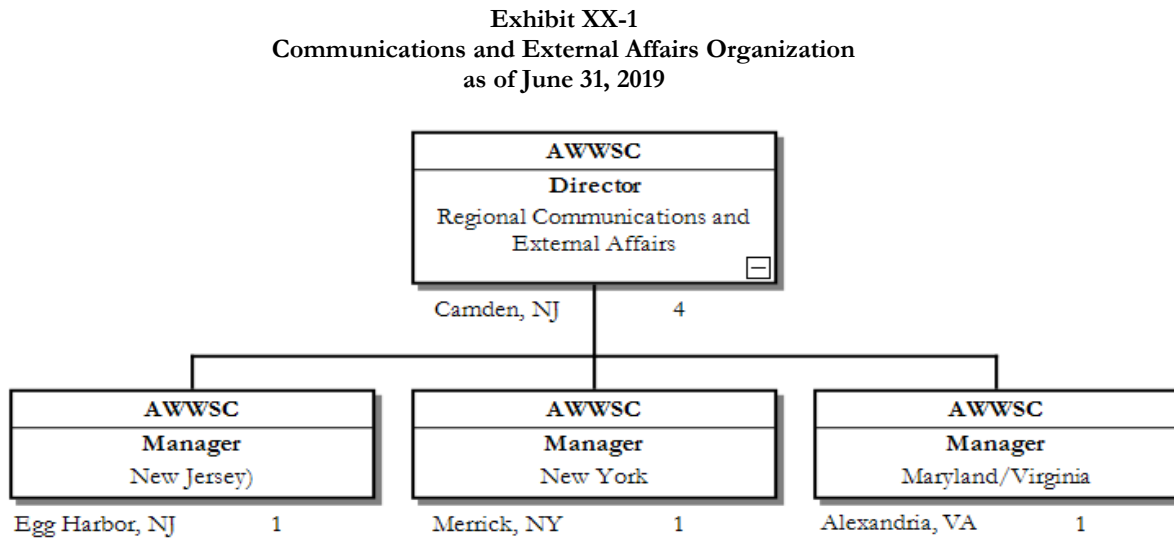
The specific steps and activities that Schumaker & Company performed in assessing this work plan area, as well as a listing of some of the preliminary information that would be required and the key indicators that we would use to assess the functional area, regard the effect of New Jersey-American Water Company, Inc.'s (NJAW's) management of the external relations function – the methods by which NJAW relates to its various stakeholders (i.e., customers, regulators, media, and investors) in the fulfillment of its corporate goals and objectives.

A. Background & Perspective

As stated in the RFP, Schumaker & Company assessed and made recommendations regarding the effect of NJAW's management of the external relations function – the methods by which NJAW relates to its various stakeholders (i.e., customers, regulators, media, and investors) in the fulfillment of its corporate goals and objectives.



External Affairs is organized as shown in *Exhibit XX-1*.¹¹⁹⁶



Source: Interview 4

B. Findings & Conclusions

Finding XX-1 NJAW has an effective external relations program.

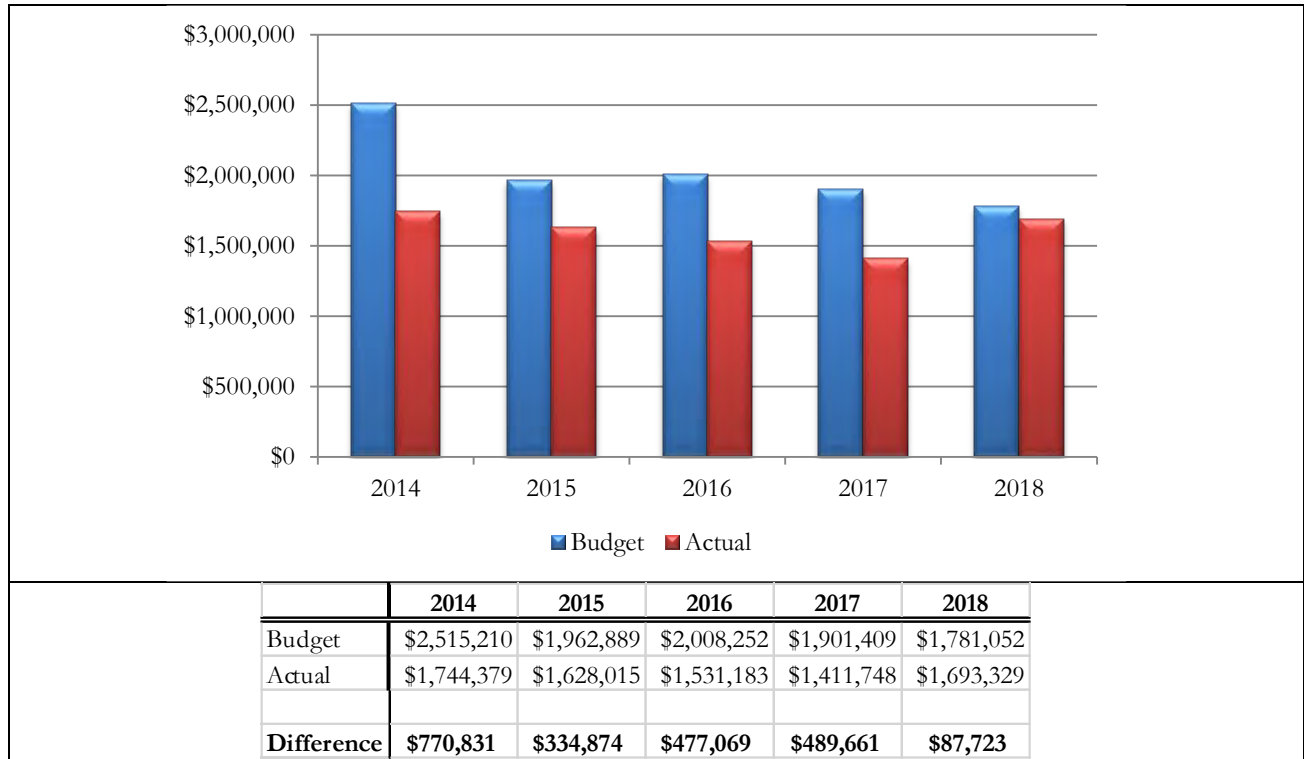
In September 2018, New Jersey American Water retained an outside firm to conduct a phone survey of 1,500 New Jersey voters to measure their satisfaction with water and sewer services, as well as their responses to questions about privatization of those services and the referendum process.¹¹⁹⁷

Responses indicated New Jersey voters are generally satisfied with their local public services, particularly their local water and sewer services; supporters of water and sewer privatization outnumber opponents by a 5-point margin; and more than seven-in-ten voters express support for the referendum process.¹¹⁹⁸

Finding XX-2 Spending in the area of external relations has remained essentially constant over the last five years.

NJAW expenditures in the area of external relations are shown in *Exhibit XX-2*.¹¹⁹⁹

**Exhibit XX-2
External Relations Budget to Actuals
2014 to 2018**



Source: Information Response 123

The actual spending is broken down as shown in *Exhibit XX-3*.¹²⁰⁰

**Exhibit XX-3
Actual External Relations Spending
2013 to 2018**

Year	Total Actuals	Labor & Related	Customer Education	Low Income Pay Program	Community Relations	Charitable Donations	Contracted Services	Other
2013	2,669,946	763,759	505,362	859,860	94,339	100,192	185,074	161,360
2014	1,744,379	796,878	253,381	260,435	75,933	61,763	268,204	27,785
2015	1,628,015	916,544	120,680	159,768	149,397	78,460	108,379	94,787
2016	1,531,183	829,977	139,355	123,601	101,575	61,748	88,273	186,655
2017	1,411,748	577,080	345,643	109,094	133,906	70,067	115,382	60,576
2018	1,693,329	628,930	402,983	40,000	282,018	106,267	159,727	73,404
	10,678,599	4,513,168	1,767,404	1,552,757	837,168	478,497	925,038	604,566

Source: Information Response 115

Finding XX-3 While NJAWC does not have any formal outreach programs for state and local governments and regulatory / legislative bodies, various employees and members of the Senior Management Team engage with these organizations on a regular basis.

Outreach programs to community groups are designed to educate and engage with the local communities in which NJAW operates. These events occur throughout the year but are primarily focused on the summer and fall months. NJAW provided a six page document containing all of the events that they were planning on attending this year.¹²⁰¹

NJAW also utilizes a vehicle when attending some of these events as shown in *Exhibit XX-4*. Chilled water can be handed out to event attendees while NJAW volunteers staff the van and disseminate information.¹²⁰²

Exhibit XX-4
Puddles



Source: Information Response 122

These programs include providing educational information in person at a variety of community events, list of outreach events. NJAW also provides information about wise water use, watershed protection, the water cycle and the science of treating and delivering water on its website, under Water Information at <https://amwater.com/njaw/water-information/water-learning-center>.¹²⁰³

Additionally, NJAW engages with local communities through two grant programs –Environmental Grant Program and Emergency Responder Grant program – and its speakers’ bureau and community donation request program. Information about these programs is available at <https://amwater.com/njaw/news-community> and at <https://amwater.com/njaw/news-community/community-involvement>.¹²⁰⁴

NJAW also partners with community groups that focus on environmental education, stewardship and sustainability in the areas we serve. These groups include Sustainable Jersey, Partnership for the Delaware Estuary, Barnegat Bay Partnership, Raritan Headwaters, Great Swamp Watershed Association and The Watershed Institute.¹²⁰⁵

Finding XX-4 NJAW is fairly active in the summer months in attending various community festivals and functions throughout the state of New Jersey.

NJAW was involved in approximately 17 community outreach events in 2017 and 26 in 2018, plus 27 scheduled in 2019. In many cases, summer months are involved.¹²⁰⁶ They take the vehicle (*Exhibit XX-4*) to many of the summer events.

C. Recommendations

None



XXI. Support Services

This chapter addresses NJAW's *Support Services* areas to determine that the support services' effectiveness in accomplishing their objectives of providing a favorable environment for NJAW's operations and services, including the following specific topics:

- ◆ *Insurance and Claims/Risk Management* - Determine if NJAW's insurance and claims policies provide clear risk management strategies based on a current, quantitative evaluation of loss and premium alternatives
- ◆ *Legal Counsel* - Assess the efficiency of NJAW's legal operations, measuring internal and external costs against the achievement of business objectives.
- ◆ *Real Estate and Property Management*, including
 - *Real Estate and Land Management* - Determine if NJAW's land management and real estate land strategies ensure the prudent acquisition and ownership of land consistent with the company's objectives and any the Board's rules.
 - *Facilities Management* - Evaluate the performance of NJAW's facilities management in providing a cost effective, flexible and efficient set of offices and facilities.
- ◆ *Procurement & Materials Management* - Determine if NJAW's materials management operations minimize costs, maintain appropriate service levels and control inventory levels.
- ◆ *Transportation* - Assess the transportation department's effectiveness in providing efficient transportation service, non-stationary equipment and vehicles.
- ◆ *Computer Systems and Services, including Cyber Risk* - Determine if the information technology structures meet NJAW's current business needs and have the capacity to adapt to future requirements and are designed to minimize cyber risk.
- ◆ *Records Management* - Determine if the records management systems make information accessible in a complete and timely manner and provide for the security of confidential information.
- ◆ *Security of Infrastructure* - Assess the security department's abilities to provide a safe working environment.



A. Insurance and Claims/Risk Management

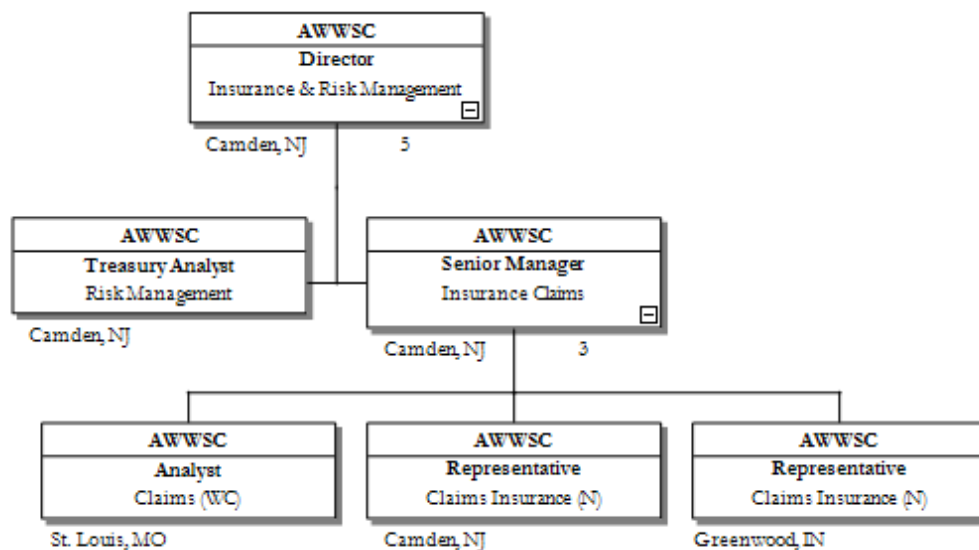
Schumaker & Company determined if NJAW's insurance and claims policies provide clear risk management strategies based on a current, quantitative evaluation of loss and premium alternatives.

Background & Perspective

The Director – Insurance & Risk Management, as shown in *Exhibit XXI-1*, who reports to the VP Treasurer, is responsible for insurance and risk management activities. He has been in this position more than three years and he has two direct reports, as follows:¹²⁰⁷

- ◆ One Senior Manager Insurance Claims who addresses NJ and other states, who has three (3) people report to this person, of which only one Representatives Claims Representative who is responsible for NJ.
- ◆ One Treasury Analyst who addresses MD.

Exhibit XXI-1
Insurance & Risk Management Organization



Source: Interview 12

Insurance

The different types of insurance that NJAW has includes:¹²⁰⁸

- ◆ Property
- ◆ Risk property

- ◆ Primary casualty
- ◆ Unmanned aviation
- ◆ Directors and officers (D&O)
- ◆ Liability and excess liability (\$100M limits 2018 EOY and 2019, previously losses so added)
- ◆ Workers compensation
- ◆ Surety bonds
- ◆ Cybersecurity
- ◆ Crime
- ◆ Fiduciary liability
- ◆ Special crime (EX: kidnapping)

With respect to insurance, after a review of its exposures, in 2018, limits on the Property Insurance policy increased from \$400M to \$515M. In 2019, American Water increased its Excess Liability limits from \$250M to \$350M, Cyber Liability limits from \$20M to \$30M, and D&O limits from \$125M to \$150M.¹²⁰⁹

Regarding specific insurance studies conducted in the past eight years, including evaluation of insurance companies for reliability, promptness of payment, and cost-effectiveness, plus management analysis of alternatives and preferred approach, the AWWSC Director of Insurance & Risk Management indicated that for each program, prior to the end of each policy period, exposures are updated and the program is reviewed with American Water's insurance brokers. The brokers then market the American Water risk and each program is renewed based on current market terms/conditions and pricing. He also indicated that all carriers placed on each program meet insurance brokers' financial security metrics.¹²¹⁰

Average Coverage and Associated Premium Expense

Exhibit XXI-2 illustrates the insurance coverage and associated premium expenses for NJAW for 2011 to 2018.¹²¹¹



Exhibit XXI-2
NJAW Insurance Coverage and Associated Premiums Expenses
2011 to 2018

2018					
Policy Date		Annual Policy	Policy Description	Limits (\$M)	Limit Description
From	To				
4/22/2018	4/22/2019	4,314.01	Crime	\$	10
4/22/2018	4/22/2019	51,886.25	Directors and Officers	\$	125 In 2016 the limit was increased from \$100M to \$125M
4/22/2018	4/22/2019	32,554.00	Employment Practices	\$	10
4/22/2018	4/22/2019	11,897.64	Fiduciary	\$	25
4/12/2017	4/13/2020	1,219.90	Travel	\$	10
4/22/2018	4/22/2019	6,803.36	Lawyers	\$	5
1/1/2018	12/31/2018	360,281.00	Auto Liability	\$	1
1/1/2018	12/31/2018	3,491,589.00	General Liability	\$	2
1/1/2018	12/31/2018	1,909,582.00	Workmens Compensation		Statutory
1/1/2018	12/31/2018	58,376.00	Consult Fee (AL,GL,WC)		
1/1/2018	12/31/2018	654,678.00	Excess Liab#1	\$	250 In 2011 the limit was \$350M
1/1/2018	12/31/2018	70,748.00	Excess Liab#2	\$	250 In 2011 the limit was \$350M
6/1/2018	12/31/2018	72,342.86	Excess Liab#3	\$	250 In 2011 the limit was \$350M
1/1/2018	12/31/2018	1,513,448.00	Property	\$	515 Prior to 2018 limit was \$400M
1/1/2018	12/31/2018	41,784.00	Cyber Crime#2	\$	20
1/1/2016	12/31/2018	748.33	Special Contingency Risk	\$	20
10/1/2017	9/29/2018	12,338.85	Aircraft Hull Liability-Drones	\$	10
		<u>8,294,591.20</u>			

2017						2016					
Policy Date		Annual Policy	Policy Description	Policy Date		Annual Policy	Policy Description				
From	To			From	To						
4/22/2017	4/22/2018	3,917.10	Crime	5/1/2016	4/30/2017	4,276.00	Crime				
4/22/2017	4/22/2018	47,625.93	Directors and Officers	5/1/2016	4/30/2017	54,890.00	Directors and Officers				
4/22/2017	4/22/2018	29,341.34	Employment Practices	5/1/2016	4/30/2017	40,081.00	Employment Practices				
4/22/2017	4/22/2018	10,802.95	Fiduciary	5/1/2016	4/30/2017	18,879.00	Fiduciary				
4/12/2017	4/13/2020	1,219.90	Travel	5/1/2014	4/30/2017	1,200.87	Travel				
4/22/2017	4/22/2018	5,424.22	Lawyers	5/1/2016	4/30/2017	3,859.33	Lawyers				
2/21/2015	2/21/2016	41,973.53	Environmental Impairment	2/21/2015	2/21/2016	41,973.53	Environmental Impairment				
8/1/2014	7/31/2015	120,968.04	Flood	8/1/2014	7/31/2015	120,968.04	Flood				
1/1/2017	12/31/2017	402,661.00	Auto Liability	1/1/2016	12/31/2016	381,818.00	Auto Liability				
1/1/2017	12/31/2017	3,461,677.00	General Liability	1/1/2016	12/31/2016	3,569,728.00	General Liability				
1/1/2017	12/31/2017	2,162,917.00	Workmens Compensation	1/1/2016	12/31/2016	2,591,740.00	Workmens Compensation				
1/1/2017	12/31/2017	54,717.00	Consult Fee (AL,GL,WC)	1/1/2016	12/31/2016	53,030.00	Consult Fee (AL,GL,WC)				
1/1/2017	12/31/2017	276,139.00	Excess Liab#1	1/1/2016	12/31/2016	64,863.00	Excess Liab#1				
1/1/2017	12/31/2017	68,955.00	Excess Liab#2	1/1/2016	12/31/2016	81,209.00	Excess Liab#2				
1/1/2017	12/31/2017	259,285.00	Excess Liab#3	1/1/2016	12/31/2016	254,630.00	Excess Liab#3				
1/1/2017	12/31/2017	1,484,062.00	Property	1/1/2016	12/31/2016	1,506,449.00	Property				
1/1/2017	12/31/2017	1,209.86	Cyber Crime#1	1/1/2016	12/31/2016	46,343.00	Cyber Crime#2				
1/1/2017	12/31/2017	37,393.00	Cyber Crime#2	1/1/2016	12/31/2019	280.63	Special Contingency Risk				
1/1/2016	12/31/2018	748.33	Special Contingency Risk	1/1/2016	12/31/2016	127,427.00	Excess Liab#4				
		<u>8,471,037.21</u>			<u>9,004,000.40</u>						

2015				2014			
Policy Date		Annual Policy	Policy Description	Policy Date		Annual Policy	Policy Description
From	To			From	To		
5/1/2015	4/30/2016	3,915.56	Crime	5/1/2014	4/30/2015	3,540.72	Crime
5/1/2015	4/30/2016	50,328.09	Directors and Officers	5/1/2014	4/30/2015	52,431.00	Directors and Officers
5/1/2015	4/30/2016	39,439.92	Employment Practices	5/1/2014	4/30/2015	34,238.97	Employment Practices
5/1/2015	4/30/2016	18,837.94	Fiduciary	5/1/2014	4/30/2015	18,738.71	Fiduciary
5/1/2014	4/30/2017	1,200.87	Travel	5/1/2014	4/30/2017	1,200.87	Travel
5/1/2015	4/30/2016	4,313.48	Lawyers	5/1/2014	4/30/2017	1,200.87	Travel
2/21/2015	2/21/2016	41,973.53	Environmental Impairment	7/1/2014	6/30/2015	7,599.77	Lawyers
8/1/2014	7/31/2015	120,968.04	Flood	2/21/2014	2/21/2015	41,973.53	Environmental Impairment
1/1/2015	12/31/2015	481,443.00	Auto Liability	5/16/2012	5/15/2013	120,968.04	Flood
1/1/2015	12/31/2015	2,632,998.00	General Liability	1/1/2014	12/31/2014	313,973.00	Auto Liability
1/1/2015	12/31/2015	1,973,020.00	Workmens Compensation	1/1/2014	12/31/2014	2,559,006.00	General Liability
1/1/2015	12/31/2015	51,827.00	Consult Fee (AL,GL,WC)	1/1/2014	12/31/2014	2,788,018.00	Workmens Compensation
1/1/2015	12/31/2015	131,918.00	Excess Liab#1	1/1/2014	12/31/2014	50,057.00	Consult Fee (AL,GL,WC)
1/1/2015	12/31/2015	83,948.00	Excess Liab#2	1/1/2014	12/31/2014	540,468.00	Excess Liab#1
1/1/2015	12/31/2015	67,051.00	Excess Liab#3	1/1/2014	12/31/2014	1,826,147.44	Property
1/1/2015	12/31/2015	1,771,991.21	Property	1/1/2014	12/31/2014	39,395.36	Cyper Crime#1
1/1/2015	12/31/2015	42,984.64	Cyper Crime#2	1/1/2014	12/31/2014	1,283.96	Cyper Crime#2
1/1/2013	12/31/2015	747.34	Special Contingency Risk	1/1/2013	12/31/2015	747.34	Special Contingency Risk
1/1/2015	12/31/2015	254,630.00	Excess Liab#4	1/1/2014	12/31/2014	5,938.37	Collateral Surety Bond
1/1/2015	12/31/2015	5,969.82	Collateral				
1/1/2015	12/31/2015	20,471.56	Excess Liab#5				
			<u>7,799,977.00</u>				<u>8,405,726.08</u>
2013				2012			
Policy Date		Annual Policy	Policy Description	Policy Date		Annual Policy	Policy Description
From	To			From	To		
5/1/2013	4/30/2014	3,880.28	Crime	5/1/2012	4/30/2013	3,936.95	Crime
5/1/2013	4/30/2014	60,006.95	Directors and Officers	5/1/2012	4/30/2013	58,489.00	Directors and Officers
5/1/2013	4/30/2014	27,360.06	Employment Practices	5/1/2012	4/30/2013	23,000.50	Employment Practices
5/1/2013	4/30/2014	20,535.68	Fiduciary	5/1/2012	4/30/2013	20,835.29	Fiduciary
4/1/2011	3/31/2014	903.54	Travel	4/1/2011	3/31/2014	903.54	Travel
7/1/2013	6/30/2014	7,269.22	Lawyers	7/1/2012	6/30/2013	7,048.94	Lawyers
2/22/2012	2/21/2013	46,823.04	Environmental Impairment	2/22/2012	2/21/2013	46,823.04	Environmental Impairment
5/16/2012	5/15/2013	128,633.04	Flood	8/1/2011	7/31/2012	117,688.92	Flood
1/1/2013	12/31/2013	287,448.00	Auto Liability	1/1/2012	12/31/2012	360,157.35	Auto Liability
1/1/2013	12/31/2013	2,624,764.00	General Liability	1/1/2012	12/31/2012	2,423,759.69	General Liability
1/1/2013	12/31/2013	2,884,481.00	Workmens Compensation	1/1/2012	12/31/2012	2,524,563.53	Workmens Compensation
1/1/2013	12/31/2013	52,375.00	Consult Fee (AL,GL,WC)	1/1/2012	12/31/2012	53,569.84	Consult Fee (AL,GL,WC)
1/1/2013	12/31/2013	454,570.13	Excess Liab#1	1/1/2012	12/31/2012	448,391.72	Excess Liab#1
1/1/2013	12/31/2013	80,833.78	Excess Liab#2	1/1/2012	12/31/2012	82,013.08	Excess Liab#2
1/1/2013	12/31/2013	76,698.18	Excess Liab#3	1/1/2012	12/31/2012	77,817.17	Excess Liab#3
1/1/2013	12/31/2013	1,891,334.50	Property	1/1/2012	12/31/2012	1,510,450.98	Property
1/1/2013	12/31/2013	42,666.07	Cyper Crime#1	1/1/2012	12/31/2012	41,051.93	Cyper Crime#1
1/1/2013	12/31/2015	819.01	Special Contingency Risk	1/1/2012	12/31/2012	6,602.79	Collateral Surety Bond
1/1/2013	12/31/2013	5,578.16	Collateral Surety Bond				
			<u>8,696,979.63</u>				<u>7,807,104.26</u>



2011			
Policy Date		Annual Policy	Policy Description
From	To		
5/1/2011	4/30/2012	5,981.87	Crime
5/1/2011	4/30/2012	53,627.00	Directors and Officers
5/1/2011	4/30/2012	20,140.42	Employment Practices
5/1/2011	4/30/2012	19,232.84	Fiduciary
4/1/2011	3/31/2014	903.54	Travel
7/1/2011	6/30/2012	7,269.22	Lawyers
2/22/2011	2/21/2012	50,458.94	Environmental Impairment
10/1/2010	9/30/2011	112,459.92	Flood
1/1/2011	12/31/2011	318,886.35	Auto Liability
1/1/2011	12/31/2011	2,533,284.98	General Liability
1/1/2011	12/31/2011	2,431,974.22	Workmens Compensation
1/1/2011	12/31/2011	42,214.34	Consult Fee (AL,GL,WC)
1/1/2011	12/31/2011	516,628.23	Excess Liab#1
1/1/2011	12/31/2011	115,601.45	Excess Liab#2
1/1/2011	12/31/2011	84,249.39	Excess Liab#3
1/1/2011	12/31/2011	1,593,060.65	Property
1/1/2011	12/31/2011	41,155.34	Cyber Crime#1
1/1/2011	12/31/2011	6,303.73	CNA Collateral Surety
4/23/2011	4/22/2012	5,410.70	D&O Consultg Fee
		<u>7,958,843.13</u>	

Source: Information Response 266 Attachment

Exhibit XXI-3 provides the insurance related administrative fees paid by NJAW in addition to the premiums paid for past eight (8) years.¹²¹²

Exhibit XXI-3
Annual Insurance-Related Administrative and External Services Expense Per Year
2011 to 2018

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>
Property Consulting Fee	\$55,315	\$55,284	\$56,919	\$56,919	\$56,919	\$53,158	\$53,158	\$40,204
Casualty Consulting Fee	58,376	54,717	53,030	51,827	50,057	52,375	53,570	40,985
Directors & Officers Fee	4,972	4,972	4,972	5,196	4,949	4,949	4,949	3,907
Total	\$118,663	\$114,973	\$114,921	\$113,942	\$111,925	\$110,482	\$111,677	\$85,096

Source: Information Response 267 Attachment (Insurance Other Than Group Administrative Fees)

Loss Claims

Exhibit XXI-4 illustrates the number and dollar of loss claims by category from 2012 to April 2019.¹²¹³

Exhibit XXI-4
Number and Dollar Amount of NJAW Loss Claims by Category
2012 to 2019 (First 4 Months)

	Auto Liability		General Liability		Workers' Compensation		Total	
	Incurred		Incurred		Incurred		Incurred	
	Claim+Medical+Expense	# of Claims	Claim+Medical+Expense	# of Claims	Claim+Medical+Expense	# of Claims	Claim+Medical+Expense	# of Claims
2012	\$249,568	56	\$1,499,114	394	\$905,720	119	\$2,654,402	569
2013	\$604,168	46	\$1,740,666	436	\$3,466,263	124	\$5,811,097	606
2014	\$261,346	54	\$1,245,451	476	\$1,094,929	115	\$2,601,726	645
2015	\$121,132	62	\$1,932,158	509	\$771,601	109	\$2,824,891	680
2016	\$59,516	45	\$717,097	460	\$911,774	97	\$1,688,387	602
2017	\$71,690	44	\$2,531,720	433	\$1,406,531	106	\$4,009,941	583
2018	\$70,777	40	\$1,504,075	633	\$624,789	58	\$2,199,641	731
2019*	\$10,455	9	\$273,997	138	\$6,415	11	\$290,867	158
Grand Total	\$1,448,652	356	\$11,444,278	3,479	\$9,188,022	739	\$22,080,952	4,574

Source: Information Response 268
 2019* through approximately four months in 2019

If American Water has approximately 2,500 to 3,500 claims annually, which the Director of Insurance & Risk Management stated, we didn't understand why it does not agree with exhibit above.¹²¹⁴ When American Water initially reviewed our draft report, they indicated that it was because *Exhibit XXI-4 was for AWK, but the information response indicated it was for NJAW only.*

The Director believes that there's been a relatively good trend, although in some cases no renewals of utilities by insurance companies has happened due to what has happened by utilities. He also believes that NJAW get most insurance for cheapest strategies for addressing risk. He talks with Legal Counsel about how to be most cost effective.¹²¹⁵

Losses are primarily due to:¹²¹⁶

- ◆ Main breaks
- ◆ Slips and falls

Some actuary does loss projects for terrorism risk coverage insurance.¹²¹⁷

Once NJAW gets claims, such as lawsuits, Operations sends them to the Senior Manager Insurance Claims. He works with travelers to see what needed. The Operations or Financial organizations also send to Senior Manager Insurance Claims work with local operations to put together claims.¹²¹⁸

The Risk Management groups sends its monthly reports of claims to the NJAW President and the CFO Eastern Division.¹²¹⁹ A sample report is shown in *Exhibit XXI-5*.¹²²⁰



**Exhibit XXI-5
Sample Monthly Report of Claims to Operations
April 2017 to April 2019**

New Jersey American Water April 2017-2019 Claims Analysis											
Major Line of Insurance	Office	2017			2018			2019			2017 /2019 Avg Claim Cost Variance
		Incurred	# of Claims	Average claim cost	Incurred	# of Claims	Average claim cost	Incurred	# of Claims	Average claim cost	
AL	BELLE MEAD OFFICE	\$ 2,527	3	\$ 842	\$ 1,180	3	\$ 393	\$ -	0	\$ -	-100%
	CANAL RD PLANT	\$ -	0	\$ -	\$ -	1	\$ -	\$ -	0	\$ -	0%
	CORPORATE OFFICE	\$ -	0	\$ -	\$ -	1	\$ -	\$ -	0	\$ -	0%
	CORPORATE-CAMDEN	\$ -	0	\$ -	\$ -	0	\$ -	\$ 1,033	1	\$ 1,033	100%
	DELTRAN	\$ -	0	\$ -	\$ 7,492	1	\$ 7,492	\$ -	1	\$ -	0%
	LAKEWOOD OPERATIONS	\$ -	1	\$ -	\$ -	1	\$ -	\$ 5,495	2	\$ 2,748	100%
	PLAINFIELD	\$ -	1	\$ -	\$ -	0	\$ -	\$ 2,000	4	\$ 500	100%
	SHORT HILLS OPERATIONS	\$ 1,015	2	\$ 508	\$ 3,973	1	\$ 3,973	\$ 1,927	1	\$ 1,927	280%
	SHREWSBURY DISTRICT	\$ -	0	\$ -	\$ -	1	\$ -	\$ -	0	\$ -	-
	AL Total		\$ 3,542	7	\$ 596	\$ 12,645	8	\$ 1,485	\$ 10,455	8	\$ 1,162
GL	BELLE MEAD OFFICE	\$ 3,580	5	\$ 716	\$ 1,454	16	\$ 92	\$ 26,945	15	\$ 1,796	151%
	CANAL RD PLANT	\$ -	0	\$ -	\$ -	1	\$ -	\$ -	0	\$ -	0%
	DELTRAN	\$ 45,605	24	\$ 1,900	\$ 38,447	24	\$ 1,602	\$ 36,622	19	\$ 1,927	1%
	HAZLET(SHORELANDS)	\$ -	0	\$ -	\$ -	0	\$ -	\$ -	1	\$ -	0%
	LAKEWOOD OPERATIONS	\$ 19,959	11	\$ 1,814	\$ 2,843	11	\$ 258	\$ 2,500	9	\$ 278	-85%
	PLAINFIELD	\$ 5,108	23	\$ 222	\$ 26,680	36	\$ 741	\$ 36,333	36	\$ 1,009	354%
	SHORT HILLS OPERATIONS	\$ 53,829	20	\$ 2,691	\$ 130,510	42	\$ 3,107	\$ 60,947	34	\$ 1,793	-33%
	SHREWSBURY DISTRICT	\$ 343	10	\$ 34	\$ 17,726	22	\$ 806	\$ 83,342	14	\$ 5,953	17256%
	SOUTH JERSEY-ATLANTIC/CAPE MAY	\$ 4,459	7	\$ 637	\$ 3,680	8	\$ 460	\$ 27,308	9	\$ 3,034	376%
	WASHINGTON	\$ -	0	\$ -	\$ -	0	\$ -	\$ -	1	\$ -	0%
GL Total		\$ 132,883	100	\$ 1,329	\$ 221,350	160	\$ 1,383	\$ 273,997	138	\$ 1,965	49%
WC	BELLE MEAD OFFICE	\$ 4,890	5	\$ 978	\$ 8,115	2	\$ 4,058	\$ 861	2	\$ 431	-56%
	DELTRAN	\$ 37,869	4	\$ 9,417	\$ 6,030	1	\$ 6,030	\$ 770	2	\$ 385	-96%
	JUMPING BROOK TREATMENT PLANT	\$ 20	1	\$ 20	\$ -	0	\$ -	\$ -	0	\$ -	-100%
	LAKEWOOD OPERATIONS	\$ 8,987	4	\$ 2,247	\$ 7,490	3	\$ 2,497	\$ -	0	\$ -	-100%
	MONMOUTH/SWIMMING RIVER WTP	\$ -	1	\$ -	\$ -	0	\$ -	\$ -	0	\$ -	0%
	PLAINFIELD	\$ 35,107	7	\$ 5,015	\$ 55,011	4	\$ 13,753	\$ -	0	\$ -	-100%
	RARITAN MILLSTONE WATER TREATMENT	\$ 68,216	2	\$ 34,108	\$ -	0	\$ -	\$ 876	1	\$ 876	-97%
	SHORT HILLS OPERATIONS	\$ -	0	\$ -	\$ -	2	\$ -	\$ -	1	\$ -	0%
	SHREWSBURY DISTRICT	\$ 3,546	5	\$ 709	\$ 70	2	\$ 35	\$ 929	2	\$ 465	-36%
	SOUTH JERSEY-ATLANTIC/CAPE MAY	\$ 72,378	5	\$ 14,476	\$ 7,838	3	\$ 2,613	\$ 2,979	3	\$ 993	-63%
WC Total		\$ 230,813	34	\$ 6,789	\$ 144,554	17	\$ 8,374	\$ 5,415	11	\$ 569	-71%
Grand Total		\$ 567,238	141	\$ 2,685	\$ 318,545	186	\$ 1,715	\$ 290,667	158	\$ 1,841	-29%

Work Comp Cause of Loss Injury Report											
Cause		Incurred	# of Claims	Average claim cost	Incurred	# of Claims	Average claim cost	Incurred	# of Claims	Average claim cost	2017 /2019 Avg Claim Cost Variance
ANIMAL/INSECT		\$ -	1	\$ -	\$ -	0	\$ -	\$ 191	1	\$ 191	100%
BURN/SCALD		\$ -	1	\$ -	\$ -	0	\$ -	\$ -	0	\$ -	0%
CAUGHT IN/BETWEEN		\$ 304	1	\$ 304	\$ -	1	\$ -	\$ -	0	\$ -	-100%
CUMULATIVE NOC		\$ 9,090	1	\$ 9,090	\$ -	0	\$ -	\$ -	0	\$ -	-100%
CUT/PUNCTURE		\$ 1,672	3	\$ 557	\$ -	1	\$ -	\$ -	0	\$ -	-100%
FALL/SLIP		\$ 132,601	10	\$ 13,260	\$ 69,088	6	\$ 11,515	\$ 861	2	\$ 431	-97%
MISC OTHER		\$ 983	2	\$ 492	\$ -	0	\$ -	\$ 770	3	\$ 257	-48%
MOTOR VEHICLE		\$ 3,000	1	\$ 3,000	\$ -	0	\$ -	\$ -	0	\$ -	-100%
OTHER THAN PHYS		\$ -	0	\$ -	\$ 18	1	\$ 18	\$ -	0	\$ -	0%
RUBBED/ABRADED		\$ -	1	\$ -	\$ -	0	\$ -	\$ -	0	\$ -	0%
STRAIN		\$ 7,991	8	\$ 999	\$ 15,448	7	\$ 2,207	\$ 3,717	2	\$ 1,859	86%
STRUCK OR INJ BY		\$ 75,172	5	\$ 15,034	\$ -	1	\$ -	\$ 876	3	\$ 292	-66%
Grand Total		\$ 230,813	34	\$ 6,789	\$ 84,554	17	\$ 4,974	\$ 6,415	11	\$ 569	-71%

Source: Information Response 475

Loss Prevention Programs and Activities

NJAW does not specifically track expenditures related to loss prevention programs and activities, as according to NJAW management, the company's routine operational activities, capital expenditures, and employee environmental health and safety programs are how it manages to prevent losses.¹²²¹

Risk Management

NJAW does not have its own risk management department, so risk management is performed by various employees throughout NJAW in each department and at the Service Company level.¹²²²

Specifically, NJAW performs risk assessment and risk management throughout the company with specific initiatives implemented by functional department.¹²²³

However, NJAW has its own Health & Safety Department, which focuses on health and safety programs, continuous safety program improvement, reduction of occupational injuries and illnesses, and compliance with Federal, State and local laws and regulations. Estimated full-time employee hours for this department, per year from 2011 through 2018 is provided in *Exhibit XXI-6*. Over the years, the

number of hours has increased. These hours may include specialist, manager, and director level position hours. These hours account for approximately 90% of the Health & Safety Department's time.¹²²⁴

Exhibit XXI-6
Health & Safety Management Annual Hours
2011 to 2018

<ul style="list-style-type: none"> ◆ 2011- 8,320 ◆ 2012 -8,320 ◆ 2013- 10,400 ◆ 2014- 10,400 	<ul style="list-style-type: none"> ◆ 2015- 10,400 ◆ 2016- 10,400 ◆ 2017- 10,400 ◆ 2018- 12,480
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Source: Information Response 265

An *Enterprise Risk Management Policy* documentation exists, which provides requirements to conduct Enterprise Risk Management (ERM) activities. It addresses timing, key methods, approvals, reporting and roles/responsibilities. The policy highlights the differences between the regulated and market-based businesses (MBB), where applicable.¹²²⁵ It contains guidance relevant to ERM to assist in achieving the company's strategic and operating objectives by bringing a systematic approach to identifying, analyzing, mitigating, and reporting risk. The objective of ERM activities is to ensure company risks are identified and assessed to enable senior management to make informed decisions and to specify a target risk level with appropriate tolerances (ranges of acceptable outcomes). These activities help to enable the achievement of company objectives. Unless otherwise specified, this policy establishes requirements that are to be followed by employees involved in ERM activities. More detailed guidance is found in the applicable practices, which are referenced in the Appendix section of this policy. This policy defines the framework for ERM activities, in which below are the primary focus areas:¹²²⁶

- ◆ Anticipating and responding to changing security, economical, environmental, jurisdictional, social conditions, and other emerging risks
- ◆ Maintaining acceptable performance variability
- ◆ Aligning and integrating varying views of risk management
- ◆ Assigning responsibilities for risk oversight
- ◆ Building confidence of investment community and stakeholders
- ◆ Enhancing corporate governance
- ◆ Effectively responding to changing business environment
- ◆ Aligning strategy and corporate culture.
- ◆ Integrating strategic risk management (SRM) into ERM

An *Enterprise Risk Management Practice* documentation also exists, in which it is to ensure that American Water Works Company, Inc. and its controlled subsidiaries identifies, assesses, manages and monitors, related business risks in order to create, preserve and build the value of the company.¹²²⁷



Operations risk assessment and management practices are described in an example Emergency Response Plan (ERP) for the New Jersey American Water Short Hills System (Public Water System ID (PWSID) NJ0712001). ERPs are in place for all PWSIDs in New Jersey American Water's service territory. Part of the ERP is to conduct a probability-based risk assessment of critical assets serving its customers. A confidential risk assessment for NJAW's North Operations is conducted in accordance with the ANSI/AWWA J-100. Standard Emergency response table top drills are conducted annually for specific risks in each region to test preparedness and the action plans.¹²²⁸

The Engineering team focuses its efforts on risk assessment through various tools and procedures. There are risk assessments completed as part of the Comprehensive Planning Studies; these are related to adequate supply, aging asset condition, reliability and regulatory issues. Also as part of the five year capital planning process, risks are assessed in conjunction with the project prioritization tool.¹²²⁹

Another key component of the company's risk assessment methodology is centered on the High Risk Asset Management program, which identifies not only asset condition issues, but also broader key operational risk issues. For example, regulation of emerging contaminants are an area of concern related to potential customer, employee, and company risk. There are both capital and operational risk mitigation strategies that are considered in order to manage this regulatory risk. The company works across the business units to identify, quantify and prioritize the highest asset risks. Individual capital projects as well as state wide operational mitigation strategies are identified, discussed, and deployed in order to lower the potential risk to our customers and employees.¹²³⁰

NJAW uses its in-house developed Risk Register that is updated as needed several times per year. Additionally, NJAW reviews High Risk Assets monthly at regularly scheduled CIM meetings with senior management. NJAW strives to evaluate each risk by assessing the likelihood of occurrence and the consequence of failure. According to company management, the Risk Register captures most influential risks as well as the mitigating steps NJAW is taking to reduce impact whether an operational or capital mitigation.¹²³¹

American Water management also indicates that risk assessments are incorporated into the capital program management activities.¹²³²

Refer to *Chapter XIV – Executive Management and Corporate Governance*, plus *Chapter XIII – Operations Review* or *Chapter XVIII – Systems Operations* for additional topics related to risk management activities.

Findings & Conclusions

Finding XXI-1 AWWSC and NJAW are working together for insurance renewal changes to address the amount of claims.

New Jersey is one of the largest states with the biggest exposure involving a lot of claims, as supposedly previously shown in *Exhibit XXI-4*; however, this group is looking at renewal changes, then negotiations.

Finding XXI-2 Risk management activities have been addressed, as appropriate, by a Risk Committee.

Top 10 risks exist within the Enterprise Risk Management (ERM) program, including the following top three risks:¹²³³

- ◆ Employee and public safety
- ◆ Water contamination
- ◆ Cyber security

The ERM program is done by a Risk Committee, including 15-25 employees who meet on a quarterly basis and have *information* go up to the Executive Leadership Team and Board of Directors (BOD) on a quarterly basis, which includes key/high risk issues currently in place and mitigation activities.¹²³⁴ NJAW's President joined the Risk Committee recently. Regarding the ERM program, there has been no major events in New Jersey in the past three years.¹²³⁵

Refer to *Chapter XIV – Executive Management and Corporate Governance* regarding other risk management items.

Recommendations

None

B. Legal Counsel

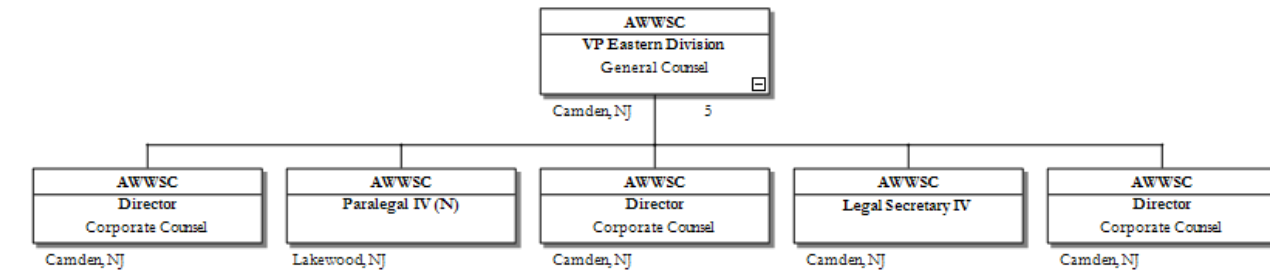
Background & Perspective

Organization

Exhibit XXI-7 illustrates the Eastern Division Legal Counsel Organization at AWWSC in Camden, New Jersey (NJ). This group is headed by the VP Eastern Division, and he is responsible for Legal Counsel for these four states, specifically New Jersey, New York (NY), Virginia (VA), and Maryland (MD), in which VA and MD were added to the Eastern Division two years ago. The VP primarily reports to the VP Deputy General Counsel.¹²³⁶



Exhibit XXI-7
Eastern Division Legal Counsel Organization
April 2019



Source: Interview 15

This group currently has five employee positions reporting to this VP.¹²³⁷

- ◆ Three Directors of Corporate Counsel, in which each has functionalities, including:
 - One does rates and regulatory activities for NJ, VA, and MD, including rate cases with NJBPU Staff; she works with AWWSC Rates & Regulatory and also AWWSC Regulatory Services.¹²³⁸ This attorney is primarily responsible for day to day management of regulatory legal matters, including stakeholder proceedings, base rate cases, surcharge proceedings, and financing requests.¹²³⁹ This attorney also serves as Assistant Secretary for Board of Director meetings involving NJ, VA, and MD.
 - One focuses on operational legal matters for NJ, VA, and MD, including corporate and commercial contracts; he works with Operations, Engineering, and Risk Management, and serves as Assistant Secretary for Board of Director meetings involving NJ, VA, and MD. This attorney is primarily responsible for day-to-day management of operational legal matters, including contracts, real property issues, transactions, litigation, and document subpoenas.¹²⁴⁰
 - One is similar to other Directors but only for NY.
- ◆ A Paralegal and a Legal Secretary

The Eastern Division has approximately 28% of customers and revenues across American Water, which include:¹²⁴¹

- ◆ NJ 700,000
- ◆ NY 125,000
- ◆ VA 20,000
- ◆ MD 5,000

The NJAW President and others are key clients for this group, as the VP Eastern Division General Counsel also only reports cross-wise to the NJAW President, as well as directly reporting to the VP Deputy General Counsel.¹²⁴² The NJAW President is one of the Legal Department's internal business partners and a critical internal business client of the department.¹²⁴³

Some key policies that apply to this group include:¹²⁴⁴

- ◆ Code of ethics
- ◆ Records retention, but tend to hold onto everything beyond the limited schedule
- ◆ Delegation of authority (mostly frequently)

NJAW has used six or seven outside law firms most frequently, including Cozen and O'Connor who has helped New Jersey with regulatory matters for 20+ years, plus others for environmental and real estate issues.¹²⁴⁵ According to Legal Counsel some of the other firms typically used include:¹²⁴⁶

- ◆ Archer & Greiner (real estate and land use)
- ◆ O'Toole & Couch (North NJ) insured litigation/liability defense; however, as Toole & Couch is an attorney used and covered for by American Water's insurer; therefore, there are no invoices from American Water to that firm, so it doesn't show up on *Exhibit XXI-8*
- ◆ Hurvitz & Waldman (South NJ) insured litigation/liability defense, in which sometimes local counsel also used

Outside legal fees included in the last seven years (2012-2018) have totaled \$4,943,863 using 24 different firms throughout that timeframe.¹²⁴⁷ *Exhibit XXI-8* illustrates the amount paid to outside law firms.¹²⁴⁸

Exhibit XXI-8
Amounts Paid to Outside Law Firms
2012-2018

Amounts Paid By Year							
	2012	2013	2014	2015	2016	2017	2018
[REDACTED]							
Complete List of Outside Law Firms and Amounts Paid (Confidential)							
[REDACTED]	[REDACTED]						
TOTAL LEGAL COSTS							

Source: Information Response 402

For selecting rates and regulatory counsel outside attorneys, Legal Counsel selects firms by:¹²⁴⁹

- ◆ Reputation in NJ
- ◆ Competition on price
- ◆ Adequate number of attorneys

This group will soon by opening up a request for proposal with respect to NJAW's outside regulatory counsel to ensure that the Company is working with the firm that best fits the Company's needs.¹²⁵⁰

Annually the Eastern Division sets up legal costs budget for three to five years. There hasn't been much supposedly in the last few years. NJ recently had \$600,000 in external budget. There are no guidelines for setting up budget, so they work with the CFO Eastern Division for monitoring. There is no major interaction on \$ of budgets.¹²⁵¹ That \$600,000 external budget is considerably lower than what NJAW paid for legal services in 2009, which was \$2.8 million, as shown in the prior audit report. In 2018, NJAW was charged approximately \$900,000 for outside counsel services.¹²⁵² Outside counsel services for the Eastern Division's rate cases are not part of the Legal Department budget; rather those costs are a Rates and Regulatory expense.¹²⁵³

The VP Eastern Division General Counsel meets weekly with the Senior Management Team of state presidents, including a formal meeting with NJAW President and her direct reports. For example, they met recently involving customer communications plan in which the Director of Communications and External Affairs was also involved.¹²⁵⁴ He also meets monthly on a Senior Management Team meeting. Typically it is moved around for hosting the meeting.¹²⁵⁵

The VP Eastern Division General Counsel meets with the VP Deputy General Counsel and his direct reports every two weeks to discuss more detailed information.¹²⁵⁶

The VP Eastern Division General Counsel typically interacts daily with the Rates & Regulatory group, although there is a formal monthly meeting. She also meets monthly with the VP Deputy General Counsel for regulatory issues involving Regulatory Services group.¹²⁵⁷

The VP Eastern Division General Counsel also works closely with Business Development functions for example involving handling closing, responding to RFPs, and negotiating with sellers.¹²⁵⁸ He also interacts with Government Affairs functions, but no one currently when we interviewed the VP.¹²⁵⁹

Services

Legal Counsel (by one Director General Counsel) reviews NJ filings from the Senior Director Rates & Regulatory often involving day-to-day interactions, plus the Rates & Regulatory group's Responsible, Accountable, Consult, and Inform (RACI) documentation. See *Chapter III – Regulatory Filing Process and Review of Current Case Workpapers and Spreadsheets* for description of the RACI documentation. RACI now gets used in every rate case.¹²⁶⁰ Involving NY, in 2012, American Water Works Company did a swap with Aqua Water Company. There were errors in spreadsheets involving office of real estate and property tax, plus screwed up assessments, so overpayments were made. As a result, AWWSC has undertaken changes within its Rates and Accounting areas to address the issues identified in the early 2012 to 2016 timeframe.

“Since the beginning of 2017, American Water has implemented several initiatives related to rate case management or oversight. American Water adopted a RACI (Responsibility, Accountable, Consulted, and Informed) methodology that defines specific roles for rate case employees, and lines of communications between rate case employees. For each step in the rate case process, the RACI methodology requires the rates team to assign individuals responsible for completing defined tasks, individuals who are accountable for ensuring completion, and individuals who must be consulted for their expertise before an item is completed. RACI also requires the rate case team to identify individuals who must be kept informed of each item. American Water also developed revised rate case project management and process guidance documents for use across all company-owned utilities. These documents are memorialized in a template developed by American Water that is required for use in all rate cases. The template contains calendaring and organizational documents for use by rate case team members. The template includes checklists for compliance with company best practices, a responsibility assignment matrix for RACI project management as discussed above, Gantt charts, task and filing requirement lists, defined lists of rate team members with assigned responsibilities, rate case timeline, and links to the master task lists. Under the new standardized rate case procedures, American Water assigns a tax liaison and an accounting liaison to each rate case. The tax and accounting liaisons serve as points of contact who are responsible for communicating information between the rate case team, tax, and accounting during a rate case.”¹²⁶¹

AWWSC is trying to fix rate case as NYSDPS Staff did 2017-2018 investigations.¹²⁶²

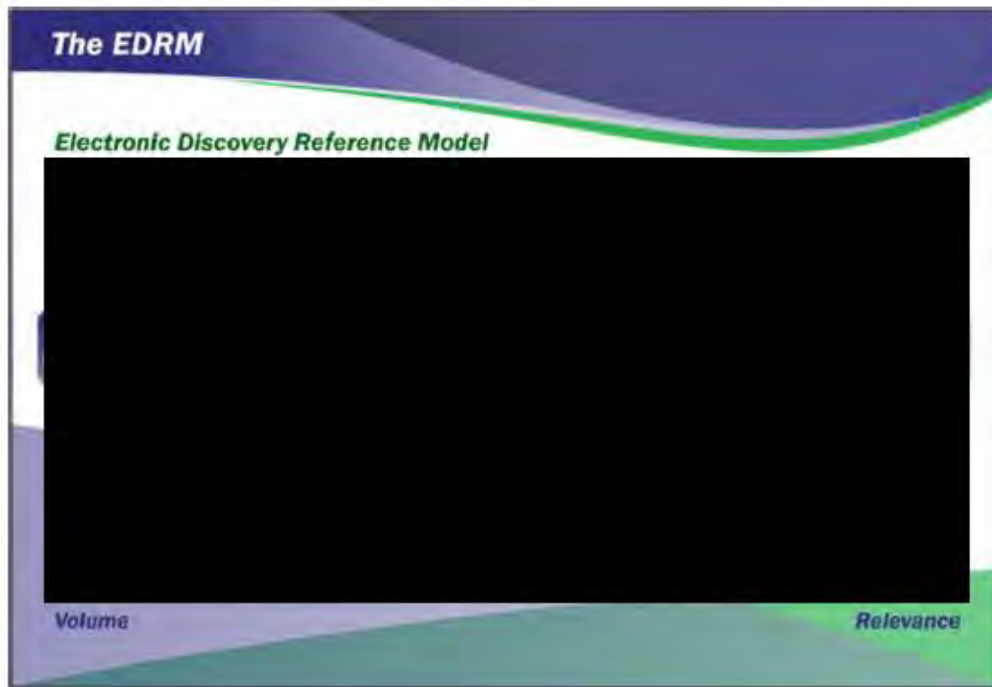
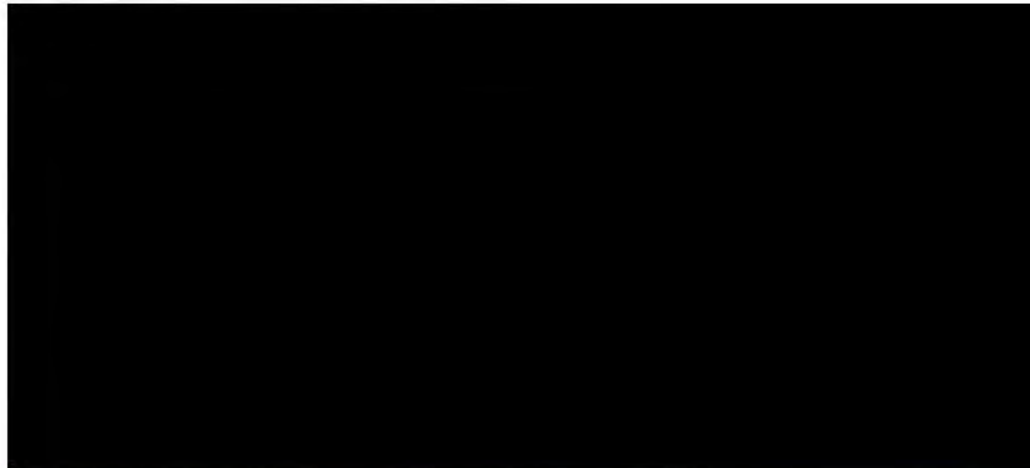
As the prior Audit Liaison on a prior NJ management audit, the former VP Eastern Division General Counsel worked roughly two years with NJAW staff to address prior recommendations. NJAW only rejected a handful amount of recommendations, specifically three of 55.¹²⁶³ Refer to *Chapter VIII – Recommendations and Review of Previous Audit* for more information.



EDiscovery Policies, Procedures, and Practices Documentation

An Encase eDiscovery Process Outline for the Legal Department exists, which is illustrated in *Exhibit XXI-9*.¹²⁶⁴

Exhibit XXI-9
Encase eDiscovery Process Outline



Source: Information Response 406 Attachment (Part of confidential documentation)

Findings & Conclusions

Finding XXI-3 The amount of legal costs has been reasonable.

The amount of legal costs included in NJAW's operating expenses for 2017 and 2018, for example, were .10% for 2017 and .18% for 2018.¹²⁶⁵

Finding XXI-4 AWWSC's Legal Counsel function does not currently use a formalized legal management system.

Primarily the VP Eastern Division would like matter management documentation, as currently Legal Counsel employees only uses Outlook email messages and folder structure to keep documentation, plus interface with Business Development group via SharePoint.¹²⁶⁶

Finding XXI-5 No strategic plan or goals/objectives exist specifically for the Legal Counsel function.

The Legal Counsel and Regulatory Services Departments do not have a standalone strategic plan, but the legal services function serves as a business partner that provides legal counsel and services to support American Water's overall strategic plan, goals, and objectives.¹²⁶⁷ In 2020, however, the Regulatory Services Department began reporting into the CFO.¹²⁶⁸

Finding XXI-6 NJAW does not have much litigation.

Exhibit XXI-10 lists all currently active cases (approximately 70) involving NJAW, including subpoena requests and complaints, in which NJAW has been named as a party.¹²⁶⁹



Exhibit XXI-10
Currently Active Legal Cases
as of November 2019

No.	State	Document Type	Received	Service Type
2018.02	NJ	Subpoena (Records)	1/12/2018	Process Server
2018.04	NJ	Complaint (Property Damage)	2/2/2018	Regular Mail
2018.05	NJ	Subpoena (Records)	1/31/2018	Regular Mail
2018.06	NJ	Complaint (Personal Injury)	1/31/2018	Process Server
2018.07	NJ	Subpoena (Grand Jury)	2/12/2018	Fax
2018.08	NJ	Subpoena (Records)	2/14/2018	Regular Mail
2018.09	NJ	Complaint (Personal Injury)	2/27/2018	Process Server
2018.10	NJ	Complaint (Personal Injury)	3/1/2018	Process Server
2018.12	NJ	Subpoena (Grand Jury)	3/9/2018	Fax
2018.13	NJ	Complaint (Personal Injury)	4/2/2018	Process Server
2018.15	NJ	Complaint (Personal Injury)	4/4/2018	Process Server
2018.19	NJ	Complaint (Personal Injury)	4/12/2018	Process Server
2018.20	NJ	Complaint (Property Damage)	4/18/2018	Process Server
2018.26	NJ	Complaint (Damages) HOS	5/30/2018	Certified Mail, RRR: #Regular Mail
2018.27	NJ	Complaint (Personal Injury)	5/30/2018	Certified Mail, RRR: #Process Server
2018.33	NJ	Complaint (Personal Injury)	6/21/2018	Process Server
2018.34	NJ	OTSC/Verified Complaint	6/26/2018	Process Server
2018.38	NJ	Complaint (Personal Injury)	8/15/2018	Process Server
2018.39	NJ	Complaint (Personal Injury)	8/16/2018	Process Server
2018.46	NJ	Complaint (Personal Injury)	9/20/2018	Process Server
2018.48	NJ	Subpoena Records & Testify	10/5/2018	Process Server
2018.49	NJ	Subpoena (Records)	10/23/2018	Fax
2018.48a	NJ	Complaint (Property Damage)	10/17/2018	Process Server
2018.50	NJ	Complaint (Property Damage)	10/31/2018	Process Server
2018.51	NJ-#NY	Complaint (Personal Injury)	10/31/2018	FedEx/UPS: #Process Server
2018.52	NJ	Subpoena (IRS)	11/7/2018	Certified Mail, RRR: #Process Server
2018.53	NJ	Complaint (Personal Injury)	11/12/2018	Process Server
2018.54	NJ	Complaint (Personal Injury)	11/12/2018	Process Server
2018.55	NJ	Complaint (Small Claims)	11/13/2018	Certified Mail, RRR
2018.56	NJ	Subpoena (Records)	11/28/2018	Process Server
2018.58	NJ	Non-Subpoena	12/14/2018	Certified Mail, RRR
2018.59	NJ	Complaint (Personal Injury)	12/14/2018	Process Server
2019.01	NJ	Complaint (Small Claims)	1/3/2019	Regular Mail
2019.02	NJ	Subpoena (Records)	1/3/2019	Certified Mail, RRR
2019.03	NJ	Complaint (Small Claims)	1/8/2019	Process Server
2019.04	NJ	Complaint (Personal Injury)	1/16/2019	Process Server
2019.05	NJ	Complaint (Personal Injury)	1/29/2019	Process Server
2019.06	NJ	Complaint (Small Claims)	1/29/2019	Regular Mail
2019.07	NJ	Subpoena (Records)	2/25/2019	Process Server
2019.08	NJ	Complaint (Personal Injury)	2/26/2019	Process Server
2019.09	NJ	Non-Subpoena	2/27/2019	Certified Mail, RRR: #Regular Mail
2019.10	NJ	Complaint (Property Damage)	3/8/2019	Process Server
2019.11	NJ	Complaint (Personal Injury)	3/12/2019	Regular Mail
2019.12	NJ	Complaint (Personal Injury)	3/19/2019	Regular Mail
2019.14	NJ	Complaint (Personal Injury)	3/22/2019	Process Server
2019.15	NJ	Complaint (Personal Injury)	3/25/2019	Process Server
2019.17	NJ	Subpoena (Records)	4/10/2019	Process Server
2019.18	NJ	Complaint (Personal Injury)	4/17/2019	Process Server
2019.19	NJ	Complaint (Personal Injury)	4/19/2019	Process Server
2019.20	NJ	Subpoena (Grand Jury)	4/24/2019	Fax
2019.21	NJ	Subpoena (Grand Jury)	4/24/2019	Certified Mail, RRR
2019.23	NJ	Complaint (Personal Injury)	5/28/2019	Process Server
2019.24	NJ	Complaint (Personal Injury)	6/17/2019	Process Server
2019.25	NJ	Complaint (Personal Injury)	6/18/2019	Process Server
2019.26	NJ	Subpoena (Records)	6/25/2019	Certified Mail, RRR
2019.27	NJ	Complaint (Personal Injury)	7/9/2019	Process Server
2019.29	NJ	Complaint (Personal Injury)	7/26/2019	Process Server
2019.30	NJ	Subpoena (Testify)	8/9/2017	Other
2019.31	NJ	Complaint (Property Damage)	8/12/2019	FedEx/UPS: # Process Server
2019.32	NJ	Complaint (Property Damage)	8/13/2019	Regular Mail
2019.33	NJ	Subpoena (Grand Jury)	9/3/2019	Other
2019.34	NJ	Subpoena (Records)	9/6/2019	Process Server
2019.35	NJ	Complaint (Personal Injury)	9/10/2019	Process Server
2019.36	NJ	Third-Party Complaint	9/11/2019	Process Server
2019.37	NJ	Subpoena (Grand Jury)	9/17/2019	Process Server
2019.38	NJ	Subpoena (Records)	9/17/2019	Process Server
2019.39	NJ	Complaint (Property Damage)	9/25/2019	Process Server
2019.40	NJ	Complaint (Personal Injury)	9/26/2019	Process Server
2019.41	NJ	Complaint (Personal Injury)	9/30/2019	Process Server
2019.42	NJ	Complaint	2/27/2018	
2019.43	NJ	Complaint	11/8/2018	

Source: Information Response 404

However, according to AWWSC management, NJAW does not have much litigation, but in the fall of 2018, the Company instituted a lawsuit against Dupont and other manufacturers seeking damages in connection with the detection of PFCs, as the Company expects to continue to incur costs associated with addressing PFCs. They believe that with expectation to get settlement for 20-30 years, it could result in economic needs.¹²⁷⁰ It is the second time done NJAW has a Model Trademark Bill (MTB), since 2005-2006, resulting in 85% customers refund and 15% keep.¹²⁷¹

In a prior BPU rate case settlement, the Company agreed to share 85% of the settlement proceeds from a class action lawsuit related to methyl tertiary butyl ether (MTBE), but that stipulation made clear that the treatment of settlement proceeds in that case had no precedential value.¹²⁷²

Recommendations

Recommendation XXI-1 Review and Evaluate Acquisition of a Formalized Legal Management System. (Refer to Finding XXI-4.)

Many other utility organizations have a formalized legal management system, so American Water should consider issuing an RFP to acquire and implement a more integrated and formal legal management system (contracts and litigation) than simply using Outlook to track legal information and data.

Recommendation XXI-2 Develop Annually a Legal Counsel Strategic Plan with its Own Goals/Objectives to Support American Water's Overall Strategic Plan, Goals, and Objectives. (Refer to Finding XXI-5.)

While it is good that the legal services function serves as a business partner that provides legal counsel and services to support American Water's overall strategic plan, goals, and objectives, but it also should have its own strategic plan with goals and objectives to support the overall items.



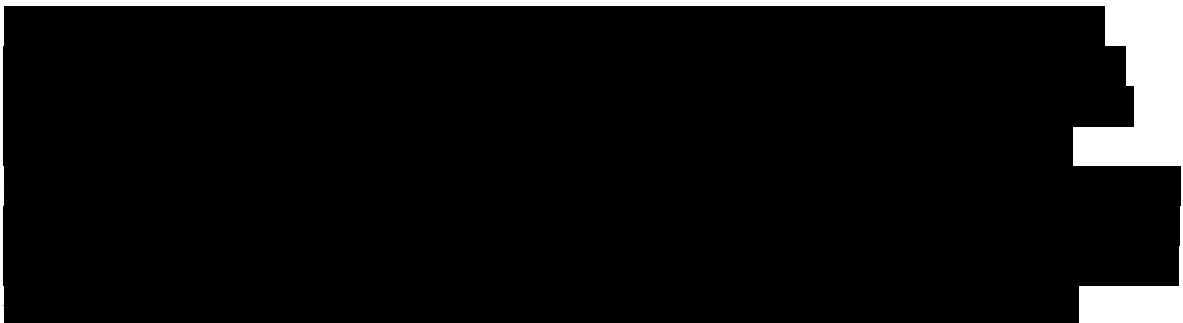
C. Real Estate and Property Management, including Facilities Management and Real Estate/Land Management

This section addresses planning, acquisition/disposal, management, and maintenance of real estate and facilities. This chapter provides a discussion of facilities and property management services provided by either American Water Works Service Company (AWWSC) or New Jersey-American Water Company (NJAW) in relation to the facilities and properties that are owned or used by NJAW.

Background & Perspective

There is no formal organizational group responsible for overall coordination of real estate and facilities at American Water Company (AW) or NJAW. At the AWWSC level, there is a position of Manager of Facilities, who reports up through the procurement organization. But his responsibilities are solely for the corporate headquarters building at One Water Street in Camden, New Jersey and the close-out/disposition of the old corporate headquarters in Voorhees, New Jersey. Within the NJAW organization, there is a Senior Project Engineer, reporting up through the capital program manager to the Vice-President of Engineering, who generally supports NJAW land and facilities' needs. This position will assist with major projects and will often act as a project manager for facility capital projects. This position has no one reporting to him. Facilities management at NJAW is the responsibility of the Operations Senior Directors at each operating center who will assign facilities work. This includes building maintenance and janitorial needs, and any other facilities work needed to support their respective operations. Likewise, building capital projects are initiated by operations and go through the normal capital budgeting approval process.¹²⁷³

There are currently no lease agreements between NJAW and AW or any of its affiliates.¹²⁷⁴ NJAW recently entered a sublease with American Water Works Service Company (AWWSC) for office space at the American Water headquarters building in Camden, New Jersey. This building is owned by an AW affiliate, One Water Street, LLC. This affiliate was established to own and operate this one building. The lease was signed by AWWSC and One Water Street, LLC on 31 October 2019, with NJAW signing a sublease with AWWSC the following week, 5 November 2019. The NJAW sublease charges are based on AWWSC's lease with One Water Street, LLC. AWWSC's terms call for three types of charges:¹²⁷⁵





Tenants of One Water Street, besides AWWSC and NJAW include American Water Works Company (AW) and American Water Enterprises (AWE). Lease terms for all leases are substantially the same. One Water Street, LLC does not own or operate any properties other than One Water Street.¹²⁷⁶

NJAW tracks owned properties in a database that has line items grouped by county describing property name, ID number, address, and status (e.g. owned, sold, vacant). There are 512 individual properties listed including approximately 50 vacant or recently sold. Information on square footage or value for these properties, which include stations, wells and tanks, are not summarized. NJAW has four properties leased out to non-affiliated entities: three to commercial tenants and one to an individual farmer.¹²⁷⁷ NJAW currently has approximately 20 properties, some with facilities that are deemed surplus, that are candidates for sale. Surplus property is tracked on a list that includes lot sizes and appraised values.¹²⁷⁸

Exhibit XXI-11 shows the budgeted and actual NJAW expenses for their facilities and properties.¹²⁷⁹

Exhibit XXI-11
Budget to Actual Facilities Operating and Maintenance Expenses
2014 to 2018
as of December 31, 2018

Category	2014 Budget	2014 Actual	2015 Budget	2015 Actual	2016 Budget	2016 Actual	2017 Budget	2017 Actual	2018 Budget	2018 Actual
Utilities	\$477,987.44	\$398,141.50	\$494,369.82	\$322,429.54	\$888,639.05	\$462,836.68	\$805,225.92	\$656,827.45	\$842,830.10	\$630,152.66
Grounds	\$ 1,049,194.72	\$ 1,104,198.31	\$ 1,047,841.47	\$ 1,133,836.07	\$ 1,088,019.31	\$ 1,171,698.98	\$ 1,159,903.72	\$ 1,217,679.15	\$ 1,182,873.52	\$ 1,151,193.93
Janitorial	\$392,203.12	\$508,151.10	\$417,629.86	\$496,099.28	\$421,229.86	\$555,425.05	\$446,930.14	\$564,806.57	\$384,061.86	\$521,993.28
Security	\$721,024.04	\$557,068.76	\$720,485.03	\$600,432.21	\$737,614.85	\$588,039.14	\$826,914.85	\$551,294.08	\$826,914.85	\$631,107.47
Trash Removal	\$118,222.71	\$138,449.97	\$119,873.08	\$179,291.48	\$131,879.08	\$183,167.81	\$152,653.08	\$223,005.37	\$165,708.08	\$270,907.82
Water/WW	\$104,159.08	\$138,418.25	\$64,659.08	\$94,515.99	\$64,659.08	\$84,939.84	\$64,659.08	\$93,416.72	\$64,659.08	\$169,136.57
Total	\$2,862,791.11	\$2,844,427.89	\$2,864,858.34	\$2,826,604.57	\$3,332,041.23	\$3,046,107.50	\$3,456,286.79	\$3,307,029.34	\$3,467,047.49	\$3,374,491.73

Source: Information Response 301

The largest expense category for building operations is Grounds keeping, which has remained steady over the past four years. Total expenses have increased approximately 4.6 percent per year over the past four years, which appears reasonable. Although actual to budgeted expenses vary, total expenses have come in under budget for the past five years.¹²⁸⁰

There are no written manuals or procedures for acquiring or leasing property or facilities. When a need is identified by engineering or operations and the property has been identified, a real estate professional



is contracted to provide an appraisal (if purchase) or NJAW will analyze market rates for similar properties (lease). A project manager will be designated for this process and will present the proposal to the Capital Investment Management Committee (CIM) for approval.¹²⁸¹

A Facilities Master Plan was conducted in 2017 to evaluate the use of existing facilities. This plan is focused on the rehabilitation and expansion of existing buildings and facilities at various operations centers.¹²⁸² Periodic meetings are held at various operating districts to determine current and future facility needs. These studies are specific to location and include an overall assessment of property condition, estimated cost for immediate repairs and those necessary going out for 10 years, and space requirements. The Needs Assessment is a detailed listing of specific repair and replacement items. Detailed budgeted numbers are included.¹²⁸³ These studies generally follow a five-to-ten year planning horizon similar to the Comprehensive Planning studies performed for individual water systems. The review of the facilities is performed by a consultant, who provides a report with recommendations that are reviewed by the Engineering and Operations team. The review meetings are held with the comments and suggestions reflected in the consultant reports.¹²⁸⁴

Maintenance and janitorial services are the responsibility of the operations personnel at each location.¹²⁸⁵

Findings & Conclusions

Finding XXI-7 There are no formal facilities and property management groups within AW or NJAW.

There is no organizational group or position within AW or NJAW with the responsibility of overseeing land, real estate, and property management functions. The AW Facilities Manager is only responsible for the corporate headquarters building and has no oversight of operating company real estate or facilities. The senior engineer identified as the point person for these activities within NJAW has a position description that does not include any of these responsibilities and his role is largely to manage/facilitate capital projects.

The lack of a dedicated Real Estate/Facilities/Property Management group results in these activities being performed in varying ways and with no overriding standards. The decision on how to conduct the included activities is up to the judgment of the various employees who are assigned to handle specific functions, with very little in the way of standardized policies and procedures to guide the activities. This lack of oversight can result in variations in the results achieved and makes the analysis of the efficiency and cost-effectiveness of such activities impossible to judge.

Finding XXI-8 There are no formal policies and procedures that guides the facilities and property function.

There are no standardized policies and procedures to guide the everyday conduct of the facilities and properties management function at NJAW. The Procurement Policy recently updated in April, 2019 makes reference in the Related Practices section of a “Real Estate Leasing and Purchasing Practice”, but

this practice was not supplied to Schumaker & Company during the field work and the Company stated it did not exist.¹²⁸⁶

Recommendations

Recommendation XXI-3 Establish a Facilities and Property Manager function at NJAW. (Refer to Finding XXI-7)

The position of Real Estate/Facilities/Property Manager should be established at NJAW to ensure a singular point of focus and standardization for these activities. Assigning this role would ensure that all of the included activities are performed to an established standard, rather than being based on the judgment of the various operational employees assigned to handle these tasks. An alternative would be to establish a corporate person/group with significant real estate/land/property management experience at the corporate level (logically in the Service Company within the Supply Chain Group in an arrangement similar to the Fleet function) who would coordinate implementing real estate/property management systems and procedures throughout all of the operating companies. A point person, with some experience in these areas, should be identified within each operating company to assist and coordinate these efforts. This can be a collateral duty depending on the level of activity at any given operating company, but their duties and responsibilities should be clearly documented in their position descriptions.

Recommendation XXI-4 Develop detailed policies and practices on all real estate, facilities and property processes. (Refer to Finding XXI-8)

A formal set of real estate, facilities and property management policies and procedures would ensure that all of the included activities are performed to an established standard and are consistent with each other across AW and NJAW. This standardization will serve to validate that the activities performed in this regard are cost-effective and in the best overall interests of all operating companies, including NJAW and their ratepayers. These policies and practices should include planning and identification of land and facilities' needs, acquisition/disposition/leasing procedures, standards and reporting of maintenance and upkeep of land and facilities, space planning and utilization, lease versus buy decision making, and periodic management reporting processes and systems. Both of these recommendations imply that best practices in these areas be proactively applied throughout all operating companies.



D. Procurement Services and Materials Management

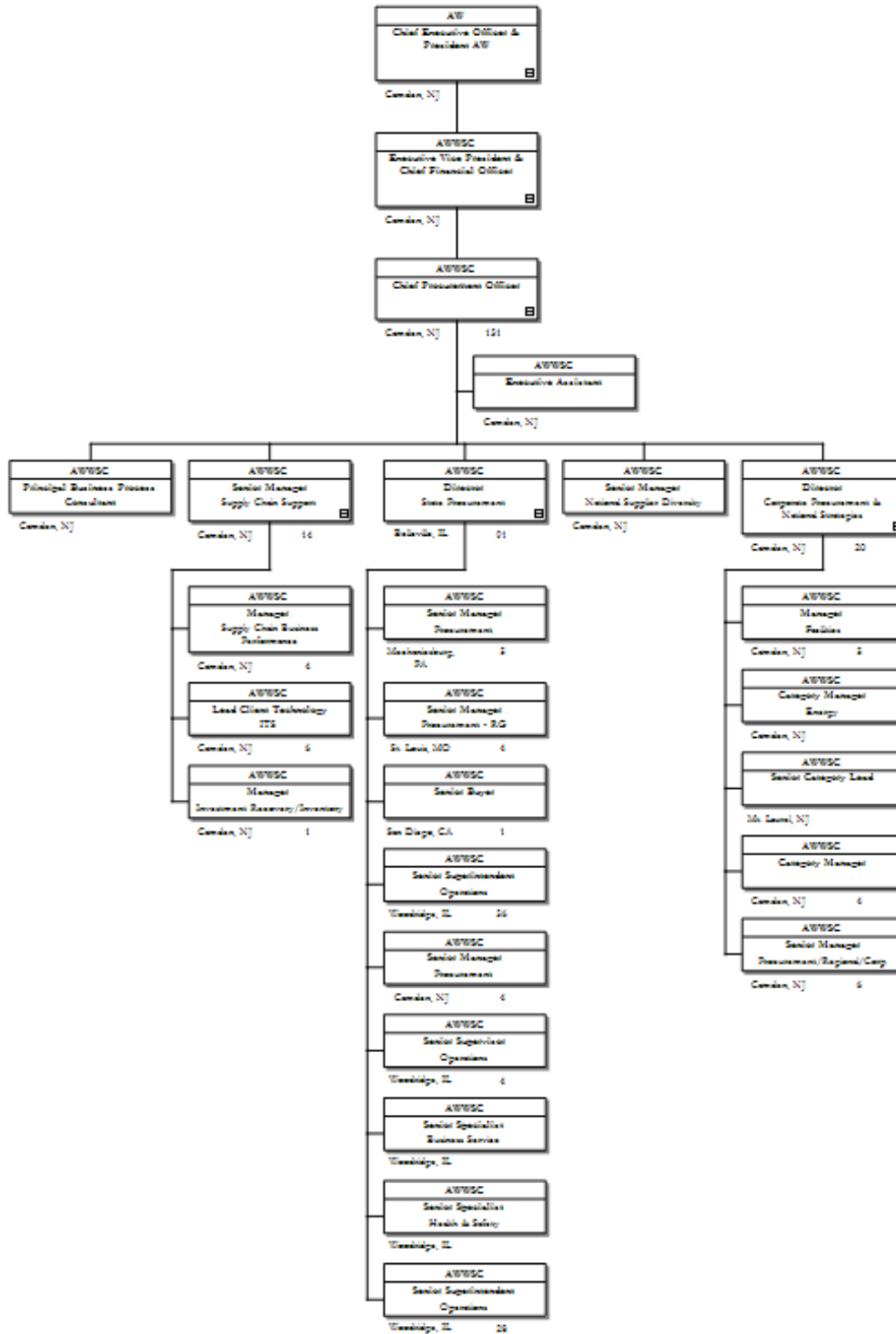
This section will address American Water's (AW) and New Jersey American Water Company's (NJAW) purchasing, contracting, and materials management processes to include all areas of the supply chain.

Background & Perspective

Organization, Staffing, and Budgeting

The procurement function for AW resides with The Chief Procurement Officer (CPO) who reports directly to the Chief Financial Officer. *Exhibit XXI-12* shows the organization of the Chief Procurement Officer.¹²⁸⁷

**Exhibit XXI-12
AW Procurement Organization
as of September 30, 2019**



Source: Information Response 416

The above are service company employees including senior managers responsible for coordinating procurement activities with operating company buyers.¹²⁸⁸

Exhibit XXI-13 shows Supply Chain personnel levels for the past 5 years.¹²⁸⁹

Exhibit XXI-13
Supply Chain Personnel Levels
as of September 30, 2019

Year	Supply Chain Employees reporting up through the Service Company	NJ Assigned Supply Chain Resources	NJAW Storekeepers
2015	32	4	9.5
2016	26	4	9.5
2017	28	4	9.5
2018	47	3.5 (included in 47 total)	9.5
2019	48	3.5 (included in 48 total)	9.5

Source: Information Response 655

NJAW procurement and materials management (storekeepers) personnel levels have remained steady over the past 5 years. In 2018, purchasing employees devoted to operating companies were counted as Service Company Supply Chain personnel.^{1290,1291}

Exhibit XXI-14 shows the dollar volume purchasing for NJAW.¹²⁹²

Exhibit XXI-14
NJAW Purchasing Volumes
2015 to 2019
as of September 30, 2019

Type	2015	2016	2017	2018	2019 (Through 9/30/2019)
Non-PO (Invoice)	<u>\$174,270,454.91</u>	<u>\$152,520,762.45</u>	<u>\$186,909,181.21</u>	<u>\$269,206,391.84</u>	<u>\$212,231,465.02</u>
P-Card	<u>\$5,018,136.84</u>	<u>\$6,073,485.87</u>	<u>\$6,609,401.62</u>	<u>\$7,226,016.68</u>	<u>\$5,849,735.22</u>
PO	<u>\$300,785,345.67</u>	<u>\$322,824,892.11</u>	<u>\$366,352,624.98</u>	<u>\$383,053,988.21</u>	<u>\$221,900,257.19</u>
Total	<u>\$480,073,937.42</u>	<u>\$481,419,140.43</u>	<u>\$559,871,207.81</u>	<u>\$659,486,396.73</u>	<u>\$439,981,457.43</u>

Source: Information Response 710

Purchasing volume has risen over the past five years, but is on track to decline in 2019.¹²⁹³

The Chief Procurement Officer leads the Supply Chain organization, which is primarily a strategic sourcing group for all of AW companies. His role includes developing and implementing supply chain

management strategies, to include category management, capital procurement, supplier diversity, and supplier performance. He is responsible for providing guidance to operating companies in the areas of inventory management, fleet, warehousing and distribution, and vendor relationship and management. He also provides strategic direction for general corporate services model such as facilities, real estate, and technology support.¹²⁹⁴ Additionally, he directs the Supply Chain Strategic Plan, which includes capturing best practices, managing key supplier relationships, developing strategic supplier partnership programs, and pursuing cost reduction and productivity improvement. The position requires a Masters of Business Administration (MBA), with a professional Certification in Purchasing Management (CPM) preferred. The position also requires ERP and automated supply chain systems experience. Direct reports include a Principal Business Process Consultant, Senior Manager of Supply Chain Support, Director of State Procurement, Senior Manager of National Supplier Diversity, and a Director of Corporate Procurement and National Categories.¹²⁹⁵

The Director of Corporate Procurement oversees the strategy and procurement of major materials categories of spend and corporate services. This position is the primary liaison between the Supply Chain Group and senior management in the state operating companies. He assists the state operating companies with sourcing, contract management, supplier relationships and implementing operational process improvements. He works with unit buyers to drive standardization of processes and leverage scale. He also coordinates long term planning, budgeting, and reporting to Supply Chain and state leadership.¹²⁹⁶ This position is also responsible for leading sensitive negotiations on high-profile projects.¹²⁹⁷ Other responsibilities include long term planning with States, coordinating and developing annual and multi-year sourcing plans, and addressing risk mitigation and succession planning. A senior manager of regional procurement represents NJAW. In addition to corporate-wide purchasing support and national supplier diversity support, this group provides supply chain support to include inventory and investment recovery.¹²⁹⁸

The Senior Manager of National Supplier Diversity acts as the primary advocate within AW to identify, qualify, and include diverse suppliers in AW's procurement. He develops and reports on goals and performance of the Supplier Diversity Program.¹²⁹⁹

The Senior Manager of Supply Chain Support is responsible for business analytics and reporting, operations and system support, inventory planning, and managing key supply chain projects. This position provides general support, leadership of business analytics, and analysis related to Supply Chain Operations projects, and takes on Project manager roles.¹³⁰⁰

The Director Corporate Procurement and National Categories is responsible for procurement of major materials categories, building strategic supplier relationships, standardizing processes, delivering annual savings and cost avoidances in line with established targets, developing KPIs for supplier and sourcing groups, driving value through tactics other than price negotiation, e.g. specification management, demand management, joint process improvement, and keeping up to date on best practices, utilities and other industries. This position requires a background in operations management.¹³⁰¹



The Principal Business Process Consultant is primarily responsible for implementing process improvements throughout the Supply Chain organization.¹³⁰²

The Senior Manager Procurement – Regional/Companies – is the key point of contact for a region of states. This position coordinates near-term and long-term procurement needs with state region leadership, develops and maintains contractor sourcing practices, and drives KPI performance. Operating companies have a small purchasing staff that works with Supply Chain on local purchasing. Storekeepers report directly to operating companies.¹³⁰³

The Manager Supply Chain Business Performance provides data analysis to drive KPI performance, maintains Supply Chain products in SAP, and leads customer supply chain improvement projects.¹³⁰⁴

The Manager Inventory and Investment recovery manages the Materials Requirements Planning (MRP) Program, vendor performance and product failure issues, and develops inventory ordering criteria such as Economic Order quantities (EOQ), min/max, and efficient order quantities.¹³⁰⁵

Category Managers are responsible for the sourcing and procurement of direct and indirect material categories, sourcing subject matter expertise, market knowledge, best practices, leading sensitive negotiations, and managing vendor relationships. They also help develop KPIs.¹³⁰⁶

Manager Facilities is responsible for corporate properties, Voorhees campus and 1 Water Street, which includes capital projects, operations, maintenance, and janitorial of those properties.¹³⁰⁷

Senior category Leads focus on one or a few categories of goods and services; generally \$50-100 Million in volume. Their responsibilities include negotiating Total Cost of Ownership (TCO) savings, maintaining “should cost” models, and keeping up to date on industry trends and best practices related to their areas. This position requires experience in Lean / Six Sigma concept and tools (a Continuous Improvement methodology) and knowledge of operations management.¹³⁰⁸

Senior buyers are responsible for high level capital and expense categories and generally have other responsibilities similar to category managers.¹³⁰⁹

The Lead Client technology/IIS position provides broad based IT support to Supply Chain and throughout the organization.¹³¹⁰

All positions are defined in written position descriptions, which include detail on primary role, key accountabilities, education and skills, knowledge and experience as well as other work-related requirements (e.g. travel, work environment).¹³¹¹

Business Processes

Procurement personnel are asked to complete a career development plan every 6 months (not required) and complete a formatted skills self-assessment for discussion with their management/supervisor to help guide any employee development. Category managers annually share their category plan in

meetings with their peer group. Supply Chain indicated this effort will increase in frequency in 2020. The one formal rotation position is that of Supply Diversity Coordinator (every 18-24 months) to further provide support for supplier diversity.¹³¹²

Authority for employees to enter into transactions on behalf of AW is documented in The Delegation of Authority Policy. These authorities come from the CEO/President under a grant from the AW Board of Directors and are defined by type of transaction, the level of management authorized, and dollar amount limits. Specific actions and activities where no authority is delegated is also defined.¹³¹³

Average prices are determined by historical prices available through researching transactions executed in SAP. These are ad-hoc determinations that can be based on the last price paid or on an average of prices going back to 2012 (when SAP was implemented) or 24 months using Supply One View.¹³¹⁴

AW has a documented practice for encouraging supplier diversity as well as information on how to find diverse suppliers on the corporate intranet. Competitive bids must include information on whether diverse suppliers were available and included in the bid. Statistics have been tracked on percent of sourceable bids went to diverse suppliers.¹³¹⁵ NJAW has had increasingly aggressive goals for diverse suppliers over the past seven years broken down by specific business types: Small Business, Women Owned, Minority Owned, Disabled Veteran Owned, Veteran Owned, Disabled Owned, Small Disadvantaged Business, and Historically Underutilized, going from approximately \$46 Million (out of \$340 Million sourceable or 13.5%) in 2012 to approximately \$132 Million (out of \$477 Million sourceable or 30%) in 2018.¹³¹⁶

The Procurement Department has performance goals documented and reported in the areas of

[REDACTED]

¹³¹⁷ [REDACTED]

¹³¹⁸ Supply Chain goals were officially established for FY 2019. During 2018, the Procurement Department tested each of goal by tracking and measuring progress. That progress was then annualized to establish a baseline and that baseline was adjusted according to anticipated headwinds and tailwinds for the year. [REDACTED]

[REDACTED]

¹³¹⁹ [REDACTED]



The Supply Chain Department does not conduct regular quarterly meetings, although ongoing meetings are held with leadership of each of the operating businesses.¹³²⁰

AW has a number of procedures and practices covering purchasing, contract management, materials and supplies, vendor database, and vendor sourcing.¹³²¹ Many of these policies are in the process of being updated.¹³²² These procedures include:

- ◆ *General Procurement* – requirements to engage the Supply Chain organization and processes, procuring goods and services, competitive bidding and sole sourcing, categories of procurement and exceptions, supplier management, contracts requirement, supplier diversity, ethical sourcing, Buy America and other federal acts, and responsibilities and definitions. Many of these topics are discussed in more detail in other policy documents;¹³²³ The policy seeks to ensure company suppliers share its values and ethics. Regulated businesses must go through Supply Chain on any new purchase not already under contact. Business is responsible for determining their material and service needs. Competitive bidding is required on anything over \$250,000. Sole sourcing must be justified and signed off by a business unit leader Grade 60 or higher. Sole source justification must be documented and on file. Competitive bids should be electronic using the Coupa Sourcing System (defined within the policy document) and all competitive bidding above \$250,000 must use Coupa. Selecting a supplier is the joint responsibility of the business and AW Supply Chain organization. Total value or total cost of ownership must be considered in all purchases and contracts. Supplier award decisions are documented in the Contract Management System. There is a Supplier Management Practice. Supplier performance feedback and ethical sourcing is addressed. A Buying Channel Matrix is included as an appendix which describes Procurement/payment methods, description of method, allowable and prohibited uses. Another appendix matrix shows authorized signers of goods and services.¹³²⁴
- ◆ *Contract Management* – Contract initiation, review and approval, issue handling, execution and publication, ongoing management and expiring contracts, alternate contract management methods, and contract types and approval thresholds;¹³²⁵ The policy describes the two Contract Management Systems (CMS) at AW: SAP Strategic Relationship Management (SAP SRM) and Sharepoint. Supply Chain managed contracts use SRM. Regulated business managed contracts use Sharepoint. SRM is used for Procurement contracts, e.g. construction, services, license and supply agreements. Sharepoint is used for non-procurement contracts (all other contract types). Standard contract templates are required to be used when possible. Other contract templates are available through and maintained by Legal and can be accessed via Sharepoint. Legal must be consulted with on any non-standard or revised standard contracts. Contracts are signed by the Contract owner or someone with Delegation of Authority (DOA) authority. Legal, Finance, and Supply Chain then approve the limits and contract is uploaded to CMS. Contract owners, with Finance, must manage and maintain contracts and update information in CMS at least quarterly (for certain contracts). The AW Board does not have to get approval from Legal or senior management to enter into a contract. An Appendix chart that shows type and description of contracts, which CMS system is used, and approval requirements/limits.

Another Appendix is a questionnaire the contract owner must fill out at the contract end. Various issues, including compliance, are addressed. Contractor evaluation is not specifically required.¹³²⁶

- ◆ *Electronic Disbursements* – Electronic Disbursement Request (EDR) is an Enterprise activity for transactions that typically don't require an invoice. This does not include Treasury-related transactions (covered by Treasury Settlements Practice). Invoices have their own workflow. Requests are automatically routed for review and approval based on the Delegation of Authority (DOA) policy. Request must have documentation, preferably from a third party, to validate the business purpose, dollar amount, and timing of the payment request. EDR recipient must be listed in the Vendor Master Data Base.¹³²⁷¹³²⁸
- ◆ *Fleet Management* – addresses vehicle eligibility, procurement, operation, replacement, disposal, and data management (see section of Fleet Management). Vehicle eligibility for support roles must be approved by appropriate Executive Leadership Team (ELT) member. There are no pooled vehicles, but vehicles can be shared with others within the department or work group. Company vehicles cannot be used for commuting. All vehicle purchasing/leasing is done through the designated fleet management company. Supply Chain annually develops a standard vehicle offering including make, models, up-fits and options. Nonstandard purchases must be approved by the Corporate Fleet Manager. Each operating unit has a fleet coordinator. A database of all fleet vehicles is maintained.¹³²⁹
- ◆ *Receipt of Goods and Services* - an Enterprise activity that includes special procedures for chemical receipt. This practice involves physically and systemically receiving goods and services. Receipt of goods, a critical component of the three-way matching process for invoice processing, must be documented within 24-48 hours of receipt but no later than end of month. Receiving documents are matched to a purchase order before entering into the system. Records are retained on site for audit review as per SOX requirements. Partial receipts can be posted. Charts within the practice document details, for all goods, devices, and chemicals and services, the activity, responsibility, activity type, and timing. Advanced Shipping Notices (ASN) are addressed. Customer Relationship and Billing CR&B) is AW's system in which all relevant billing and invoicing transactions occur, e.g. periodic billing, manual billing, off-cycle billing, and bill simulation. Return to Supplier POs are issued to suppliers to return goods received. There is an on-line Supplier portal that allows suppliers to check information/status.¹³³⁰¹³³¹
- ◆ *Invoice Processing* – describes invoice capture, processing, and approval. Includes issue handling, blocked invoice resolution handling, and waivers. Receipt and upload of invoice information goes into the Accounts Payable system (Enterprise). Receipt can be through supplier portal, electronic data interchange (EDI), postal mail, email or fax. Portal and EDI are completely automated. The others are scanned and uploaded. Invoices are reconciled with PO and goods receipt using automated 3-way match process. Non PO invoices get routed to a reviewer. All automated through ERP. Problems and exceptions are discussed. Blocked invoices get routed through a resolution process (responsible business user/department). An Appendix shows a



chart with a large number of exceptions and who must respond/handle them (Responsible Business User).¹³³²

- ◆ *Materials and Supplies* – Addresses administration, inventory items and classification, locations and movements, receiving and issuing, accuracy/physical inventorying, safeguarding, and disposal and recycling; Materials Replenishment Planning (MRP) refers to all inventory activities. This includes the Material Master File – which shows average prices, min/max levels, reorder points, etc. Inventory items classified as A, B, C, or D based on total consumption value at each plant. As per the Inventory Count practice, inventory movements between locations must be recorded. Inventory is valued at average prices (Moving Average Method). Business Support Services maintains the automated tools, SSC Accounting Services Department is responsible for overall inventory valuation and administration of the inventor count. Warehouse managers/Supervisors control inventory movement and physical counts. Cycle counts are mentioned, but not specific so it's unclear if it occurs in practice.¹³³³
- ◆ *Open Purchase Orders* – an Enterprise system, Open POs are subject to periodic review to ensure proper financial reporting. Procurement Transaction Department is responsible for this process. Open PO report are run from the system that, generally includes POs greater than 90 days. Associated buyers are responsible for closing out their POs. Framework POs, also known as Limit POs, are purchase orders used to avoid issuing multiple POs for materials or services. Materials and services can be invoiced against it over a validity period. Thus is similar to Blanket POs at other companies. The system allows PO Commitment provided to suppliers, a promise to pay when goods or services delivered, so a transaction can get going before the actual PO is received.¹³³⁴
- ◆ *Requisitions and Purchase Orders* – All Enterprise functions, Purchase Requisitions (PR) are classified Standard, Framework (Limit/Blanket), and Emergency. Purchase Requisition methods used by the Company include “Materials Replenishment Planning” (MRP) – materials automatically ordered and Standard POs cut when system requirements are met. There is a review and approval process. Shopping Cart involves two ways: (a) Catalog Selection – suppliers in the catalog are pre-approved and no additional approval is required and; (b) Free Text – shopper can suggest a vendor not in the catalog. The system routes the PR to the Buyer for review. Standard PO process applies to onetime materials and services. The PO is transmitted to supplier and any changes must go through the Buyer. Framework PO Process, also called Limit PO, is used to avoid issuing multiple POs for ongoing receipt of materials and services. Materials/services can be invoiced against this PO during the Validity period. This process can be used for items not in the Catalog or when timing is unknown.¹³³⁵
- ◆ *Emergency PO Process* – can be a standard or framework PO and does not need a PR. Request is made to the Urgent PO Creator and is approved by the Urgent PO Approver. MRP is an automated inventory planning system that balances supply of materials with demand, lead times, min/max, service level, minimizing costs/committed capital.¹³³⁶
- ◆ *Purchasing Card Policy and Practice* – addresses issuance, limits, cardholder responsibilities, cardholder approver, allowable expenses, and processing; An Enterprise activity, P-Cards are

Company credit cards used only for Company business. Only employees, not contractors, are allowed to be holders and they are required to go through training on proper usage. Allowable and non-allowable expenses defined and total/single transaction limits are in place.

Appropriate documentation must be submitted through P-Card system electronic work flow for approver review. Accounts Payable takes care of paying the credit card companies. They will also perform random reviews of travel and business expenses over \$100 per day. The Practice document has a Matrix linking Activity, Responsibility, Activity type, and Timing for P-Card issuance, P-Card Limit Waiver, P-Card Charge Submission, Expense approval, Submission and approval delegation, Unprocessed Expense Aging, Unauthorized P-Card charge, Disputed Charges, P-Card cancellation, and P-Card Limits (per transaction/monthly cumulative). P-Card limits (single charge/total per month) range from \$2,500/\$5,000 up to \$25,000/\$50,000. The system allows for a Ghost (G) Card. Whereas P-Card is a manual payment; G-Card is an automatic payment once the supplier is registered in the ActivePay system. It allows A/P to pay registered suppliers with a credit card instead of a check. An Appendix table in the Practice document shows P-Card allowable and prohibited uses.¹³³⁷

◆ *Sourcing Practice* –



¹³³⁸¹³³⁹ Supplier selection, competitive bidding and supplier award process includes a sourcing strategy and supplier prequalification process, proposal/bid solicitation and analysis, and negotiate/award/administer the contract.¹³⁴⁰ Sourcing practice has not been updated since 2012 and there are indications that some of the practices are no longer in effect (e.g. classifying suppliers into separate A/B/C/D categories based on criticality).¹³⁴¹ Bid packages include detailed bid specifications, bid price summaries, engineering assessments of the bids, award recommendation, and contract documents.¹³⁴²

- ◆ *Supplier Diversity Practice* – includes reporting and metrics, and is a standardized system to track diverse suppliers in ERP. Efforts to include diverse suppliers in bidding is documented on a “Supplier Diversity Program – Participation Reporting Form”. Further guidance is provided via a presentation: “How to find a diverse supplier” on the Company intranet. Metrics are established, but not defined in this document. The Supply Chain organization facilitates a cross-functional supplier diversity team and conducts quarterly meetings. This practice is supposed to be updated every two years, but was last updated in 2009.¹³⁴³
- ◆ *Vendor Master Database and Supplier Management Practice* – addresses creating/updating supplier records, and database maintenance. An Enterprise activity on vendors that includes bank routing information, diversity status, basic contact information (suppliers can change through Supplier Portal), and insurance information. The system is maintained by the Vendors Master



Administrators Department. A Supplier Onboarder (a Senior Procurement Transaction Analyst) is liaison to suppliers to get them setup in the database. Each Vendor's legitimate existence ID is validated through a third party, e.g. Dunn & Bradstreet. The Excluded Parties List System (EPLS) is a single comprehensive list of individuals and firms excluded by Federal government agencies from receiving contracts and financial assistance and benefits. This process document was last updated in 2012¹³⁴⁴ Supplier Management Practice and Procurement Practice documents were under review and not available to us as of this writing.¹³⁴⁵

- ◆ An Employees Travel and Business Expenditures policy provides guidance on permissible reimbursable business-related expenditures and the process for accounting for those expenditures. Corporate issued P-Cards or personal credit cards/cash can be used. Specific reference is made to the Code of Ethics pertaining to travel expenses paid by any third parties, e.g. organizers of a conference.¹³⁴⁶

As of this writing, Inventory Count Practice and Inventory Issuance and Transfer Practice were in final stages of review. The Enterprise Data Policy, referenced in other policy documents, was never approved and subsequently removed. The Materials and Replenishment Practice has been documented as a standard operating procedure.¹³⁴⁷

AW operates its supply chain and materials management processes through SAP Enterprise Resource Planning (ERP) SR1 software. This is an integrated system that includes many of AW's business processes, such as Human Resources, financial accounting, projects, and production.¹³⁴⁸ This system includes product code listings for material that includes code numbers, category (e.g. chemical feed), type (e.g. vacuum regulator), examples of the product, description, supplier, vendor part number, estimated cost, and any explanatory notes. This system also links to vendor external catalogues with reference to ordering procedures.¹³⁴⁹ Reports regularly produced by the system include stocking requirements, purchase order status, open purchase orders, and physical inventory.^{1350 1351}

Supply Chain participates in a number of industry best practices groups. The CEB Global – Procurement Leadership Council conducts training and annual retreats on a wide variety of Supply Chain Practices, e.g. Building a Category Strategy, Deepening supplier relationships, business partnerships with vendors, making sound buying decisions. This subscription allows AW access to Gartner's best practice research information, participation in surveys and benchmarking, and access to community website to share best practices and ideas. AW Supply Chain also has subscriptions to The Conference Board and has recently hosted two councils on Purchasing and Supply Chain and Supplier Diversity.¹³⁵²

NJAW does not maintain a database on potential vendors, but makes use of a variety of sources when looking for potential vendors. This includes Dunn & Bradstreet, Avetta (an outside company that maintains insurance and safety requirements for vendors), and a variety of national organizations devoted to promoting diverse economic support (e.g. veterans business development). NJAW also attends various conferences and network events to meet potential new vendors.¹³⁵³

AW has documented procedures for qualifying vendors that includes D & B checks to verify financial viability (including risk scores, special events such as ownership changes, public filings such as suits, liens and judgements, government reports), supplier diversity information, and insurance/risk requirements (through Avetta). Vendors are also required to complete a pre-qualification procedure.¹³⁵⁴ As part of this process, each vendor must fill out a “Contractor Work Experience Questionnaire and Qualification Statement.” This form addresses the contractor’s technical experience to perform the work they will be bidding on.¹³⁵⁵ Once these processes are complete, the vendor is added to the Vendor Master List in the business system.¹³⁵⁶ The Vendor Master List contains over 30,000 vendors along with basic information, e.g. contact information, tax/withholding/insurance information, minority status, last 12 months activity.^{1357 1358} Supplier Feedback forms and Supplier Scorecards are not maintained and Vendor Master Data does not include any performance data or information. The Company has indicated they plan to launch a supplier relationship management program in 2020 to track supplier performance for their top 20-25 key suppliers.¹³⁶⁰

Once projects of over \$1 million or projects deemed of special value are completed, a Post Project Review Report is developed within 90 days by the NJAW Engineering Department. These reports include Project scope/changes/unusual features, outstanding issues, performance of contractor and suppliers, project scores against key Performance Indicators, and any necessary followup. Completed reports are maintained in a Company database for use in evaluating future bids. Bi-annually there is a companywide review of projects to reinforce any trends or lessons learned. This process has been in place since July, 2017.¹³⁶¹

NJAW has a number of Master Service Agreements (MSA) in place for pipe installation project work. Bidders are pre-qualified, both technically and commercially to perform the work, and then go through a competitive bidding process.¹³⁶² A recent example of this process was a competitive bid for establishing master service agreements for pipe installation services for NJAW. A cross-functional team consisting of representatives from Supply Chain and NJAW engineering and operations met to establish bid specifications and to commercially and technically qualify the bidders. Bid packages were then sent to bidders, a pre-bid meeting was held to answer any bidder’s questions, and written bids were received and evaluated by Supply Chain.¹³⁶³ Factors, other than price, considered include technical competency, quality of workmanship, contractor reliability and overall value. Post bid negotiations are also conducted with finalists.¹³⁶⁴

Contractor Compliance Audits are conducted by an outside, independent contractor: AMS-PAR. These audits focus on the financial transactions (e.g. invoicing, third party billings, accounts receivable) between AW and the supplier for a given project.¹³⁶⁵ Contractors audited include those with sizable billing amounts (not defined) and/or those with complex compensation models in their contracts. These audits extend to material as well as service providers.¹³⁶⁶

Sole sourcing is allowed, but must be justified, approved and documented. A Sole Sourcing Justification form requires information on the product or service and whether there are any other sources or if the sole source has some kind of market advantage. Sole sourcing must be approved by a business unit



leader of grade 60 or higher and must have the concurrence of a supply chain leader of grade 45 or higher.¹³⁶⁷

Materials Management and Inventory Control

As mentioned earlier in this section, materials inventory management is handled through SAP ERP system and includes: minimum and maximum stocking levels, Production material demands, and Material replenishment cycles.¹³⁶⁸ Inventory controls are documented through the Materials Replenishment Planning (MRP) Procedure. This Enterprise process is an automated inventory planning system that balances supply of materials, including chemicals and meters, with demand based on demand taking into account lead times. The system will automatically define criteria (e.g. min/max points) and trigger purchasing recommendations to inventory planners. The criteria can be changed manually only with the approval of the Inventory Manager. MRP runs are performed on various schedules and can be run manually as needed.¹³⁶⁹ For example, A “Days On Hand” report is available through the system that gives each plant a detailed snapshot of items in inventory along with usage rates. Stock Level Reports list, by item, reorder points, safety stock, lead times, lot sizes, and maximum levels.¹³⁷⁰ Use of the tools of this system is at the discretion of operating company personnel (e.g. defining stock levels and accessing information/reports).¹³⁷¹

Annual physical inventories are conducted in all district plant locations and recorded in the SAP system. The process is documented via an Inventory Count Practice as well as a training presentation. Count sheet forms are produced from the SAP system and utilized by the person performing the count. Chemicals and fuels are inventoried monthly to determine usage and issuances. Materials from district plants whose combined highest average balance is 80 percent of total inventory (Tier 1) balance are physically inventoried annually. Remaining district plants (Tier 2) are required to be inventoried every 5 years are more frequently if needed. Physical counts are scheduled by the Regulatory Accounting (RA) group and districts must complete the count within the month. Blind count sheets (inventory on hand from SAP not listed) are used to ensure count integrity. All inventory counts require an independent witness: someone who does not have inventory responsibility for that location and is not the Manager of Superintendent for that location. Counts include material in the yard and with contractors. Material condition is noted and scrap, slow moving items, and obsolete items are noted. Count results are entered into SAP which in turn creates a variance report for further action.¹³⁷²

Inventory levels are tracked by NJAW's eight districts. *Exhibit XXI-15* shows the dollar volume by district for the past five years.¹³⁷³

Exhibit XXI-15
NJAW Inventory Levels
2014 to 2018
as of December 31, 2018

Plant Location (District)	As of 12/31/2014	As of 12/31/2015	As of 12/31/2016	As of 12/31/2017	As of 12/31/2018
Atlantic Cape May	\$654,540.74	\$766,695.80	\$698,866.01	\$896,089.50	\$819,452.16
Somerset Mercy	\$1,130,236.82	\$1,230,864.12	\$1,183,086.72	\$1,164,033.20	\$1,124,173.69
Burlington Camden	\$897,495.80	\$1,044,761.10	\$1,199,379.74	\$1,124,402.36	\$1,009,914.76
Lakewood	\$624,513.31	\$691,842.46	\$849,202.25	\$868,118.72	\$713,434.79
Union Middlesex	\$995,689.09	\$1,168,342.33	\$1,269,205.96	\$1,518,359.21	\$1,414,101.26
Hunterdon Warren	\$87,655.48	\$113,579.92	\$109,519.63	\$124,856.70	\$138,726.53
Essex Passaic	\$797,040.48	\$833,373.14	\$879,909.88	\$1,324,392.71	\$1,288,346.21
Monmouth	\$1,321,001.66	\$1,187,649.17	\$1,471,790.29	\$1,693,446.26	\$1,601,590.16
Total	\$6,508,173.38	\$7,037,108.04	\$7,660,960.48	\$8,713,698.66	\$8,109,739.56

Source: Information Response 283/683

Total inventory levels have declined over the past five years, but there is no analysis or tracking of inventory performance statistics (e.g. turnover rates, shrinkage).¹³⁷⁴ Items that are removed from inventory, whether from shrinkage, spoilage, obsolescence, etc., are documented in SAP via a scrapping request. This process is initiated at the local district level based on evaluation in the field. As mentioned earlier, material evaluations are made at the time of physical inventory accounts although the district plant can initiate a scrapping request as needed. Scrapping requests are routed to the district manager for approval.¹³⁷⁵ There are no warehouse or stores procedure manuals, but work processes, instructions, and job aids are maintained on the corporate intranet and are available to storeroom/warehouse/operations personnel as required.¹³⁷⁶ An automated Master Materials File exists with the capability for tracking a wide range of information, such as Purchasing data, MRP (e.g. lot size, reorder points), Forecasting, quality management, accounting (process and values including separate lines for competitive bidding data), and inventory. However, it appears that this system is little used.¹³⁷⁷

New Systems and Efforts Underway

In 2017, Supply Chain Department began a major transformation initiative scheduled for completion in 2020. This effort is seeking to streamline and integrate all supply chain functions through ERP to include contract management, spend analytics, bidding, supplier information, and more effective sourcing.¹³⁷⁸ In addition, Supply Chain has goals to roll out new and upgraded programs, e.g. Supply one, My Purchasing, Facilities and Real Estate Strategy, and investment recovery.¹³⁷⁹

One ongoing effort to streamline purchasing is through a program called myPurchasing (powered by Coupa), which will involve electronic bidding (sourcing, tracking, communication with suppliers, and bid evaluation), electronic catalogs, contract management (approved templates and clauses, and online signing), and online supplier information (including on line tool for requesting new suppliers).¹³⁸⁰ myPurchasing is an add-on to the existing Enterprise system that provides more user functionality for sourcing, purchasing, and contract management activities. It includes on-line capability to source and track bidding events, templates and tools for signing contracts, better supplier information management,



and electronic catalogs that streamlines ordering and helps direct spend towards preferred vendors. The requisitioning and purchase order function is completely automated. This tool is in the process of being implemented.¹³⁸¹

Investment recovery is getting added attention by a new program to provide governance and resources to identify and manage the disposition of assets and waste streams. This includes on site Investment Recovery (IR) site visits/evaluations. As of this writing, this program was still being developed.¹³⁸²

Supplier One (Supply1View or S1V) is an Enterprise add-on that is in the initial stages of development. S1V is another ongoing effort to integrate information and insight about company spend, suppliers, cost models. This model is intended to make it easier to perform analysis of various aspects of purchasing and supplier performance.¹³⁸³ SIV is intended to be a single pane of glass where employees can gather information on company spend, suppliers and cost models. It's intended to help analysis of spending by specific category and supplier, supplier risk, supplier performance, and commodity cost savings opportunities.¹³⁸⁴ The goal is to aid and speed up analysis of specific categories, suppliers, and supplier performance.¹³⁸⁵

AW Supply Chain is also in the process of improving its Asset Recovery Program. In addition to scrap and salvage, this process will include redistributing, reconditioning, returning, and reselling assets. Supply Chain plans on assigning a manager to coordinate this program with operations and other areas of the corporation. Specifics of this program were not available at the time of this writing.¹³⁸⁶

Outside Reviews of Activities

There has been one recent audit of the Supply Chain process in 2016 focusing on Procurement and Sourcing Processes and Compliance. This audit covered two possible Enterprise Risk Management (ERM) risks: goods and services don't meet quality standards (ERM risk No. 49) and lack of vendor relations (ERM risk No. 50). This audit focused mainly on the contract bidding process, which was found to be operating as per existing policies and practice documents. Recommendations addressed increased involvement of Supply Chain in the overall process (e.g. analysis, training).¹³⁸⁷ Two other internal audits touched on aspects affecting Supply Chain operations: Capital Project Planning and Budgeting Governance addressed review of PO change orders (2016), and NJAW Subsidiary Audit (2018) touched on asset recovery.¹³⁸⁸ See Chapter XX – Internal Audit – for more information.

Findings & Conclusions

Finding XXI-9 The organization, staffing, and interrelationships between AW Supply Chain and NJAW purchasing and materials control is appropriate, but the Supply Chain Group can be further leveraged to the benefit of AW.

The Service Company Supply Chain Group is organizationally located and staffed with resources to best leverage purchasing and materials management expertise that benefits all operating companies.

Purchasing agents and storekeepers are assigned to the operating companies to ensure local needs are met. There is frequent interface between Supply Chain Group and NJAW.

Three complete, representative bid packages were reviewed. Specifications were quite detailed. Other steps included a tabulated bid price summary, an engineering assessment of bid (including proposed alternatives and a review of contractor design information), award recommendation (including schedule and diversity status), and detailed contracts that included specific owner's representatives were present.¹³⁸⁹ Whereas these purchasing and bidding processes are appropriate, the market size across all AW companies represents an opportunity to apply more vendor partnering techniques to further drive down costs and increase quality of materials and service.

Finding XXI-10 Purchasing and materials policies and practices are well documented, but are not reviewed on a periodic and timely basis.

As noted earlier, AW has detailed procedure and practice documentation covering all purchasing and materials management functions. However, many of these policies and practices have not been reviewed and updated, many going back to 2012. The Company has indicated they are in the process of reviewing policies and procedures, but six months after the start of field work, many of these documents have not been finalized. By their own procedures, these policies should be reviewed and updated every two to three years. Updating of policies is particularly important now that Supply Chain is going through a transformational period, e.g. several technological changes to speed up processes.

Finding XXI-11 The use of technology in Purchasing and Materials is appropriate and improving.

Purchasing and materials management functions are mainly automated through ERP/SAP. As discussed earlier, there are currently several development efforts with add-on systems to further increase effectiveness and efficiency. These processes include appropriate checks.

Finding XXI-12 The level of Internal Auditing for Purchasing and Materials functions is low.

There has only been one internal audit of the Purchasing and Materials Management functions (narrowly focused on contracting) in the past five years, the last coming in 2016. Given the number and size of transactions in these areas, much more attention from Internal Audit is necessary. Again, this is particularly important in that there are a number of technological process changes being made in Supply Chain.

Finding XXI-13 Vendor Master Database is maintained, but performance evaluations are not consistently applied and consistently used in future contract/supplier awards.

Documented post project reviews are conducted for major projects. In addition to detailed information on project scope, schedule, unusual circumstances, etc., there are written evaluations on the



performance of the project manager, operations representative, and contractors/suppliers. In addition, numerical scores are assigned to key performance indicators of product and service satisfaction, defects at completion, project cost and schedule, safety, and communication. Detailed guidelines for evaluators are provided.¹³⁹⁰ However, these evaluations are not transferred, even in summary format, to any vendor master database. As such, it is difficult to gauge a vendor's performance over time to aid in bid/contract evaluation.

Finding XXI-14 Inventory is properly tracked and counted, but inventory levels, EOQ, min/max order points are all determined subjectively by operations.

As noted earlier, there is a comprehensive process in place for performing physical inventory counts and verifying any discrepancies. Inventory levels by location are maintained on automated systems and, at one time, performance statistics were tracked and routinely reported out. But these performance tracking measures, e.g. turnover, Economic Order Quantities (EOQ), min/max order points, have been discontinued. Currently, turnover is not tracked and EOQ/minmax order points are subjectively determined by operations personnel. The Master Materials File, which contains many fields that could assist with this analysis, is little used.

Recommendations

Recommendation XXI-5 Aggressively Develop and Implement Vendor Partnering Processes. (Finding XXI-9.)

AW is in the very early stages of developing vendor partnering strategies. Supply Chain Group should move forward with programs to not only develop "should cost" models, but work with major vendors to assist them in developing process improvements within vendor processes and analyze changing AW specifications if that means more effective and efficient vendor service. Identified cost savings can be shared between AW and the vendor. More traditional vendor partnering techniques, e.g. involvement in a vendor's bid buildup and vendors holding inventory for AW, can also be expanded.

Recommendation XXI-6 Require all policies and practices be reviewed and updated at least every Three Years. (Refer to Finding XXI-10.)

The review process should only take 30-60 days, with another 30 days for final approvals. Requirements for procedure/practice updates should also include any significant process changes, e.g. automation updates, or organizational changes.

Recommendation XXI-7 Increase the level of Internal Auditing in the Purchasing/Materials area. (Refer to Finding XXI-12.)

Internal Auditing should schedule at least one audit per year of an area of purchasing and/or materials management. Given the ongoing process changes in this area, more internal audit scrutiny is necessary.

Recommendation XXI-8 Enhance the Vendor Master Database to capture more vendor performance data and make these evaluations a formal part of contract/supplier award decisions. (Refer to Finding XXI-13.)

A summary of performance (e.g. quality, price, on time performance/delivery, changes, responsiveness) for each transaction should be included in the vendor data base for each vendor for use by category managers/buyers/engineers to evaluate bids and negotiate prices, terms, and conditions. For major vendors and those involving large dollar amounts, a link should point to a more comprehensive evaluation form, similar to the one mentioned previously to evaluate contractors.

Recommendation XXI-9 Perform objective analyses of inventory levels, EOQ, reorder points, min/max levels. (Refer to Finding XXI-14.)

Although inventory levels at NJAW are low and widely distributed, turnover should be tracked by category of inventory (e.g. value and usage rates) and routinely analyzed to determine if inventory levels, EOQ, and min/max points should be adjusted to save the company money and reduce stock-out rates. This should be performed in conjunction with the Supply Chain Group with input from the field. More robust use of the Master Materials File would help with this effort.



E. Transportation and Fleet Management

American Water Works Service Company (AWWSC) and New Jersey-American Water Company (NJAW) in relation to the procurement, maintenance and operation of the vehicular fleet that is operated by NJAW.

Background & Perspective

Organization/Responsibilities/Staffing of Fleet Management

NJAW fleet and transportation is the responsibility of the Fleet Supervisor who reports through the Engineering Department to the President of NJAW. Fleet's reporting relationship recently changed. In 2018, Fleet moved from reporting to the Operations Department over to Engineering. The Fleet Supervisor has two direct reports: a Fleet Operations Specialist and a Fleet Service Representative.¹³⁹¹ The Fleet Supervisor is responsible for the operations and maintenance of NJAW's vehicles. Vehicle forecasting processes and purchasing is handled by a category manager (with input from NJAW Fleet Group) reporting to the AWWSC Chief Procurement Officer.¹³⁹²

Assignment and operation of company fleet vehicles is documented in AW Fleet Management Policy to include: who is eligible to be assigned a vehicle and what kind; Vehicle procurement, replacement, and disposal; vehicle operation; data management and; responsibilities.¹³⁹³ This policy specifically addresses vehicle eligibility, procurement, operation, replacement, disposal, and data management.¹³⁹⁴ Employees may be assigned a company fleet vehicle where the employee's job function requires the regular use of a vehicle. Vehicle eligibility for support roles that do not require the regular use of a vehicle must be approved by the appropriate Executive Leadership Team (ELT) member. There are no pooled vehicles for general use by all employees. Where an employee's job function requires the use of a vehicle less than full time, vehicles may be shared within the department or work group. Company vehicles cannot be used for commuting. All vehicle purchasing/leasing is done through the designated fleet management company (currently ELEMENT). Supply Chain annually develops a standard vehicle offering including make, models, up-fits and options. Nonstandard purchases must be approved by the Corporate Fleet Manager. Each operating unit has one or more designated fleet coordinators. A database of all fleet vehicles is maintained.¹³⁹⁵ In addition, a Fleet Driver's Handbook and a Fleet Usage Guideline cover a number of vehicle operating and maintenance requirements.¹³⁹⁶

Fleet Management function is contracted out to Element Fleet Corporation (Element). This agreement includes purchasing and managing all vehicles in AW companies. Element is a formation of PHH Vehicle Management Services, LLC (PHH) and GE Fleet. Element VMS LLC was the legacy PHH operating company. Gelco was the legacy GE operating company. The two companies were merged in January 2018 with Gelco the surviving entity, which was renamed Element Fleet Corporation.¹³⁹⁷

AWWSC agreements with Element fall into two major categories: Leasing (funding provided to vehicles and equipment assets) and Services (e.g. fuel, maintenance, accidents). The Vehicle Management

Agreement with PHH and the Leasing agreement with D.L. Peterson Trust were put into place in early 2010. Traditionally, under the agreement with PHH, assets were titled under the name of DL Peterson Trust, the funding entity for PHH. Post-merger and currently, both the funding and services functions are managed by Element. These wide-ranging management services include the purchase and disposal of all AWWSC vehicles as well as advisory services related to vehicle management (e.g. suggesting appropriate make and models, titling, policy guidance). An informal (not documented) Lease versus Buy analysis was conducted three years ago (2018). At that time, AW decided to purchase all vehicles going forward, because of rate case considerations, e.g. although leasing had cash flow benefits for the company, it resulted in additional costs for ratepayers.¹³⁹⁸

The current corporate arrangement of Element Fleet Corporation dates back to January, 2018 when Element VMS, LLC (legacy of PHH operating company) and Gelco Corporation (legacy of a GE operating company) merged. AW agreements with Element fall into two major categories: Leasing (funding provided to vehicles and equipment assets) and Services (e.g. fuel, maintenance, accidents). Leasing cost figures by vehicle type, including total capital costs and operating costs, are available through the Element system. The figures in the Element system include estimates based on a variety of assumptions, e.g. industry averages, historical data, forecasts. Incentives are included, but there is no indication of negotiation on vehicle purchase prices.¹³⁹⁹ Fees paid to Element are tracked. Element has been providing management services since, at least, 2010 and AWWSC has indicated it is in the process of rebidding these services, but the details and status of this process has not been provided to Schumaker & Company as of this writing.¹⁴⁰⁰

Vehicle Inventory and Operating Cost

Exhibit XXI-16 shows NJAW's vehicle inventory for the past five years.¹⁴⁰¹

Exhibit XXI-16
NJAW Vehicle Inventory
2015 to 2019
as of October 1, 2019

Type of Vehicle	Year					% Change 2015-2019
	2015	2016	2017	2018	2019	
Cars	117	96	91	89	90	-23.1%
Vans	151	158	190	152	148	-1.3%
SUVs	32	35	40	43	46	43.8%
Trucks	187	182	200	201	196	4.8%
Crew Trucks	58	58	59	60	58	0.0%
Dump Trucks	38	43	41	43	42	10.5%
Total	583	572	621	588	580	-0.5%

Source: Information response 661

NJAW's fleet has been stable over the past five years with a total increase of less than 1 percent. The spike in 2017 represented acquiring Shorelands Water Company and incorporating their vehicles.¹⁴⁰²



NJAW budgeted to actual transportation operating and capital expenses for the past eight years are shown in *Exhibit XXI-17*.¹⁴⁰³

Exhibit XXI-17
NJAW Transportation Operating and Capital Expenses
2012 to 2018
as of October 1, 2019

		2012	2013	2014	2015	2016	2017	2018
Transportation Expense	Actual	\$ 3,824,626	\$ 3,373,322	\$ 3,613,453	\$ 3,117,067	\$ 2,199,877	\$ 2,811,749	\$ 3,116,835
Transportation Expense	Budget	\$ 4,014,587	\$ 3,583,532	\$ 3,049,532	\$ 3,016,447	\$ 2,818,899	\$ 2,743,847	\$ 2,737,005
	Variance	\$ (189,961)	\$ (210,210)	\$ 563,921	\$ 100,620	\$ (619,021)	\$ 67,902	\$ 379,830

Vehicle Capital	Actual	\$ 5,707,303	\$ 5,455,814	\$ 2,404,481	\$ 3,222,577	\$ 3,878,536	\$ 3,165,881	\$ 5,209,668
Vehicle Capital	Budget	\$ 6,000,000	\$ 7,200,000	\$ 3,000,000	\$ 3,190,000	\$ 3,000,000	\$ 3,500,000	\$ 4,000,000
	Variance	\$ (292,697)	\$ (1,744,186)	\$ (595,519)	\$ 32,577	\$ 878,536	\$ (334,119)	\$ 1,209,668

Source: Information Response 291

Variances have ranged widely from as low as 1% to as high as 30%.¹⁴⁰⁴ Operations & Maintenance (O&M) cost breakdowns and fees paid to Element are maintained, but variance analysis is not routinely performed.¹⁴⁰⁵

Vehicle Forecasting/Planning and Acquisition

Planning and forecasting for fleet needs is handled by a Senior Category Lead, who reports up to the AWWSC Chief Procurement Officer through the Director of Director of Corporate Procurement and National Director.¹⁴⁰⁶ Locally, NJAW Engineering Department schedules quarterly meetings in each operating region to include representatives from all areas of operations (e.g. production, T & D, water quality). These meetings broadly discuss operational needs. Fleet/transportation needs are used to develop a list of new and replacement vehicles for the upcoming year.¹⁴⁰⁷ Data on vehicles used, including standard options and standard equipment, is maintained within the Element system.¹⁴⁰⁸ Day-to-day NJAW fleet operation is managed by a Supervisor of Fleet Operations Services, who reports to the Vice President of Engineering (NJAW) through the Capital Program Manager.¹⁴⁰⁹ His duties include maintaining the fleet budget, administering and adhering to preventative maintenance of all vehicles, and assisting in defining vehicle specifications.¹⁴¹⁰

Annually the Corporate Fleet manager will identify vehicles that are candidates for replacement, based mainly on mileage (85-100K) and age (60+ months),¹⁴¹¹ and prepare a replacement plan and budget for dissemination to the operating companies for inclusion into their budgets.¹⁴¹² Fleet annually gets an assigned replacement budget that gives them a set amount of money for replacement vehicles. The Fleet Supervisor develops a list of candidate vehicles for replacement based primarily of mileage or

hours used. He then goes out to the various operations areas and evaluates the condition of individual vehicles with operations personnel. These planning meetings are held quarterly and annually, are coordinated by the NJAW Engineering Department and include employees from all operating functions, e.g. Production, T & D, Water Quality. There is no formal repair-versus-replace analysis beyond this evaluation. From this evaluation, a list of replacement vehicles is developed to fit the available budget.¹⁴¹³ Vehicles to be replaced are individually listed on an excel spreadsheet organized by class of vehicles. Information includes vehicle location, department and manager, make/model and model year, actual cost and estimated cost to replace.¹⁴¹⁴

Once the budget is approved, Operations personnel, with assistance from Element as needed, will purchase vehicles from local dealers.¹⁴¹⁵ NJAW purchases its vehicles from Chevrolet based on operations and fleet management's informal evaluation of their warranties and the quality of their service departments. The Supply Chain Department has indicated they have begun to develop a standardization process that would enable better planning and volume purchasing across all operating companies.¹⁴¹⁶

Fleet policies and practices are documented in the Fleet Management Policy (last reviewed and updated in January, 2016), Fleet Operation Practice (last reviewed and updated in January, 2016) and New Jersey American Water Fleet Usage Guidelines (last reviewed and updated in November, 2016). The Fleet Management Policy addresses who is available for what class of vehicle, vehicle procurement and operation, vehicle replacement and disposal, and data management.¹⁴¹⁷ Fleet Operation Practice gets into more detail on vehicle usage and operation, vehicle replacement, and maintenance and service.¹⁴¹⁸ NJAW Fleet Usage Guideline addresses these issues in even more detail and specific to NJAW.¹⁴¹⁹

All vehicle procurement, whether purchase or lease, is performed through the designated fleet management company (currently Element). Annually Corporate Supply Chain Department will publish a standard vehicle offering to include standard options. Any variances to standard vehicles and options must be approved by the Corporate Fleet manager.¹⁴²⁰ Each vehicle purchased is linked to the vehicle being retired. Any additional vehicles must be approved by the operating unit president.¹⁴²¹

Vehicle Assignment and Utilization

Vehicle utilization is tracked per vehicle on spread sheets to include vehicle number, Use/Type (e.g. sewer work), Vehicle Type (e.g. crew truck), Miles Driven Per Year, and Miles Driven Per Month. Utilization numbers vary widely (e.g. 510 miles per year to over 10,000 miles per year for same class of vehicle) and, although the Element system is capable of reporting out some summary level utilization statistics, these numbers are not summarized, routinely reported, or analyzed.¹⁴²²

Each vehicle is equipped with GPS tracking. Operators are required to make out Daily Vehicle Inspection Reports (DVIR) that are maintained in folders for inspection by the New Jersey Department of Transportation (NJDOT). These one-page reports have check boxes covering normal operation of the vehicle (e.g. battery, oil levels, brakes, glass), equipment (e.g. hoses and couplings, fire extinguishers), documents (e.g. registration, insurance card, fuel card) and cleanliness. The operator can indicate a deficiency by a single checkmark with a section for driver's remarks. Drivers and supervisors must sign



the report and the bottom section is filled out by the mechanic repairing the fault.¹⁴²³ All DVIRs are reviewed annually and summarized in a one-page report that indicates items reviewed and whether they were satisfactory or unsatisfactory.¹⁴²⁴

Vehicle assignment criteria are documented in a written policy. Criteria for Vans/Light/Medium/Heavy trucks and Cars/SUVS are separately defined. Uses not defined in these two categories must have the approval of the Executive Leadership Team (ELT). Vehicles may be shared within a department or work group. Pooling of vehicles at NJAW was significantly reduced in 2015 as part of an operational efficiency effort to right size vehicle fleet size. Employees that must travel on Company business are expected to use their own cars.¹⁴²⁵ There are a small number of pool vehicles available to employees at certain operating centers where frequent travel is required.

Vehicle Maintenance Management

NJAW does not maintain any internal vehicle repair capabilities. Most fleet functions are performed by outside vendors. Element performs overall fleet management functions, including all data and reporting, e.g. registration/titling, maintenance, utilization, and fuel procurement. There are currently only two companies that perform this service: Element and ARI. AWWSC is currently undergoing a corporate-wide evaluation on which company they should use going forward. Vehicle maintenance is mostly performed by Penske, although local repair shops are utilized in some areas where Penske doesn't have a shop nearby. Penske mechanics will come to the vehicle location to service vehicles, with the exception of major repair work, e.g. overhauls. Maintenance records are maintained through Element although Penske has a backup data base called Service Net. Tires are all purchased through Bridgestone/Firestone through a special utility purchasing program that features discounts on regular prices.¹⁴²⁶ The Element data base, coupled with Excel-based manual records maintained by the Fleet Group, is the system of record for all vehicle information including configuration, assigned driver, and operating history; SAP is the system used for accounting.¹⁴²⁷ Element has a published User Guide that instructs on data entry to their system and any available reporting. This data base system is generic to all of their clients and is mainly an instruction guide for data entry.¹⁴²⁸

Preventative maintenance (PM) on each fleet vehicle is performed every six months or 5,000 miles whichever comes first. Intervals can be adjusted if unusual problems are discovered (e.g. warning lights). Repair work (non PM) are recorded separately as unscheduled repairs. Reporting of these PMs/repairs are performed by Penske via their monthly invoices. Backup for these invoices is quite detailed and extensive: each job per vehicles is a line item on an excel spreadsheet, which in addition to vehicle information includes labor rates, hours, parts costs, contracted costs (if applicable, e.g. for major overhaul work), and job notes/descriptions. Some items, such as contract charges, can be summarized on a requested basis. This information is not summarized; the Excel spreadsheet is sent daily to all local managers and supervisors.¹⁴²⁹

Other available reports on ServiceNet (Penske) include Fuel (prices, price history, amount pumped, amount invoiced, and amount not invoiced), maintenance (charges, PM compliance, roadside assistance,

unit audit, and vehicle service history), contract and special charges, and rentals (active and history).¹⁴³⁰ Vehicle maintenance records includes an inspection checklist, which includes tire and battery checks.¹⁴³¹

AWWSC has a rental agreement with a national equipment rental company (United Rental Inc.) that applies to all AW companies. This agreement was signed in 2010 and was recently extended to April, 2020. Rates are a preferred customer discount off of URI's standard rates and there are rebate provisions tied to yearly dollar volume of rentals. This agreement can be cancelled by either side for any reason on 30 days' notice.¹⁴³²

Fuel Purchasing

All fuel purchasing is performed through Element via a Wright Express (WEX) card (P-Cards are not allowed for purchasing fuel). This acts like a regular credit card and is accepted at most gas stations. WEX cards are assigned to specific company vehicles and must remain with that vehicle. Anyone authorized to purchase fuel (e.g. drivers) are issued a PIN number specific to them and not the vehicle. This PIN number and mileage data must be entered for each fuel purchase. All fuel purchasing data is vehicle-specific and maintained by Element. Managers and supervisors are responsible for cancelling PIN numbers for employees leaving the company or being transferred to a position that does not rate fuel purchasing, and to destroy WEX cards for any vehicle transferred, sold, or retired. Fuel costs are accounted for as part of operating and maintenance costs.¹⁴³³ Total NJAW fuel costs for the past five years are as follows:¹⁴³⁴

- ◆ 2015 - \$1,547,242
- ◆ 2016 - \$1,308,765 (15.4%)
- ◆ 2017 - \$1,601,720 (22.4%)
- ◆ 2018 - \$1,964,593 (22.7%)
- ◆ 2019 (through 9/30/19) - \$1,466,124

Internal Audits

There have been no internal audits of the fleet management operations for the past seven years.¹⁴³⁵

Findings & Conclusions

Finding XXI-15 AWWSC and NJAW Fleet organization and staffing is appropriate.

A category manager experienced in fleet operations is assigned responsibility for supporting fleet functions across all AW companies. This position reports to the Supply Chain Group within the Service Company. As such, he is in a position to ensure better planning, budgeting, standardization, maintenance practices, and volume purchasing of vehicles. Each operating company, including NJAW, have their own fleet supervisors to ensure company operational needs are properly met. In the case of NJAW, this groups includes three positions who work closely with operations and engineering groups on a regular basis.



Finding XXI-16 NJAW vehicle forecasting and planning is largely informal.

Annual vehicle needs are based on informal feedback from the field. Fleet capital procurement budgets are sent down to the operating companies who then set their purchases to stay within that budget. There are no formal analysis, metrics, or documented analytics (e.g. repair versus replace, utilization) justifying vehicle purchases. Vehicles are ordered from the dealer shortly before they're to be put in service and, in the cases where there may be a 6 to 10 month lead time, may not be available when needed.

Finding XXI-17 Fleet acquisition process is adequate, but there isn't standardization across all AW operating companies.

NJAW fleet and operations personnel do a good job of informally determining their needs (equipment as well as cost/maintenance/warranty considerations) and have settled on specific dealers (Chevrolet) based on these considerations. But there is no corporate-wide, formal standardization of fleet vehicles that could result in better volume purchasing across all operating companies (including NJAW). The Supply Chain Group has indicated they have begun this process, but operating companies will not be required to heed any new standards.

Finding XXI-18 Fleet policies, procedures, and practices are well documented at a proper level of detail. The last review and updating of these policies and practices was performed in 2016.

A previously discussed, detailed policies and practices are in place covering the full range of fleet functions including vehicle assignment and fuel purchasing practices. These policies were last reviewed and updated in 2016. The Company indicated these policies were undergoing review as of last Spring, yet as of the end of the year, the review had not been completed.

Finding XXI-19 Maintenance management is appropriate but reporting and analysis could be more robust.

Given the dispersed nature of AW operations, utilizing an outside management company and outside maintenance services is appropriate instead of maintaining internal garage and repair service. Element and Penske maintain records that provide a considerable amount of information, but there is little summary level reporting useful to management.

Finding XXI-20 There have been no internal audits of the fleet function in the past three years.

Fleet management and maintenance is provided by outside vendors, which represents a high level of financial transactions. Under these circumstances, Fleet functions should be periodically audited.

Recommendations

Recommendation XXI-10 Perform more formal forecasting of fleet needs. (Refer to Finding XXI-16.)

Use formal repair versus replace criteria and analysis, along with utilization statistics, to better justify vehicle purchases. Fleet requirements and ordering should be planned more than one year in advance to accommodate potentially long lead times as well as serve for a better basis to negotiate volume pricing.

Recommendation XXI-11 Perform a comprehensive, corporate-wide standardization study and use the results to guide fleet vehicle purchasing. (Refer to Finding XXI-17.)

This study should apply across all AW operating companies and all companies should be expected to comply with the results. Best practices will have little meaning unless it's applied across the entire organization. This effort, combined with more forward looking planning, should result in better negotiated vehicle prices and total cost of ownership for all operating companies, including NJAW.

Recommendation XXI-12 Provide better summary level management reporting and analysis on capital and operating costs. (Refer to Finding XXI-19.)

Monthly summary level reports should be provided to management on all aspects of the fleet function to serve as a basis for tracking trends and as a basis for further analysis. For example, summary reports on utilization can assist in right-sizing the fleet. Summary reports on maintenance can help track costs and confirm that all necessary PM and repair work is performed.

Recommendation XXI-13 Perform more internal audits of the Fleet function. (Refer to Finding XXI-20.)

Third party vendors provide most of the acquisition and O&M services and should be audited for both financial transfers and to ensure that the work documented was actually performed.

F. Computer Systems and Services

We reviewed and reported on whether the information technology structures meet New Jersey American Water's (NJAW's) current business needs and have the capacity to adapt to future requirements and are designed to minimize cyber risk, as **information technology and systems processes should be consistent with currently accepted levels of technology within the utility industry and properly designed to support the company in providing superior service to its customers.**

With advances in the field of information technology, utilities have become increasingly dependent on their information systems to support and perform the business processes of the



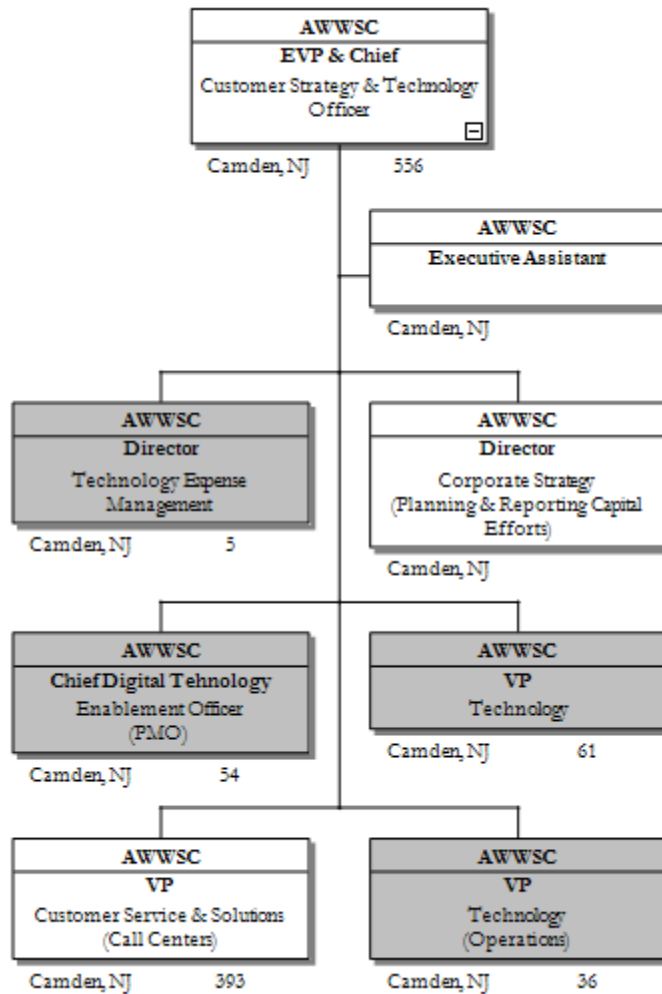
company. As such, the adequacy of the installed systems to perform the required tasks is critical to the effectiveness and efficiency of the utility's operations. Additionally, utilities spend large amounts of money each year to upgrade, maintain, and operate their internal IT systems. It is important that this money is well spent and is producing the required results at an economic level of expense.

Background & Perspective

Organization

The highlighted groups in Exhibit XXI-18 illustrates the American Water Works Service Company (AWWSC) Technology & Innovation (T&I) organization, which supports technology systems and services for NJAW.¹⁴³⁶

**Exhibit XXI-18
T&I Organization Chart
July 2019**



Source: Interview 81

The T&I Department was changed from IT to T&I in 2016 when the current head became Executive Vice President (EVP) & Chief Customer Strategy & Technology Officer, as T&I’s real value is to customers and employees.¹⁴³⁷

During the years 2013-2018, the AWWSC T&I function has gone through a transition of roles and responsibilities. Throughout this transition, T&I has supplemented its internal work force with contractors as it seeks to build certain skill sets internally. According to T&I management, data related to 2011 and 2012 is not readily available and would be time consuming to produce, so it does not show up on *Exhibit XXI-19*, which shows actual and budget staffing levels for 2013 to 2018.¹⁴³⁸ Its 2019 staffing level is approximately 160 now.¹⁴³⁹

Exhibit XXI-19
T&I Actual & Budget Staffing Levels
2013-2018

Year	Actual	Budget
2018	123.00	238.00
2017	178.00	228.00
2016	181.00	211.00
2015	185.00	200.45
2014	174.50	242.00
2013	187.00	199.00

Source: Information Response 312

Some of the key T&I functions we discussed during this audit include:¹⁴⁴⁰

- ◆ Technology Expense Management group
- ◆ Product Management and Responsibility for Enterprise Systems, including Chief Digital Technology Enablement Officer and VP Technology groups
- ◆ Operations, including VP Technology (Operations) group

Technology Expense Management

The Technology Expense Management group is responsible for T&I budgeting reporting and analyses, including OPEX and CAPEX, including regulatory and MBB entities for calculating budgets; plus procurement and contract management, including working with Corporate Procurement group. CAPEX changed an approach in which previously planning studies occurred involving discussions with states. Starting a year ago, the Board of Directors approved the direction of technology, which is discussed in the following section describing product management and responsibility for enterprise systems.¹⁴⁴¹

Information this group involved with includes:¹⁴⁴²

- ◆ An enterprise agreement with Microsoft, which includes numerous options not limited to 15, occurs every three years.
- ◆ The business transformation from JD Edwards (JDE) to SAP occurred in the 2012-2013 timeframe with follow-up in 2014, in which SAP was officially begun in 2013.
- ◆ OPEX variance analyses are done monthly involving discussions with the Budgeting and Information Reporting (BIRS) group. OPEX includes contracted services.
- ◆ This group also is involved in rate cases for different states, but not recently NJ. The group also has been involved in previous management audits, but not for NJAW.
- ◆ Not involved with goals and objectives (G+O), but planning at back-end of process.

- ◆ Purchases involving getting monthly bills and allocations based off of primarily current customers and/or employee count WBS formulas, but not tracked by contractors. Prior year data is only used for allocations in rare cases where appropriate and where more timely allocation formulas are not available.¹⁴⁴³

This group doesn't expect any changes from overall responsibilities.¹⁴⁴⁴

Product Management and Responsibility for Enterprise Systems

Chief Digital Technology Enablement

This group is responsible for product management, in which 12 of the employees are managing the delivery of products to customers. According to the head of this group, this group understands current and future business needs. Also involved besides Product Managers are Product Engineers, which are responsible for building products.¹⁴⁴⁵

Besides regulatory companies, this group is responsible for market-based business (MBB) IT organization support. The MBB is approximately 10% of the total AW business. There is a dedicated MBB T&I support team budgeted solely within the market based business that supports the following areas:¹⁴⁴⁶

- ◆ Homeowner services, including pivotal health systems
- ◆ Military services

VP Technology

This group is responsible for enterprise technology solutions. This team leads all enterprise systems related initiatives including purchased and configured systems such as SAP, Employee Central (myEC – HR), PowerPlan, etc., all Data Insights & Analytics efforts, all Platform & Cloud related efforts, and the ongoing operations or 'run & maintain' efforts related to all enterprise systems. Regarding support systems, this group doesn't build systems, but releases new systems bought from vendors through system implementation and support existing systems. Many are cloud-based applications involving:¹⁴⁴⁷

- ◆ Infrastructure team
- ◆ Platform team
- ◆ Applications team
- ◆ Security team

This group is trying to use artificial intelligence (AI) unless traditional steps, plus also provides specialty skills for commissions.¹⁴⁴⁸ It leverages data science and AI wherever applicable.¹⁴⁴⁹

Both Chief Digital Technology Enabler and VP Technology Groups

Product Managers in both groups don't manage people, but lead groups but don't manage people, so they have involvement in collaboration and teamwork but are not managers. Outcomes are not done by individuals but by a team approach. This methodology began when the current EVP & Chief Customer



Strategy & Technology Officer began his position in May 2015.¹⁴⁵⁰ The new team includes Product Owners, Product Managers, and Product Engineers.¹⁴⁵¹

- ◆ Product managers work with users and create idea selling on what it a system would be as liaison with customers in business who don't own products.
- ◆ Product engineers work with Product Managers to solve technically resources and technology.

As discussed in further the *Initiation, Development, and Implementation Processes* section of this chapter, these groups use agile development involving product management, not project management. Three examples include:¹⁴⁵²

- ◆ Meter Operations uses artificial intelligence and predicts what meters are necessary.
- ◆ Click-Workforce management creates schedules; with SAP in 2013, as no one was satisfied, so created this application on top of platform: SAP on Hana cloud, not Oracle.
- ◆ Customer One View is a mobile application on an Interactive Personal Application Device (IPAD), although it is not sure it has been worked on in an area.

These groups are also involved in roadmaps of products. Both look at strategy every year, in which the EVP & Chief Customer Strategy & Technology Officer keeps discussing with other T&I employees. The strategy is developed by the T&I strategy executive team (VP level) with the company's Executive Leader Team (ELT).¹⁴⁵³

Operations

American Water has approximately 3,000 virtual servers (Lenovo servers), including IBM Sterling Forecast, NY (Site A) servers where American Water production occurs, while disaster recovery/storage is done by IBM's cloud based in Dallas, TX (Site B). American Water uses public cloud, using cloud encrypted data rather than data centers locally, because it's considered more secure.¹⁴⁵⁴

T&I Capital Expenditures

T&I's operating expenses and budget amounts allocated to NJAW, including capital leases, are included in NJAWC's overall actual and plan numbers. Below in *Exhibit XXI-20* are T&I capital expenditures and related budget allocated to NJAW that is readily available via SAP transactions.¹⁴⁵⁵

Exhibit XXI-20
T&I Capital Expenditures
2012-2018

Capex Expenditures	2010*	2011*	2012	2013	2014	2015	2016	2017**	2018**
K3-Enterprise Solutions	\$ -	\$ -	\$ -	\$ 663,555	\$ 6,391,958	\$ 8,431,988	\$ 6,360,951	\$ 11,971,349	\$ 15,681,152
K1-IT Hardware and Equipment	\$ -	\$ -	\$ 423,359	\$ 694,072	\$ 610,228	\$ 1,125,230	\$ 1,843,881	\$ 2,083,199	\$ 1,346,920
Business Transformation	\$ -	\$ -	\$ 24,109,588	\$ 13,988,697	\$ 1,699,825	\$ (929,320)	\$ -	\$ 2,198	\$ 83,536
Total	\$ -	\$ -	\$ 24,532,947	\$ 15,346,324	\$ 8,702,011	\$ 8,627,898	\$ 8,204,832	\$ 14,056,746	\$ 17,111,608
Capex Budget	2010	2011	2012	2013	2014	2015	2016	2017	2018
K3-Enterprise Solutions	\$ -	\$ -	\$ -	\$ -	\$ 1,576,553	\$ 6,254,622	\$ 7,010,432	\$ 9,144,020	\$ 10,899,019
K1-IT Hardware and Equipment	\$ -	\$ -	\$ 1,250,000	\$ 600,000	\$ 600,000	\$ 1,142,874	\$ 1,761,857	\$ 1,988,772	\$ 1,539,916
Business Transformation	\$ 7,445,198	\$ 18,396,254	\$ 19,226,563	\$ 14,267,962	\$ 6,761,770	\$ -	\$ -	\$ -	\$ -
Total	\$ 7,445,198	\$ 18,396,254	\$ 20,476,563	\$ 14,867,962	\$ 8,938,323	\$ 7,397,496	\$ 8,772,289	\$ 11,132,792	\$ 12,438,935

* The Technology and Innovation group is unable to readily provide actual spend prior to 2012.
** Business Transformation Costs in 2017 - 2018 requires a reclass of charges

Source: Information Response 313

Policies and Procedures for Systems Operations, Maintenance, Staffing, and Installation and Testing Of Hardware and Software

Policies and procedures are supposedly done annually, but only now, not previously shown below, as the Chief Digital Infrastructure & Security Officer (who heads information discussed in *Chapter XVII – Cyber Risk Mitigation/Cyber Security*), will be looking annually to see if any changes need to be made in T&I policies and procedures, which must be reviewed at least annually.¹⁴⁵⁶

Policies

Policy documentation exists as follows:¹⁴⁵⁷

- ◆ Cyber and Information Security Policy (effective 1/1/2016 and next review date 1/1/2019)
- ◆ IT Operations Policy (effective 9/1/2016 and next review date 9/30/2019)
- ◆ Physical Security and Preparedness Policy (effective 1/1/2016 and next review date 1/1/2019)
- ◆ Sensitive Information Security Policy (effective 1/1/2016 and next review date 1/1/2019)
- ◆ Technology & Innovation Governance Policy (effective 1/1/2018 and next review date 12/15/2019)

Practices

Practices documentation exists as follows:¹⁴⁵⁸

- ◆ User Access Management Practice for Information Technology Services (ITS) – Client Services & Security Operations functional area (adopted 7/31/2009)
- ◆ Tape Management Practice for ITS – Infrastructure & Operations functional area (adopted 1/1/2009)
- ◆ Special Access Authorizations for ITS - Client Services and Security Operations functional area (adopted 4/23/2010)



- ◆ Production Promotion Verification Practice for IT - Business Solutions functional area (adopted 6/12/2007)
- ◆ Problem Management Practice for IT Services/Operations functional area (adopted 10/27/2017)
- ◆ Patch and Vulnerability Management Practice for ITS - Client Services and Security Operations functional area (adopted 1/13/2010)
- ◆ Job Submission, Execution and Monitoring Practice for ITS – Infrastructure & Operations functional area (adopted 6/29/2007)
- ◆ Job Scheduler and Operation Run Sheet Administration Practice for ITS – Infrastructure & Operations functional area (adopted 6/29/2007)
- ◆ Job Scheduler Access Practice for ITS – Infrastructure & Operations functional area (adopted 6/29/2007)
- ◆ Systems Configuration Practice for ITS (adopted 10/16/2015)
- ◆ Information Technology Enhancement Committee Practice for ITS functional area (adopted 4/23/2010)
- ◆ Common Vulnerability Scoring System (CVSS) Practice for ITS - Client Services and Security Operations functional area (adopted 1/13/2010)
- ◆ Backup and Recovery Non-SCADA for ITS – Infrastructure & Operations functional area (adopted unknown)
- ◆ Application Logging and Monitoring Practice for ITS – Client Services and Security Operations functional area (adopted 7/31/2009)
- ◆ Application Data Restore for ITS – Infrastructure & Operations functional area (adopted 1/1/2009)

Configuration of Computers

American Water no longer utilizes a mainframe, and all systems use a client/server based architecture; therefore, there is no need at this time for plans to migrate current mainframe applications to the client/server environment.¹⁴⁵⁹ Also, American Water has virtualized its computer, storage, and network infrastructure, in which the virtualization provided American Water with the ability to quickly add incremental capacity as acquisitions are made.¹⁴⁶⁰ As previously discussed, the VP Technology (Operations) indicated that there's approximately 3,000 virtual servers (Lenovo servers) with physical hosts, in which his group is responsible for configuration of computers.¹⁴⁶¹

When asked about the current configuration of all computers, (including associated hardware and software supporting operations) and any proposed modifications (including lines, routers, switches, modems, and all ancillary equipment), the Chief Digital Infrastructure & Security Officer indicated that American Water has standardized the initial software and hardware configurations for all work stations in the environment and that all systems receive regular updates to stay current.¹⁴⁶²

Specific configuration details of computer equipment are considered security sensitive by American Water, so Schumaker & Company has not provided detailed information in this audit report, but it's considered appropriate.

Agreements

Purchases

AWWSC engages a number of third parties to support data processing enterprise-wide. It does not track contractors specific to data processing; however, examples include billing, collections, payment processing, etc. An exhaustive detailed list is not available and would require significant effort to assemble.¹⁴⁶³

American Water utilizes numerous vendors for software and hardware. An exhaustive list of (lease, rental, or purchase) agreements is not available and would take significant effort to assemble, so they weren't provided. However, specific examples include IBM, Dell, HP, etc.¹⁴⁶⁴

Sales

The T&I Department does not sell data processing services externally to companies outside American Water,¹⁴⁶⁵ but provides services to American Water subsidiaries, as discussed in *Chapter V – Affiliate Relationships*.

Mission Statement, Goals, and Objectives

American Water's T&I Department mission statement is to "Invent the Future of the Water Industry." It demonstrates its mission through the design and development of applications and solutions that put the customer at the center of everything it plans and does. Its focus on the customer will continue as it continues to create applications and solutions used by employees to better serve customers, as well as applications and solutions that are utilized directly by the customer. T&I's 2019 goals include the development of the applications and solutions are designed to improve and support five fundamental key business streams listed below:¹⁴⁶⁶

- ◆ Safety
- ◆ Regulatory compliance & best practices
- ◆ Water quality
- ◆ Metering
- ◆ Asset/capital management

Short-Range and Long-Range Technology Planning Processes

The Chief Digital Technology Enablement Officer is responsible to short- and long-range technology planning processes. According to AWWSC management, American Water builds technologies to improve its customer's experience and for its employees to better serve its customers. AWWSC has short and long range planning processes as well as a strategic group consisting of T&I Department leadership and various



stakeholders throughout its business to ensure the technologies being built are aligned with American Water's strategy, mission, and vision and meeting the needs and priorities of its business and customers.¹⁴⁶⁷

To implement planning processes, American Water leverages industry leading Agile and waterfall methodologies when planning and delivering short-term technology related software application products and software/hardware implementation projects. Short-range planning occurs annually and is reviewed and reprioritized on a quarterly basis after input from T&I leadership and input from business representatives. Long-range planning is performed in five year increments and is updated annually as part of annual business plans and aligns with American Water's existing Capital Investment Management practices.¹⁴⁶⁸

For example, American Water decided to utilize a co-location model for its primary data center operations. In 2018/2019, it moved its primary data center systems to IBM's Co-location datacenter in Sterling Forest, NY and decommissioned the Hershey, PA data center. The disaster recovery (DR) data center was established as cloud-based and is located in IBM's cloud based in Dallas, TX. As a second phase (5-year looking forward plan), American Water will seek to migrate its primary and disaster recovery data centers to the Amazon Web Services (AWS) cloud.¹⁴⁶⁹

The T&I Department indicates that it follows the American Water procurement policy and practice documentation.¹⁴⁷⁰ The policy and practice documentation was previously provided in and described in *Chapter VI – Procurement & Purchasing*; however, an updated version, which is in progress, was recently provided for this topic.

Security, Backup/Restoration, and Disaster Recovery Plans and Activities

The current "Data Preservation" strategy for American Water's production data includes:¹⁴⁷¹

- ◆ Utilizing NetApp and TSM Spectrum Protect, all the production data are backed daily from American Water's IBM Data Center in Sterling Forest, NY (Site-A) to IBM's cloud site located in Dallas, TX.
- ◆ Also, American Water uses "Always-On" and "Data Guard" database backup tools for some of its high availability application databases for their backups and restoration.
- ◆ American Water is building a new DR-site in IBM Cloud (Site-B) in Dallas, TX and is currently testing, validating its production applications, and their infrastructures recovery there. Once complete, American Water will document DR Runbook for all of American Water's production environment in its new DR-site (Site-B).

As of mid-September 2019, the DR Runbook is currently being developed and tested, with the first Site-A Production Disaster Recovery Test Runbook in Site-B on August 15, 2019; however, the results of that test are currently under review.¹⁴⁷²

The following topics were discussed during interviews, as these requests seek disclosure of highly sensitive, confidential security information.¹⁴⁷³

- ◆ Physical security plans and programs¹⁴⁷⁴
- ◆ Listing of improvements made to the physical security of NJAW facilities in the past eight years¹⁴⁷⁵
- ◆ Programs that are in place to regularly test the security at operational facilities¹⁴⁷⁶

Initiation, Development, and Implementation Processes

There's ease of use with zero training needed for creating applications, including one click and one swipe. They're competing with American Water Services, Inc. (AWS) and Google for resources by building applications that provide answers. They not outsourcing for help, as infrastructure is in.¹⁴⁷⁷

According to T&I management, AWS or Microsoft/Azure protects data by trying to disrupt old mindset.¹⁴⁷⁸

Initiation

A request for change to existing technology or development of new technology can be submitted by any American Water employee. However, before a request is initiated for work towards any technology change or new development, American Water first ensures these requests have been reviewed through the planning and prioritization efforts as noted above in the *Short- and Long-Range Technology Planning Processes* section.¹⁴⁷⁹

Development

Agile Methodologies are used to manage the development process. Code development is based on the epics and user stories defined in Japan Industrial Relations Association (JIRA), which unlocks the power of Agile, jointly by Technology & Innovation and business owners/users. The source code repository utilized for code development is GitHub,¹⁴⁸⁰ a subsidiary of Microsoft, which is an American web-based hosting service for version control using Git. It is mostly used for computer code. It offers all of the distributed version control and source code management functionality of Git, which is a distributed version-control system for tracking changes in source code during software development, as well as adding its own features.¹⁴⁸¹ Code is developed in the development environment and is unit tested by the development team prior to moving into the Quality Assurance (QA) environment. Once in the QA environment, the development team performs QA testing prior to the business users performing user acceptance testing. Applications are developed on a proprietary web and application server with support for artificial intelligence and open source libraries.¹⁴⁸² JIRA helps keep track of releases; code development is based on the epics and user stories defined in JIRA jointly by T&I and business owners/users.¹⁴⁸³

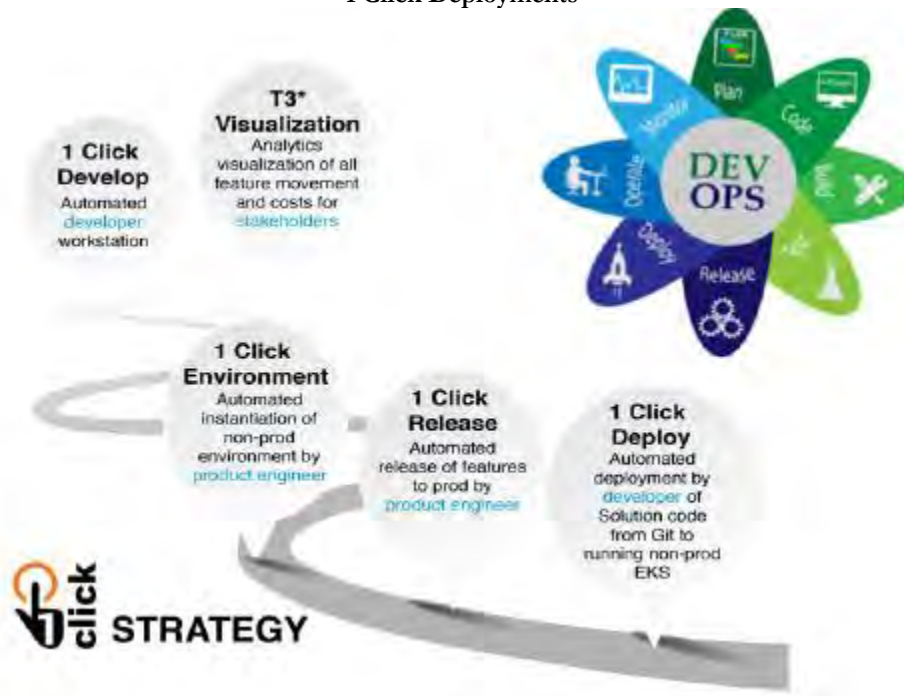
Implementation

Once approval is received from the business, the production change control process is initiated and managed through a change management tool. During this process, changes are documented and tracked as change requests and reviewed prior to production implementation. Code is then deployed onto the production systems. Additionally, American Water is working towards a model of 1 Click deployments



for code promotions, as illustrated in *Exhibit XXI-21*,¹⁴⁸⁴ for which 1 Click deployments typically automate the onerous task of deploying software, thereby reducing the cost of maintaining and developing applications.

Exhibit XXI-21
1 Click Deployments



Source: Information Response 322

Project Management Methodologies

AWWSC’s T&I Department follows a lean-agile methodology for producing its products. Lean software development is a translation of lean manufacturing principles and practices to the software development domain.

[REDACTED]

1485

◆ [REDACTED]

◆ [REDACTED]

◆ [REDACTED]

◆ [Redacted]

◆ [Redacted]

◆ [Redacted]

◆ [Redacted]

[Redacted]

1486

Exhibit XXI-22
AWWSC's Agile Definition

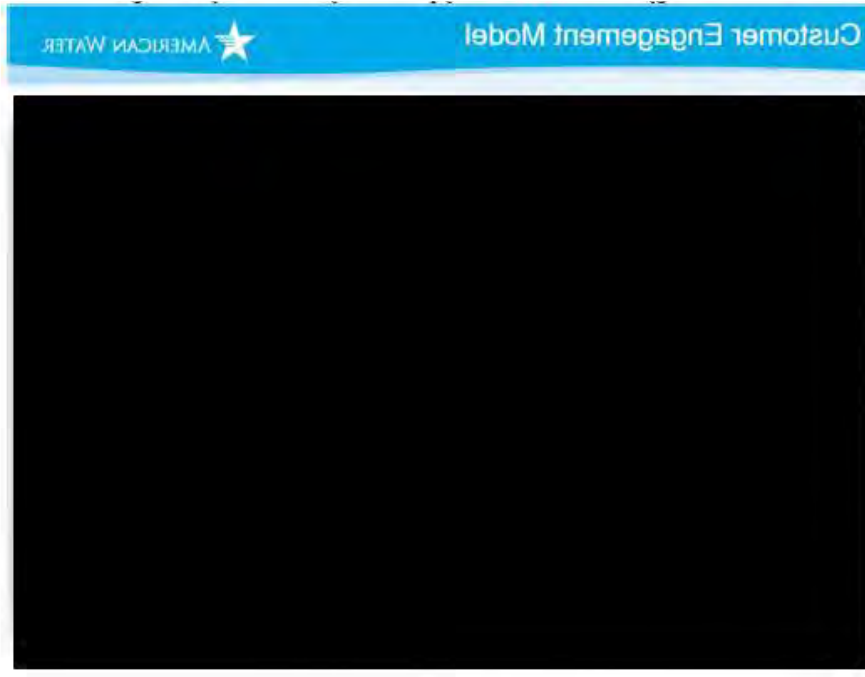
[Redacted]

Source: Information Response 323 (Part of confidential documentation)

Exhibit XXI-23 displays AWWSC's T&I Customer Engagement Model

1487

**Exhibit XXI-23
Customer Engagement Model**



Source: Information Response 323 (Part of confidential documentation)

Reliability and Customer Satisfaction Statistics

When asked about reliability and customer satisfaction statistics, American Water indicated that it assumed it related to statistics associated with its internal T&I Service Desk and the satisfaction of American Water employees interacting with the T&I Service Desk. American Water uses an independent third-party organization, Human Development Index (HDI), to survey employees interacting with the T&I Service Desk and monitor customer satisfaction levels over time. The average overall satisfaction for the T&I Service Desk from June 2018 to May 2019 was 4.89 out of 5, as shown in *Exhibit XXI-24*.¹⁴⁸⁸

Exhibit XXI-24
Technology and Innovation Service Desk
Surveys and Desk Scores
June 2018 to May 2019

Month/Year	Number of Returned Surveys	Average Service Desk Score
18-Jun	507	4.92
18-Jul	543	4.86
18-Aug	535	4.86
18-Sep	471	4.86
18-Oct	594	4.89
18-Nov	480	4.84
18-Dec	467	4.87
19-Jan	617	4.89
19-Feb	531	4.92
19-Mar	487	4.91
19-Apr	468	4.91
19-May	373	4.89
	6,073	4.89

Source: Information Response 321



Findings & Conclusions

Finding XXI-21 **When the T&I Department changed from IT to T&I recently, it has been substantially improving its activities.**

Now that American Water's technology function is being modified by the T&I Department in which management considers T&I's real value to be customers and employees,¹⁴⁸⁹ its policies and procedures are significantly different than many utility organizations, but it is an excellent set of methodologies and activities to occur.

In short, it is interesting to see a utility migrating away from the traditional water fall approach to software development by migrating to a more agile approach. Technology systems have developed significantly over the last 10 years making in-house development and integration a more effective and efficient approach to meeting an entities technology needs.

Finding XXI-22 **The T&I function could not provide all job descriptions even though discussed during interviews.**

Job descriptions which Schumaker & Company reviewed included Product Managers, including Principal Product Manager and Senior Product Manager, which are some of the key employees in this group.¹⁴⁹⁰ However, detailed job descriptions for Product Engineers or Product Owners did not exist, as they are not full time job positions that people are hired into; instead they are roles that are needed within projects.¹⁴⁹¹ We also reviewed brief descriptions and objectives for Infrastructure Engineer, Principal Infrastructure Engineer, Senior Infrastructure Engineer, Principal Technologist, Senior Technologist, Technologist, Principal Software Engineer, Senior Software Engineer, and Software Engineer.¹⁴⁹²

Staff development activities are discussed in *Chapter XVI – Human Resources* for American Water employees.

Finding XXI-23 **The T&I Department expects to review policies and procedures at least annually.**

As the Chief Digital Infrastructure & Security Officer will be looking annually to see if any changes need to be made in T&I policies and procedures, which must be reviewed at least annually, it is good that they expect to do it this way, as previously effective dates or adopted dates were often long ago.

Finding XXI-24 **Written documentation on server and workstations configuration and network diagrams was not readily available.**

Schumaker & Company consultants made several requests for written documentation on technology resources and configurations. Some documentation was provided, although the exact information that we were looking for was not provided. We recognize that there are security issues surrounding such

documentation; however, the information we were looking for is too important to be solely resident in personnel's brains and not committed to paper or a system. We have provided NJAW with some examples of the information that needs to be committed to paper or a system within the T&I area.

Recommendations

Recommendation XXI-14 Make sure T&I functions have job descriptions for all employee types. (Refer to Finding XXI-22.)

As Schumaker & Company was only provided Project Manager detailed job descriptions, the T&I Department should make sure they have detailed job descriptions for all employee types, including Product Engineers, Product Owners, and any others.

Recommendation XXI-15 Modify policies and procedures documentation dates. (Refer to Finding XXI-23.)

The T&I policies and procedures documentation should not only indicate effective dates or adopted dates, but the date last reviewed, plus the upcoming review date.

Recommendation XXI-16 Develop documentation or a systems for documenting current system configurations. (Refer to Finding XXI-24.)

Better written documentation needs to be developed on technology systems. From interviews, we were told that there are over 3,000 virtual servers. Each server would have a Name, IP address, MAC address, and various pieces of software loaded on it. There should be documentation regarding these configurations.

There are software tools that can be used to document these configurations which would not only quiverty the individual servers and workstations for the information but also produce written documentation and listing of such information. If it is true that NJAW has over 3,000 virtual machines in its data center, this information needs to be collected so that NJAW could assess the need for a server consolidation.

G. Records Management

Background & Perspective

American Water management indicates that NJAW company-wide or department guidelines for record retention and destruction, including record retention calendar and associated criteria, is the American Water Record Retention Program, which consists of a policy, a record retention schedule, and a number of confidential practices.¹⁴⁹³



Record Retention Policy

The *Record Retention Policy* documentation, which was prepared by the Legal Department, was originally adopted on May 29, 2009 and made effective January 1, 2010, but has not been revised subsequently.¹⁴⁹⁴ The scope of this policy applies to any and all records that are created, received, or maintained by employees of American Water Works Company, Inc. (American Water) and all of its controlled subsidiaries, including both regulated and market based subsidiaries.¹⁴⁹⁵ It establishes American Water's retention schedule as the sole authority and responsibility for retention and destruction of Company records. The primary objectives of the policy are to:¹⁴⁹⁶

- ◆ Identify, retain, protect, and properly dispose of all company records, including emails
- ◆ Comply with corporate, governmental, and regulatory requirements for record retention, including but not limited to the National Association of Regulatory Utility Commissions (NARUC) guidelines
- ◆ Protect confidential and proprietary information by limiting access to such information and preventing its unintentional destruction
- ◆ Identify and protect vital records essential to the continuity of the company or that are necessary to identify its assets, obligations, or liabilities
- ◆ Retain records relevant to a legal action until the company's Legal Department authorizes their destruction.

All company records must be retained and disposed of in accordance with retention periods and guidelines specified in the company's record retention schedule and in any related practices that American Water has issued or may issue in the future. The company records must be retained for the time periods specified in the retention schedule and discarded promptly when their retention periods elapse, subject to exceptions and exclusions specified in the policy documentation.¹⁴⁹⁷

All company records must be retained and disposed of in accordance with the following standards:¹⁴⁹⁸

- ◆ The company's record retention schedule specifies how long records are to be kept for legal reasons and to satisfy operational requirements.
- ◆ The company's record retention schedule and practices comply fully with all applicable laws and regulations.
- ◆ American Water retains records that must be kept for pending or ongoing litigation, government investigations (including regulatory and administrative audits), tax audits, or internal audits and internal investigations until those matters are resolved. When circumstances warrant, the Legal Department issues written directives that immediately and formally suspend the destruction of specific records until further notice. Such records must be retained until their destruction is authorized by the Legal Department. The *Litigation Hold* practice, which requires a company to preserve data that may relate to a legal action involving the company, establishes the parameters for complying with this requirement.

- ◆ Records should be destroyed promptly when the time periods specified in the company's retention schedule elapse in order to reduce the cost of storing, indexing, and handling the large quantity of records that would otherwise accumulate.
- ◆ The company records must be destroyed in a manner that is safe and appropriate to the content of the records and to the media on which the records are made. The *Destruction of Company Records Practice* documentation establishes the parameters for complying with this requirement.
- ◆ Duplicate records, drafts, and documents of short-term or transitory value, created, received or maintained by the company generally have little or no business value and they should be disposed of in accordance with the *Duplicate Records, Drafts, and Documents of Transitory Value Practice* documentation.
- ◆ The company is supposed to take all reasonable precautions and prudent actions to identify, retain, and safeguard records that are vital to company operations.
- ◆ Privacy and security of company records must be appropriately assured.

The Legal Department is responsible for maintaining policy and practice documentation involving records management, including records retention.¹⁴⁹⁹

The Legal Department is expected to:¹⁵⁰⁰

- ◆ Periodically review and, as necessary, revise this policy documentation as well as the associated schedule and practices to meet the company's business needs, to comply with new laws and regulations, to include new company records, and to eliminate any confusion about the interpretation or implementation of retention periods.
- ◆ Ensure the policy, schedule, and practices are published and/or distributed using formats, methods, and technologies appropriate to company operations.
- ◆ Advise the company about the interpretation and implementation of the company's record retention policies, procedures, schedule, and guidelines.
- ◆ Provide employees with training required to understand and comply with the company's record retention policy, schedule, and practices.
- ◆ Ensure that company employees are promptly notified about records that must be retained for legal reasons.
- ◆ Monitor compliance with the policy, schedule and practices, and with any directives that temporarily suspend the destruction of records for legal or other reasons.

The owner of a record is responsible for adhering to this policy for records in his/her custody or under his/her supervisory control and shall discard records when permitted by the company's retention schedule, in accordance with the company's *Ownership of Records and Destruction Practices* documentation, except where destruction of specific records has been suspended for litigation, government investigation, audits, or other legal reasons, as provided above.¹⁵⁰¹



The General Counsel, or his or her designee supposedly reports to the Board of Directors of American Water Works Service Company, Inc., when necessary, on the effectiveness of this policy, any policy violations in the prior year, and recommended revisions for the upcoming year.¹⁵⁰²

Employees who knowingly violate or circumvent this policy may be subject to disciplinary action up to and including termination of employment. Employees who are aware of or suspect any violations of this policy should immediately report such conduct to their supervisors, who will work with the Legal Department to determine whether a problem exists and how it can be corrected.¹⁵⁰³

Any deviation or waiver from or exception to this policy requires the prior approval of the General Counsel, or his or her designee. At the request of the operating unit where the records are maintained, the company may authorize the extension of retention periods when circumstances warrant, including but not limited to:¹⁵⁰⁴

- ◆ Where retention periods for the records are being reconsidered or revised.
- ◆ Where the records are needed for completion of audits, quality reviews, or other business operations that would normally have been completed within the designated retention period.
- ◆ Where the records are needed for exceptional and demonstrable business circumstances that were not foreseen at the time the retention periods were determined.

If an operating unit or employee disagrees with the prescribed retention period for a specific record series, a request for a revision to the retention schedule should be made to the Legal Department. The request should include a brief description of the business operations that the records support and the reason why the prescribed retention period does not satisfy legal or operational requirements. The destruction of the records will be suspended while the need for a revision is considered.¹⁵⁰⁵

The definition of company records encompasses recorded information in all formats and media, including but not necessarily limited to:¹⁵⁰⁶

- ◆ Paper documents, including office records created in connection with company business
- ◆ Emails
- ◆ Photographic films and prints, including photographic negatives, motion picture films, and microfilms
- ◆ Computer files and databases stored on magnetic or optical media
- ◆ Audio recordings, including recordings of phone calls
- ◆ Video recordings

This definition of company records encompasses notes, working papers, and drafts of documents that are created, received, or maintained by American Water's employees in the course of company business. This definition of company records encompasses copies as well as original records. The status of copies, drafts, and documents of transitory value as company records is addressed in the *Duplicate Records, Drafts and Documents of Transitory Value Practice* documentation.¹⁵⁰⁷

The following information-bearing objects are considered non-records and, as such, are specifically excluded from this policy:¹⁵⁰⁸

- ◆ Books, periodicals, catalogs, and other publications or library materials acquired solely for reference purposes.
- ◆ Unused or undistributed stocks of company publications
- ◆ Blank business forms
- ◆ Unused copies of form letters
- ◆ Unsolicited brochures, flyers, advertisements, mass mailings, email messages, or other records that are unrelated to company business
- ◆ Personal papers of American Water employees

Record Retention Schedule

The records retention schedule covers the following process/sub process areas:¹⁵⁰⁹

- ◆ Administration, including Common Records, Facilities, and Public Relations
- ◆ Customer Relations, including Call Center/Non-Regulated, Call Center/Regulated, And Call Center/General
- ◆ Environmental
- ◆ Federal Contracts
- ◆ Financial Management, including Accounting –Non-Plant, Audit/Sox, Finance/Controller, Payroll, Plant Accounting, and Tax
- ◆ Health/Safety
- ◆ Human Resources, including General, Benefits/Compensation, and Labor Relations
- ◆ Information Technology
- ◆ Legal, including General Compliance/Regulatory, Contracts, Corporate, Real Estate, and Shareholder Relations
- ◆ Operations
- ◆ Risk Management, including General and Security
- ◆ Sales and Marketing
- ◆ Supply Chain, including General, Materials Management, and Transportation

Regarding New Jersey, the Vault NJ Operating Center is responsible for paper it needs to keep.¹⁵¹⁰



Confidential Practices

Among the confidential practice documentation used by American Water is the following:¹⁵¹¹

- ◆ *Duplicate Records, Drafts, and Documents of Transitory Value* – This practice (adopted January 1, 2010) addresses the status of duplicate records (copies), drafts, and documents of transitory value as company records and specifies the circumstances in which they are to be created and retained. It supports the record retention policy and practices related to duplicate records created, received, or maintained by American Water employees in relation to the company’s mission, goals, objectives, or business operations. It does not apply to backup tapes, backup files, or other duplicated records that are produced for disaster recovery or business continuity. Such copies are to be retained for the period of time specified in the company’s record retention schedule.¹⁵¹²
- ◆ *Company Ownership of Recorded Information* – This practice (adopted January 1, 2010) establishes American Water as the owner of recorded information associated with the company’s business operations. The practice also distinguishes company records from the personal papers of American Water employees and supports the Records Retention Policy.¹⁵¹³
- ◆ *Destruction of Company Records* – This practice (adopted January 1, 2010) presents requirements for destruction of company records with elapsed retention periods except where destruction of specific records has been suspended per the terms of the company’s Litigation Hold Practice. This practice supports the Record Retention Policy and related practices by defining the destruction methods that should be used by employees related to confidential and nonconfidential records.¹⁵¹⁴
 - Records that contain non-confidential information may be discarded by any means consistent with the company’s waste management practices.
 - Records that contain confidential or personally identifiable information must be destroyed in a manner that completely obliterates their contents and renders the records unreadable and unusable.
- ◆ *Litigation Hold Practice* – This practice (adopted January 1, 2010) addresses the issuing of litigation-holds to ensure that records deemed relevant for legal matters are preserved. This practice addressed the issuing of litigation-holds to ensure that records deemed relevant for legal matters are preserved. It supports the Record Retention Policy and related practices by defining the activities that should be performed by employees related to litigation holds.¹⁵¹⁵

Findings & Conclusions

Finding XXI-25 The Records Retention Policy documentation regarding review of the documentation does not appear to have been done properly in a timely manner.

The *Record Retention Policy* documentation, which was prepared by the Legal Department, was originally adopted on May 29, 2009 and made effective January 1, 2010, but has not been revised subsequently even though the policy indicates that it will be reviewed at least every three (3) years. American Water intends that its retention schedule be comprehensive and up-to-date. Operating units must notify the Legal Department about records that are omitted from the company's retention schedule. Until the retention schedule is revised to include such unscheduled records, organizational units will continue to observe their established business practices for retention and destruction of the records.¹⁵¹⁶

The policy also indicates the company's retention schedule will require periodic revisions to add or delete specific record series or to change retention periods. Employees should notify the Legal Department when any of the following occurs:¹⁵¹⁷

- ◆ A new record series is created.
- ◆ A record series was overlooked when the company's retention schedules were prepared or last revised.
- ◆ The company obtains a record series through a merger or acquisition.
- ◆ The company's retention schedules do not conclusively identify an existing record series.
- ◆ There is a change in the title for an existing record series.
- ◆ An existing record series has been divided into multiple series, each having different retention requirements.
- ◆ An existing record series has been combined with another record series that has a different retention period.
- ◆ A record series listed in the company's retention schedules has been discontinued.
- ◆ The retention period prescribed for a given record series is not clear.
- ◆ Legal, regulatory, or operational developments warrant reconsideration of retention periods.

The date associated on the records retention schedule is October 2010, which is many years ago.¹⁵¹⁸

Therefore, it's also not apparent that reviews or revisions have been made for various practice documentation items in a timely manner.



Finding XXI-26 Insufficient activities are being performed to ensure employees comply with records retention requirements.

Since compliance with the policy is managed at a local level, the Chief Compliance Officer could not discuss employee compliance activities. The Compliance Department does not provide any current training on the Record Retention Policy and Schedule for employees. Since the Chief Compliance Officer started her role in November 2018, she also doesn't know if training has been done in past. Also, the records retention policy and schedule are maintained on the Intranet, but the Chief Compliance Officer does not have insight into local communications about the Policy and Schedule (e.g., communications between managers and employees).¹⁵¹⁹

According to the Legal Counsel group, employees tend to hold onto everything beyond the limited schedule;¹⁵²⁰ however, the Chief Compliance Officer wasn't sure if employees maintain documents longer than the time period set forth in the schedule.¹⁵²¹

Supposedly the T&I Cyber & Physical Security group assists with making sure records management occurs.¹⁵²²

Finding XXI-27 NJAW does not have any company-wide filing standards; however, American Water does for affiliates.

Included, however, is an index of NJAW legal department files, which system is consistent with all Legal Department vault files across American Water's regulated subsidiaries.¹⁵²³

Recommendations

Recommendation XXI-17 Review and update, as needed, Records Retention and associated practices documentation regularly, at least no longer than every two years. (Refer to Finding XXI-25.)

As mentioned in other chapters, AWWSC management doesn't regularly review and update policies and practices documentation, such as the *Records Retention Policy* documentation and associated practice documentation items, so these policy and practice documentation items should be reviewed and updated frequently, at least no longer than every two years.

Recommendation XXI-18 Provide formal training sessions frequently for employees involving their records retention requirements. (Refer to Finding XXI-26.)

To ensure that records retention requirements policies and practices are being done properly by employees, AWWSC and NJAW employees should be provided training sessions frequently, at least every two years, plus the Legal Department should check to see if employees are working correctly.

H. Security of Infrastructure

Refer to *Section F-Computer Systems and Services* of this chapter, plus *Chapter XXVII-Cyber Risk Mitigation-Cyber Security*.

XXII. Finance

This chapter provides a review of New Jersey American Water Company's (NJAW's) financial management function and its impact on the regulated utility operations in New Jersey. It provides a general overview of NJAW's finances, including:

- ◆ Assessment of NJAW's corporate finance as operating within the American Water Company (American Water or AW) structure.
- ◆ Determination of the effects of diversifying activities on NJAW's cost of capital.
- ◆ Review and assessment of the cost of capital to NJAW relative to the cost of capital to utilities with comparable risk but without non-utility affiliates.
- ◆ Determination of the effectiveness of NJAW's internal auditing in ensuring continued compliance with applicable accounting rules and regulations.
- ◆ Evaluation of the methods that NJAW and its affiliates have used to determine and allocate consolidated income taxes over the past three years.

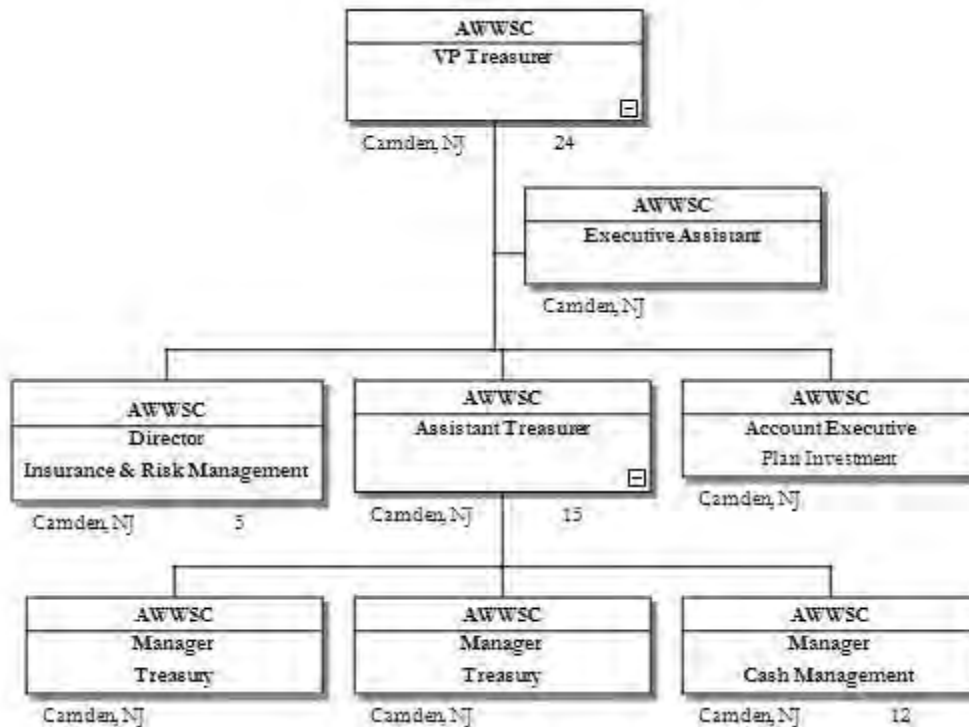
A. Background & Perspective

Treasury Organization

The Treasury organization is headed by the Vice President Treasurer, who has three direct reports and an Executive Assistant in a department of 24 as shown in *Exhibit XXII-1*. The VP Treasurer reports to the Senior Vice President Strategic Financial Planning. Reporting to the VP Treasurer is an Assistant Treasurer (position currently open as of April 2019) and the Director of Insurance and Risk Management.¹⁵²⁴ Reporting to the Assistant Treasurer are three managers – two Managers of Treasury (one manager position currently open), and the Manager Cash Management. Also, the Plan Investment Account Executive reports to the VP Treasurer.¹⁵²⁵



**Exhibit XXII-1
Treasury Organization
as of April 2019**



Source: Information Response 52

Credit Agency Reports - Moody's and S&P

American Water Company received an A credit rating with a Stable outlook from Standard & Poor's (S&P) in 2018 while Moody's assigned AW a rating of A3 with a Negative outlook. NJAW received the same rating from S&P, an A credit rating with a Stable outlook as it is S&P policy to rate a corporate family as a single rating. Moody's however, assigned a higher rating at that time, A3 with a Stable outlook. The AW parent rating is lower than the NJAW rating due to the percent of structurally subordinated holding company debt to total consolidated debt in the overall capital structure *Exhibit XXII-2* shows Standard & Poor's and Moody's AW and NJAW ratings as available from 2011 through 2018.¹⁵²⁶

Exhibit XXII-2
Long Term Debt and Commercial Paper Ratings
2011 to 2018

	AW Rating / Outlook			NJAW Rating / Outlook	
	Standard & Poor's	Moody's		Standard & Poor's	Moody's
2011	BBB+/Stable	Baa2/Stable	2011	na	na
2012	BBB+/Positive	Baa2/Positive	2012	BBB+/Positive	Baa1/Positive
2013	A-/Stable	Baa1/na	2013	A-/Stable	A3/na
2014	A-/Positive	na	2014	A-/Positive	na
2015	A/Stable	A3/Stable	2015	A/Stable	A3/Stable
2016	A/Stable	A3/Stable	2016	A/Stable	A3/Stable
2017	A/Stable	A3/Stable	2017	A/Stable	A3/Stable
2018	A/Stable	A3/Negative	2018	A/Stable	A3/Stable
na: not available			na: not available		

Source: Information Response 340

Review of the ratings from both S&P and Moody's show a positive trend for NJAW from 2011 through 2018. S&P ranks AW and NJAW the same for these years. Moody's ranks NJAW slightly higher than AW for a few of years in this time frame.¹⁵²⁷

In 2018, there was a decrease in the Moody's Outlook for AW from A3 Stable to A3 Negative. Moody's cited the passage of tax reform (TCJA) as the cause for this decrease. In April 2019, Moody's downgraded AW to Baa1, from A3. The TCJA also affected twenty-five regulated utilities with a similar decrease due to the passage of this Act. As stated in the January 19, 2018 Moody's Investor Service Rating Service report:¹⁵²⁸

Tax reform is credit negative for US regulated utilities because the lower 21% statutory tax rate reduces cash collected from customers, while the loss of bonus depreciation reduces tax deferrals, all else being equal.

NJAW's credit ratings were not affected by the TCJA and has remained the same at A3/Stable since 2015 with Moody's and A/Stable since 2015 with S&P.¹⁵²⁹

Financial Management

Long-term capitalization plans are designed with considerations for financial liquidity, credit rating impact, maturity profile, interest rate risk, regulatory impact, tax implications, economic and market trends, and accounting consequences on an annual basis, as stated in the AW Policy governing Treasury and Insurance. The Treasury Department coordinates with NJAW and other operating companies to establish a capitalization plan, including short term financing, which is then approved by the NJAW board of directors. As a final step in the planning process, the Treasury Department combines all the operating companies' total debt financing needs, which is then approved by the AW Board of Directors.¹⁵³⁰



Short- and Long-Term Investments¹⁵³¹

NJAW is typically a net borrower and does not routinely invest cash on either a long-term or short-term basis, except in specific situations, such as employee retirement obligations. However, if there is an excess of cash, for a short period of time those funds would be invested in short-term Money Market Accounts or Treasuries.¹⁵³²

Short-Term Investments

Short-term investments are governed by the AW Short Term Investment Practice.¹⁵³³ This policy dictates the requirements for investing temporary excess cash with the primary objective of principle preservation. Corporate Treasury is authorized to invest excess cash in bank accounts or redeem short term investments. On a daily basis, before the end of the business day, Corporate Treasury determines the amount of funds available in the main operating bank accounts, primarily the AW Capital Corporation concentration account, for overnight or temporary investment in a money market fund, or direct investment in pre-approved, very liquid securities.¹⁵³⁴

Long-Term Investments

Long-term investments are maintained for defined benefit plans, defined contribution plans, and other postretirement benefit obligations. The overall management of the investments supporting these plans is the Retirement/Benefit Committee and assets are invested in accordance with the committees approved investment policy statement.¹⁵³⁵

Short- and Long-Term Debt Policies

Capital planning is the main driver in determining when and how much to borrow so cash is available for the regulated companies, as needed.¹⁵³⁶ When short-term financing is needed, this is accomplished either through a Commercial Paper (CP) program or direct borrowings under already established, committed, and approved credit facilities. Borrowings, either CP issuance or bank, are not to exceed credit facility established limits.¹⁵³⁷ As long-term financing is needed, it is secured through various sources including publicly and privately issued senior and subordinate notes, taxable and tax-exempt bonds, common and preferred equity, and hybrid securities.¹⁵³⁸

NJAW Debt Agreement with AW Capital Corporation

Financial Services Agreement between NJAW and AW Capital Corporation (AWCC) is dated June 15, 2000 and the working situation has not changed in that time. The agreement covers:¹⁵³⁹

- ◆ *Short Term Loans:* AWCC will provide short-term loans to NJAW.
- ◆ *Long Term Borrowings:* AWCC will provide loans other than short-term loans to NJAW.
- ◆ *Cash Management:* Cash not required by NJAW will be used first to paydown principal balance of short-term loans owing to AWCC and excess will be invested with AWCC to earn a daily rate of interest that is equal to the interest income earned by AWCC.

Short-Term Debt

NJAW maintains a line of credit (LOC) through AWCC of \$210,000 and \$180,000 at the end of December 2018 and 2017, respectively. At the end of 2018 and 2017, \$170,133 and \$65,544 of the line was extended (81% and 36% of LOC balances), respectively. NJAW may borrow from, or invest in, the LOC depending on its need. The weighted average annual interest rate on these borrowings was 2.56% and 1.27% in 2018 and 2017, respectively. Funds received in those years from the LOC were primarily used for short-term operating needs.¹⁵⁴⁰

Long-Term Debt

A schedule displaying NJAW's long-term debt is shown in *Exhibit XXII-3*.¹⁵⁴¹

Exhibit XXII-3
NJAW Long Term Debt
as of December 31, 2018 and 2017

	Rate	Weighted Average Rate	Maturity Date	2018		2017	
				\$	%	\$	%
Mortgage bonds	3.92%-9.25%	5.65%	2019-2039	511,725	37.0%	511,725	38.8%
Variable rate loans	0.0%-5.5%	1.48%	2019-2047	113,748	8.2%	95,481	7.2%
Notes payable to affiliated company	2.95%-6.59%	4.54%	2021-2048	757,710	54.8%	712,485	54.0%
Capital lease obligations	12.91%	12.91%	2026	703	0.1%	758	0.1%
Long term debt				1,383,886	100.0%	1,320,449	100.0%

Source: Information Response 1-01, Attachment 9

Notes payable to affiliated company make up 55% and 54% of total long-term debt at the end of 2018 and 2017, respectively. These notes are unsecured with AW Capital Corporation for the principal amount. AW Capital Corporation funded these notes by issuing senior notes to institutional investors at a price equal to the principal amount.¹⁵⁴²

Mortgage bonds make up 37% and 39% of NJAW long term debt at the end of 2018 and 2017, respectively. These bonds are issued in series and no bonds senior to these may be issued as long as they are outstanding. The debt agreement for these bonds limits the amount of these bonds to 65% of total capitalization and that NJAW adjusted net income must be 1.5 times greater than the agreement annual interest charges of all NJAW long term debt. At the end of 2018, long term debt was 46% of total capitalization and adjusted net income was 3.8 times the aggregate annual interest charges (net income is adjusted to exclude gains or losses on property sales, amortization of debt issuance costs, interest on long-term debt, and provision for income taxes). These mortgage bonds are collateralized by utility plant assets.¹⁵⁴³

The variable rate loans have the lowest interest rates of the NJAW long-term debt. The interest rates range from 0% to 5.5% and are loan agreements with the New Jersey Environmental Infrastructure



Trust (NJEIT). These loans make up the 8% and 7% at the end of 2018 and 2017, respectively. Under the terms of these loan agreements, NJAW requests funds as needed to fund a portion of eligible costs to construct certain environmental infrastructure facilities.¹⁵⁴⁴

Employee Stock Purchase Plan

There is an Employee Stock Purchase Plan for AW stock where AW employees receive a discount on stock purchased through this program. Effective January 1, 2019, employees receive a 15% discount and prior to January 1, 2109, employees received a 10% discount on AW stock.¹⁵⁴⁵

Debt to Equity and Return on Equity

Return on Equity as calculated from the NJAW Comprehensive Financial Statements is shown in *Exhibit XXII-4*.¹⁵⁴⁶

Exhibit XXII-4
Long Term Debt to Equity Ratio
as of December 31, 2018 and 2017

	2018		2017	
Long Term Debt	1,351,284	46%	1,300,080	46%
Equity	1,616,037	54%	1,517,516	54%
Total Capitalization	2,967,321		2,817,596	

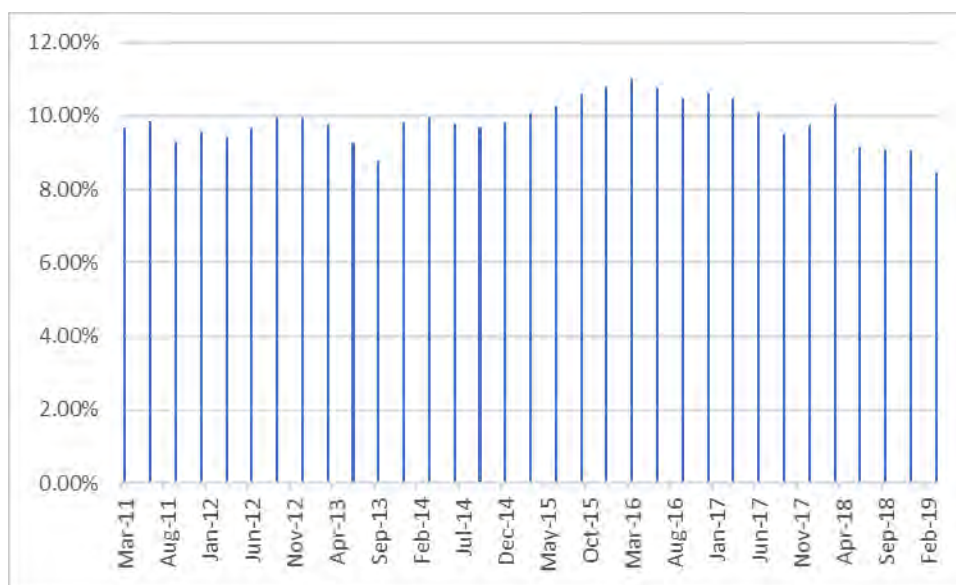
Source: Information Response 1-010, 2018 report, page 4

The Debt to Equity ratio is 46% to 54% shown above in *Exhibit XXII-4* as is mandated in New Jersey.¹⁵⁴⁷

Return on Equity - NJAW

The Return on Equity (ROE) at NJAW has remained between 8.44% and 11.00% with an average ROE of 9.84% during the audit period, 2011 through 2018. At December 31, 2018 ROE was 9.04%. *Exhibit XXII-5* shows ROE during the audit period. It should be noted that the quarterly ROE is not necessarily reflective of the Company's full annual financial performance and is used gauge the highs and lows of this financial metric.¹⁵⁴⁸

Exhibit XXII-5
NJAW Return on Equity
2011 to 2018



Source: Information Response 342

Return on Equity, forward looking comparison

A forward-looking ROE analysis for water utilities was performed for AW by Concentric Energy Advisors Inc. using Value Line accumulated financial data. AW used the analysis in its 2018 Kentucky American Water rate case filing and is the most current ROE analysis available at AW. The results of that analysis are shown in *Exhibit XXII-6*.¹⁵⁴⁹ The ROE analysis shows AW at the 2nd lowest ROE in 2019 and the lowest in the projected 2021 – 2023 time period.¹⁵⁵⁰

Exhibit XXII-6
Value Line Projected Returns on Equity – Water Companies only
2019 and 2021 - 2023

Company	Ticker	2019	2021-2023
American States Water Co.	AWR	13.00%	14.00%
American Water Works Co. Inc	AWK	10.50%	10.50%
California Water Service Group	CWT	11.00%	11.50%
Middlesex Water Company	MSEX	11.00%	12.50%
York Water Company	YORW	10.00%	13.50%
Median		11.00%	12.50%
Median excluding AWK		11.00%	13.00%

Source: Information Response 343



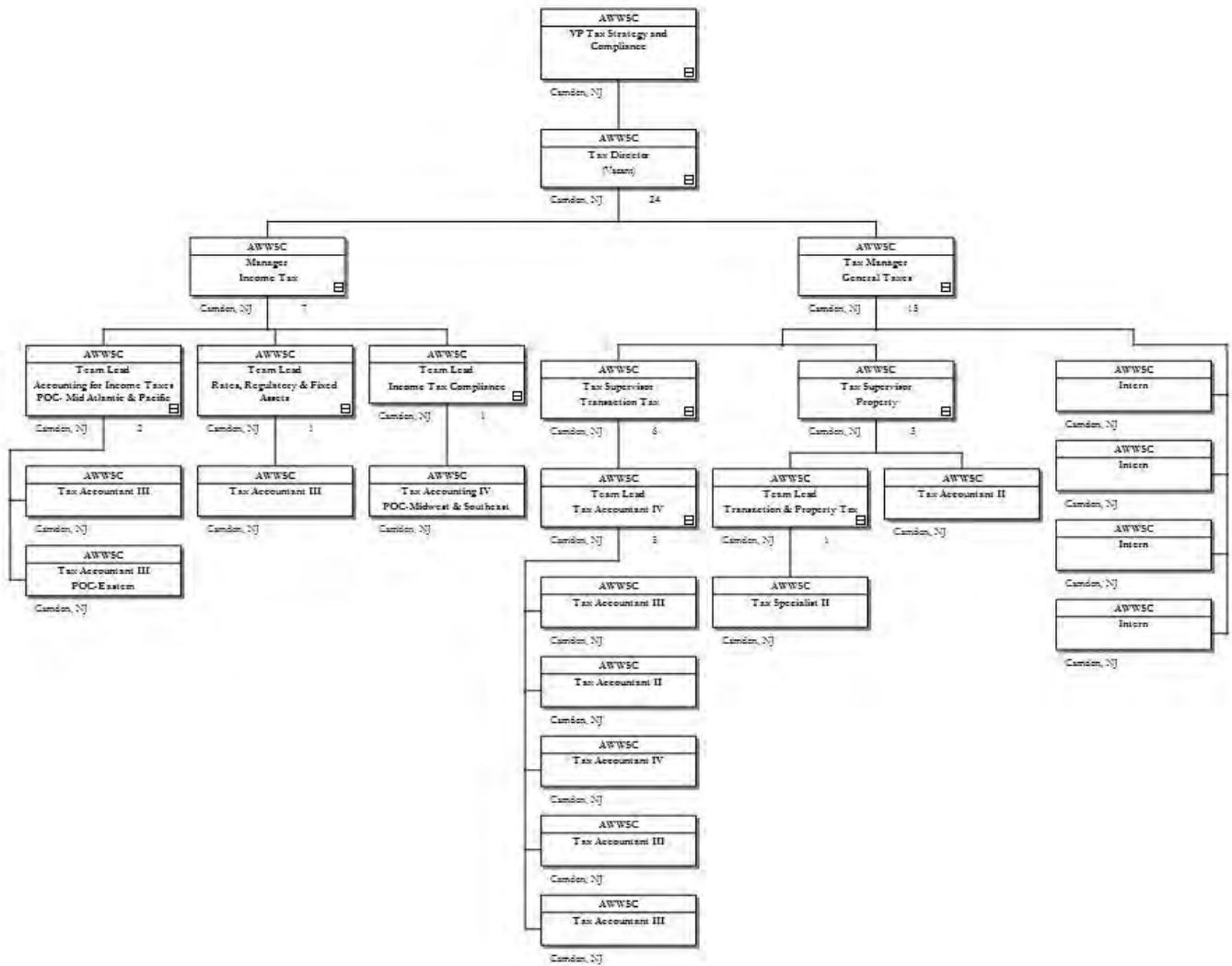
Tax

Organization

The VP of Tax Strategy and Compliance reports to the SVP Strategic Financial Planning and has a department of 25 as shown in *Exhibit XXII-7*. The VP of Tax Strategy and Compliance is supported by a Tax Director, position currently vacant, who in turn has two direct reports, a Manager, Income Tax and a Manager, General Tax with departments sized at 7 and 15 respectively. *Exhibit XXII-7* shows the structure of those areas supporting the Managers. Roughly 18 to 20 full-time equivalent employees, plus four to seven interns, work in this group. The VP of Tax Strategy and Compliance is planning to retire in June. Currently this VP has 37 years' experience.¹⁵⁵¹

This group provides tax strategy and tax compliance activities for regulated and non-regulated companies, which totals approximately 65 companies. The regulated companies are in 16 states (CA, GA, HI, IA, IL, IN, KY, MD, MI, MO, NJ, NY, PA, TN, VA, WV), although GA and MI Commissions do not perform oversight of water/wastewater utility organizations.¹⁵⁵²

**Exhibit XXII-7
Corporate Tax Organization
as of May 2019**



Source: Information Response 568

Activities performed by this group include development of tax strategy based on lowest cost of compliance to obtain accurate forecasting and compliance with all tax rules including filing returns, making payments and addressing topics raised in rate cases.¹⁵⁵³

NJAW Tax Filings

NJAW federal income tax returns are filed on a consolidated basis with the other American Water companies. This has been the case during the entire audit period, 2011 through 2018.¹⁵⁵⁴

Tax Policies and Planning Regarding NJAW

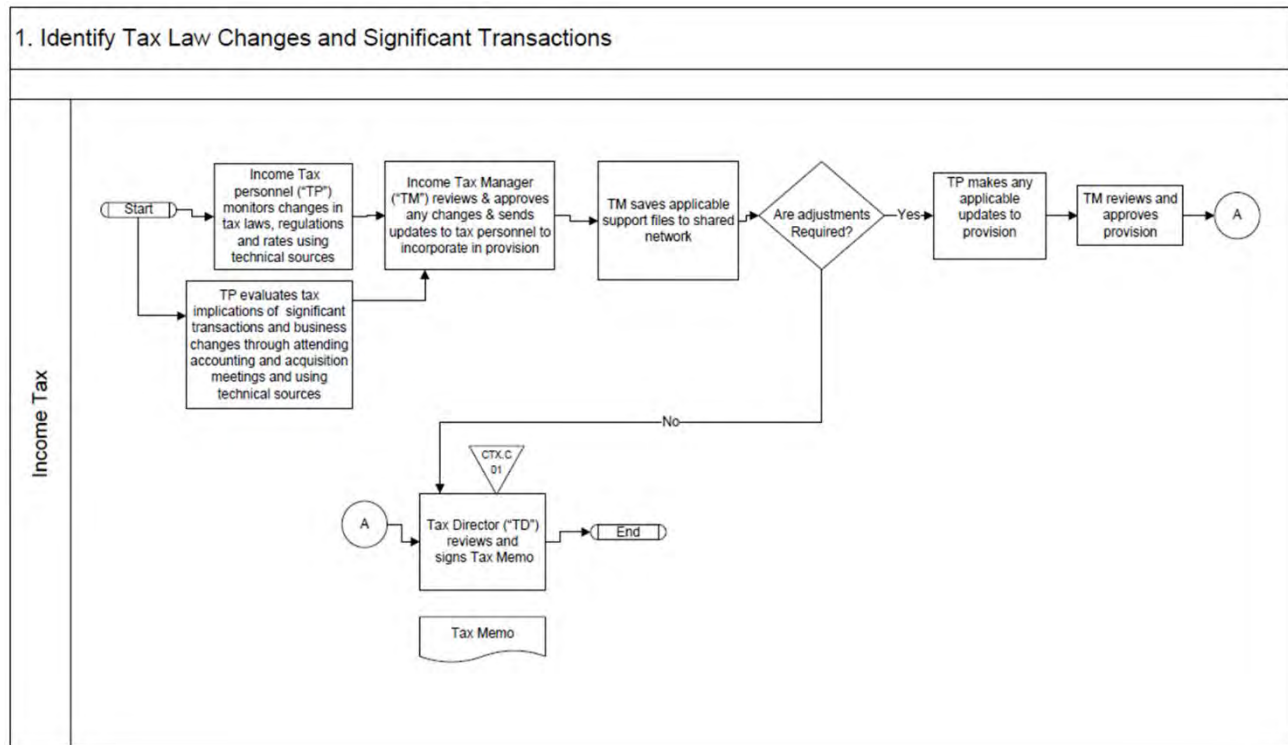
The tax process is very well organized with task lists, nine specific SOx controls to the tax area, and flowchart documentation of the more significant tax processes.¹⁵⁵⁵

The task list governing the tax processes is a very specific list of tasks organized into Stages, such as pre-close, close, review, etc. with task descriptions and specific sub tasks or work steps supporting tasks within the various stages. Over 100 tasks and sub tasks are listed. Each sub task work step has a notation spot (on the same row as the task) for who completed the task, if intern help is available, the dataset, due date, initials/sign-off/date, and Status, either Done, In Process, or Pending. A completed checklist was reviewed, and all tasks noted to be signed off with status of Done for each task. There are also spots for comments and documentation references which can be used if applicable. Review of the task list indicates a very organized process with accountability from the beginning through to the end.¹⁵⁵⁶

There are also nine SOx controls in the tax area. These controls are maintained in the tax area and monitored by the SOx compliance team, as described in *Chapter VI – Internal Controls*. In the tax area, the SOx control list is organized by control owner and includes a notation to the 302 Certifier for that SOx control.¹⁵⁵⁷

A sample flow chart is shown in *Exhibit XXII-8* giving an example of the type of organization for processes that are conducted in the tax area. This example flowchart documents the process to identify tax law changes and significant transactions. Other flow charts reviewed were clear, concise and an appropriate reference for various tax area activities. This is one of several flowcharts that exist in the tax area governing activities.¹⁵⁵⁸

Exhibit XXII-8
Example Tax Process Flowchart
August 2019



Source: Information Response 426

Tax Sharing Policy

The tax sharing policy in place at AW specifically establishes a method to allocate consolidated or combined tax liabilities of NJAW, AW and other AW companies. The policy establishes a method to reimburse the parent, AW, for payment of a tax liability and for compensating a company for use of its losses or tax credits. It also provides for the allocation and payment of an additional tax, tax credit or refunds from a carry back of losses. This policy is supported by several specific steps to be taken in the sharing, allocation process. Excerpts of the first two steps are below:¹⁵⁵⁹

- ◆ Each Subsidiary shall be required to pay to Parent an amount equal to the federal income tax liability that would have been payable by the Subsidiary for such year if it had filed a separate income tax return for such year and all prior years.
- ◆ The Parent will compensate each Subsidiary for any tax benefits (e.g., losses, tax credits, etc.) computed using the Percentage Method.

The policy goes on to include specific methods to address situations such as Alternative Minimum Tax, Tentative Minimum Tax, and Tentative Tax Credit. The policy also covers future adjustments of a prior filed return such as an amendment, claim for a refund or taxes due resulting from a tax audit.¹⁵⁶⁰



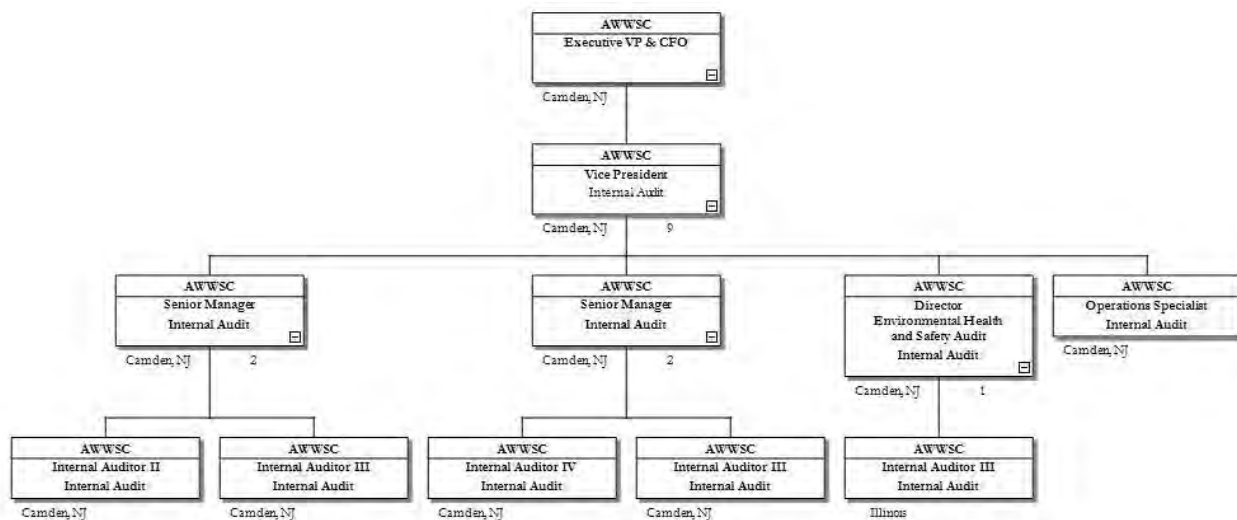
Payments and reimbursements due to tax refunds or payments are made through payments or deposits directly to the subsidiary bank account. The policy also allows for adjusting intercompany, due to / due from accounts.¹⁵⁶¹

Internal Audit

Organization

The Internal Audit (IA) department is headed by a Vice President that reports administratively to the EVP CFO and operationally to the Chairman of the AW Audit Committee. The Internal Audit VP meets in executive session each meeting with the Board Audit committee. These meetings are not attended by any other AW officers or managers. The IA VP has four direct reports, as shown *Exhibit XXII-9*.¹⁵⁶²

Exhibit XXII-9
Internal Audit Organization
as of May 2019



Source: Information Responses 23 and 528 and Interviews 42 and 66

The current IA VP is relatively new to the position having begun this assignment in April 2019. Before this assignment, he was 4 years with Pennsylvania AW as VP of Operations and previous to that he was president of Military Services, an MBB (market-based business) that supports water and water related assets for the military. With the IA VP background, he brings an operations specialty to the audit department.¹⁵⁶³

One of the two IA Senior Managers has been in his position for 14 years. He began his career at AW in the internal audit department. He is certified as an Internal Auditor (CIA), Information Systems Auditor (CISA), and Fraud Examiner (CFE). The second Senior Manager is a CPA but new to the

internal audit position having started in June of 2019.¹⁵⁶⁴ Other IA department members are certified as shown in *Exhibit XXII-10*.¹⁵⁶⁵

Exhibit XXII-10
Current Internal Audit Certifications by Position
as of May 2019

Int Audit Professional	Certifications*
Vice President	C.Eng, MICE, MCIWEM
Sr Manager	CIA, CISA, CFE
Sr Manager	**
Internal Auditor IV	CIA, CISA
Internal Auditor III	CPA
Internal Auditor III	CPA
Internal Auditor III	CIA
Internal Auditor II	CPA Candidate

*: Certification Abbreviations

CPA: Certified Public Accountant

CIA: Certified Internal Auditor

CISA: Certified Information System Auditor

CFE: Certified Fraud Examiner

C.Eng: Certified Engineer

MICE: Member, Institute of Civil Engineers

MCIWEM: Member, Chartered Institution of Water and Environmental Management

** : Position Currently Vacant

Source: Interview 42 and Information Response 692

Internal Audit Training

A method of ensuring quality in the IA department is through consistent and ongoing training. CPAs are mandated by state professional organizations to have ongoing specific continuing professional educational (CPE) training. A minimum number of hours is required and monitored every year by the State licensing organization. Some classes offered by AW qualify for this mandated CPE. A listing of classes taken by audit personnel was obtained and reviewed. The majority of these classes were specific to job and industry issues, such as Toastmasters and Water and Wastewater e-learning, and there were a significant number of classes that were specific to Auditing, Accounting, Professional Ethics, and Internal Audit Control Testing.¹⁵⁶⁶

Guiding IA Documents

The work in the Internal Audit department is governed by the following policies and practices:¹⁵⁶⁷

- ◆ International Standards for the Professional Practice of Internal Auditing (Standards): Standards as promulgated by the Institute of Internal Auditors (IIA).



- ◆ Internal Audit Charter: Described below, this document is reviewed and approved by the IA VP and the Audit, Finance and Risk Committee of the American Water Board of Directors annually.
- ◆ Audit Methodology and Framework: The document describes Internal Audit procedures that align with the Standards, in the first bullet above. This document includes audit planning process, engagement work papers, audit reports, audit follow-up and Quality Assurance and Improvement Program.

The International Standards for the Professional Practice of Internal Auditing is referred to as the IPPF - abbreviation for International Professional Practices Framework. The IPPF is the Institute of Internal Auditor's (IIA) conceptual framework that organizes authoritative guidance promulgated by the IIA. The IIA is the organization worldwide that Internal Auditors look to as their trustworthy, global, guidance-setting body. The IPPF includes Mandatory Guidance and Recommended Guidance. It is noteworthy that the first guiding standard in AW IA policies is the IPPF.¹⁵⁶⁸

The second guiding document of the AW IA department is the Internal Audit Charter, a 4-page document, organized in the following manner:¹⁵⁶⁹

- ◆ Purpose
- ◆ Authority
- ◆ Independence
- ◆ Scope and Responsibilities
- ◆ Professional Standards
- ◆ Reporting and Monitoring
- ◆ Quality Assurance Improvement Program (QAIP)

The Charter is a general description and outline of independence and roles and tasks associated with the Internal Audit department.¹⁵⁷⁰

The third guiding document for the work conducted in the IA department is the IA Methodology and Framework and is more of an applicable practice document for ongoing use in the department. This document is broken up into seven sections as listed below.¹⁵⁷¹

- ◆ Audit Announcement
- ◆ Audit Planning
- ◆ Audit Fieldwork
- ◆ Audit Reporting
- ◆ Audit Wrap up
- ◆ Peer Review
- ◆ QAIP

The Methodology and Framework document begins at the point where the audit has been selected and is announced. There is no direction in the document regarding the audit selection process (see *Finding XXII-3*). The Methodology document starts with the preferred timing for audit announcement as 45 days before the fieldwork kick-off and audit pre-planning meeting.¹⁵⁷²

The Methodology and Framework document is thorough with steps and information regarding how to conduct an audit from the first section, Audit Announcement, to the fifth section, Audit Wrap up. The last two sections, Peer Review and QAIP, are specific to Review, Evaluation, and Quality. This methodology document lists audit tasks to be conducted by name, such as “Pre-Planning Meeting” the first task listed and then states the objective and expected timeframe. The IA methodology document also has links to deliverables and templates, if applicable, that are specific to each task and can be used by the auditor as they work their way through the audit process. The document is a good tool to maintain consistency through the department and various engagements.

Planning and Audit Program Creation Process

Per the VP IA, internal audit coverage across AW is 50% operational audits, 30% information technology audits, and 20% financial audits.¹⁵⁷³ The planning for the annual audit calendar begins mid-year and is finalized in December with Corporate Audit Committee approval. The process starts with the accumulation of potential audits. This list of potential audits is compiled from several sources. Below are examples of three:¹⁵⁷⁴

- ◆ Input from leadership and executives across the company
- ◆ Input from the VP of Compliance which include issues from the Ethics violation hotline. Most of these are HR related issues but some are for internal audit consideration. There is flexibility in the audit calendar to allow for an immediately needed engagement.
- ◆ Review of past audits for emerging risks, ongoing issues, or concerns

When the potential list of audits is compiled, the risk of each is analyzed and the plan and calendar for the year compiled. This plan is presented to the Corporate Board of Directors, Audit Committee and approved.¹⁵⁷⁵

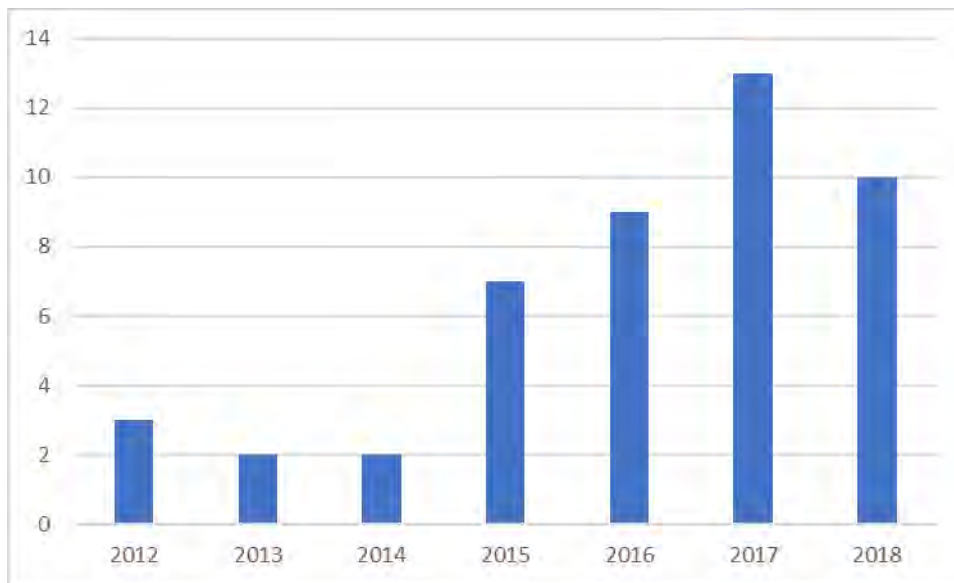
Audits scheduled for the current calendar year that are not addressed will be included in the following year planning process for consideration.¹⁵⁷⁶

Once the audit calendar is complete, audit personnel are assigned to specific audits and the audit process commences. The first step for any audit is the creation of the audit program – the process involves several steps. If a previous audit program exists, that previous program is used as a starting point for the current program. The previous program is reviewed for applicability to the current situation and environment. The current risk for the area to be audited is evaluated. Documents available for the audit are reviewed. Conversations with management in the area occur as to their concerns and to understand how they measure and determine success. If SOx controls are in place and applicable, those are leveraged and used during the audit engagement.¹⁵⁷⁷

The total number of audits released by IA varied over the 2012 through 2018 timeframe with a low of 2 in 2013 and 2014 and a high of 13 in 2017. The internal audit reports released by year are shown in *Exhibit XXII-11*.¹⁵⁷⁸



Exhibit XXII-11
Audit Reports Released by AW IA
2012 to 2018



Source: Information Response 352

Prior to 2015, IA was responsible for Internal Controls / SOx testing as well as performing other audits across the AW companies. In 2015, the Internal Controls / SOx audit responsibility was outsourced to a large public accounting firm, Ernst and Young, which is still performing this function in 2019.¹⁵⁷⁹ This outsourced audit work is organized to combine multiple SOx controls in one test to reduce work and gain maximum coverage of the SOx controls in total. The SOx controls are relied on by the internal audit and the external auditors performing the year end and quarterly financial audit engagements to lessen or eliminate substantive testing during their engagements. The SOx controls that are going to be relied on during the year-end financial audit are selected and communicated by the external financial audit team to AW IA to coordinate the testing of those controls based on agreed upon standards.¹⁵⁸⁰

The number of audit reports produced in 2012-2014 is not reflective of the work in the IA Department as a portion of their time was spent on internal control testing. See *Finding XXII-3*.

Report Writing and Recommendations

Each audit performed by the Internal Audit department is documented in a report. The report is drafted and submitted to management of the area under audit and those involved in the audit process. It also goes to the applicable Board of Directors and the Corporate Controller. However, as a part of the audit process, meetings are held with management of the area being audited during the process. The frequency of those meetings depends on the extent of findings, the risk in an area being audited, and

management's desire to be informed. It is a goal of the audit department to have all issues communicated before the audit reported is drafted and presented.¹⁵⁸¹

Before the report is finalized, management receives a draft and responds in writing. Those responses are included in the final audit report. Once management responses are included, the audit report goes "Final" and is released to the same list as received the Draft report.¹⁵⁸²

All internal audit report formats include Executive Summary and Overall Conclusions sections. Then the report formats diverge in format with the objectives, scope, and approach of the engagement and separated detailed findings. Some have detailed findings and recommendations section, called Observations, Recommendations, and Action Plans that resulted from the engagement. The type of information in both formats is noted be similar, only presented in different formats. The audit findings, labeled "observations" in audit reports detail the specific situation with descriptive background text, a few sentences summarizing risk, the audit recommendation and management's action plan. The person responsible for the action plan is shown with an estimated completion date and a priority of high, medium or low.¹⁵⁸³

Recommendations, including the current status, is tracked by internal audit in a spreadsheet referred to as the "Tracker". An Internal Auditor III is responsible for the maintenance and update of the Tracker. The Tracker is distributed to the Board of Directors as well as specified Management. Recommendation due dates can be changed if a situation changes and an adjusted due date is required. For example, management is working on completing their recommendation and an unanticipated event occurs. If the event changes the timing as well, a new due date (along with original due date) will be documented in tracker.¹⁵⁸⁴ All recommendations are evaluated and given a high, medium or low valuation. Although one auditor is responsible for maintaining the tracker, she does not follow up each audit recommendation. The follow up is performed by the same auditors that conducted the audit originally. As of the writing of this report (May 2019), 5 high recommendations are in process, approximately 16% of all recommendations in process as listed in a current example Audit Recommendation Tracker.¹⁵⁸⁵

External Quality Assessments of the Internal Audit Department

Two external quality assessments of AW Internal Audit organization were conducted by the Institute of Internal Auditors (IIA) in 2012 and 2017 and reports issued regarding the work, findings and recommendations. The AW Internal Audit department typically has these quality assessments performed every 2 to 3 years.¹⁵⁸⁶ These recent IIA engagements included these tasks:¹⁵⁸⁷

- ◆ to assess AW IA activity's conformance to *The IIA's International Standards for the Professional Practice of Internal Auditing (Standards)*,
- ◆ to evaluate the AW IA activity's effectiveness in carrying out its mission (as set forth in its charter and expressed in the expectations of American Water's management), and
- ◆ to identify opportunities to enhance its management and work processes, as well as its value to American Water



In both 2012 and 2017, the IIA found that the AW IA department “generally conforms” to IIA Standards. There are 3 ratings given by the IIA: “generally conforms,” “partially conforms,” and “does not conform.” Generally Conforms is defined by the IIA as “the top rating and means that an internal audit activity has a charter, policies, and processes that are judged to be in conformance with the *Standards*.”¹⁵⁸⁸ Specific positive observations and attributes are listed in the report citing IA’s “excellent credibility”, communication with the Audit Committee Chair, and annual acknowledgement of the IIA Code of Ethics by all IA staff members.¹⁵⁸⁹

Both years also included a list of items called Opportunities for Further Improvement which are intended, in the IIA words, “to build on this foundation already in place within the IA activity.”¹⁵⁹⁰ The 2012 list had 9 items and included improvements such as develop job descriptions and formalize the IA Quality Assurance and Improvement Plan (QAIP). The 2017 list had 11 items and included such improvements as “Obtain audit committee approval of plan changes” and “Consider Defining Internal Audit Dashboard and Metrics.” None of the improvements are the same from 2012 to 2017 but some are similar, for example Update the Audit Committee Charter in 2012 and Enhance the Audit Committee Charter in 2017 which are related but not addressing the same issue as is detailed in the IIA reports.¹⁵⁹¹

B. Findings & Conclusions

Tax

Finding XXII-1 The current tax sharing policy being used at AW is dated August 3 2011.

The tax sharing agreement currently in use by AW and its affiliates is dated in 2011 and although is relevant to the current situation at AW needs to be reviewed and updated for any changes that might have occurred. Also, the policy should be reviewed on a regular ongoing basis in the future.

Internal Audit

Finding XXII-2 The Audit Methodology and Framework, the guiding practice document for AW IA, does not include guidance regarding how to review all areas eligible for audit and then how to select an area to audit.

The Audit Methodology and Framework is a thorough and appropriate document but begins after an audit has been selected. It begins with scheduling the audit by reaching out to the area's management team. The first critical step in developing an audit plan or audit calendar is to select and prioritize potential audit engagements from a pool of possible audit engagements. This list is then further refined to best use available audit department resources. The selection process described in interview was one of discussion and personal evaluation by the IA VP and others as appropriate at AW. However, no process is documented in the Audit Methodology and Framework manual.¹⁵⁹²

Accompanying the description of the selection process, should also be a description of the evaluation, or ranking process. Having a standardized evaluation and ranking process for potential audit engagements would help maintain consistency of the process from year to year in the audit department and the ability to add enhancements to a known process going forward. Ideally, a consistent, stated methodology for selection and ranking should be applied to a potential pool of audit engagements so that a systematic selection can be conducted and documented, not only for current selection but for analytical, methodical review and ongoing improvement of the selection process itself.¹⁵⁹³

Finding XXII-3 Planning and SOx internal controls testing memos resulting from the annual SOx internal control audit work conducted by Ernst & Young is available to AW and maintained by Internal Audit.

During field work, which concluded mid-2019, it was learned in interviews that from 2011 to 2018, internal controls, specifically SOx controls, had been tested and evaluated in the earlier years by AW IA and then by Ernst & Young (EY) in the later years and through to today. Documentation of this work was requested in interviews but we were informed that IA has no records of the testing performed by IA or by EY. We were also informed that EY does not share any of the documentation created in the process of their work but communicates directly with the Audit Committee.¹⁵⁹⁴



However, in the fact verification portion of the S&C engagement, the client provided annual planning memos from 2013 through 2019 documenting the SOx internal controls testing strategy for the corresponding years. These planning memos are precisely the type of document that is appropriate in this situation with sections in the planning memos specific to Materiality, Control Overview, Testing Overview, and Sampling Methodology as examples of the areas described. The planning memo is thorough and appropriate to the task. Also, provided was an example of specific control test memos for one control tested in each of the years 2013 through 2019. The company described that all SOx controls tested have similar control test memos created that document the audit work and findings of that specific control being tested. We have not verified test memos of other SOx controls, but the test memo format is standardized and could easily be applied to other SOx controls tested. This, along with the company's assertion that other SOx controls are similarly documented, leads us to believe that test memos exist for other SOx controls tested as well.¹⁵⁹⁵

So, with the provided 2013 through 2019 Planning Memos and the sample Internal Control SOx Testing Memos, as examples of other SOx control testing memos, appropriate documentation of the SOx internal control testing and results is and has been available to AW areas, as needed.¹⁵⁹⁶

Also refer to *Chapter VI – Internal Controls - Finding VI-3* for similar discussion.

Finding XXII-4 The Internal Audit Vice President reports administratively to the EVP Chief Financial Officer.

Currently at AW, the IA VP reports functionally to the Audit Committee and administratively to the Executive Vice President and Chief Financial Officer. The reporting structure comprises the appearance of Internal Audit independence with the Financial Organization of AW with the possibility that the VP IA could be unduly influenced by the CFO. To mitigate this situation the Audit Charter includes this language:¹⁵⁹⁷

The Audit, Finance and Risk Committee Chair's approval is required for the hiring, compensation, removal or replacement of the VPIA.

Ideally, the Internal Audit function should be completely independent of the Financial Management organization. When this is not the case, there can be the perception of the Finance organization exerting control or power over the auditing teams responsible for auditing the financial activities. There is clear consistent communication with the Internal Audit Group and Audit Committee, but there is still opportunity for inappropriate pressure or to be placed on the corporate independent audit group or at the very least, the appearance of inappropriate pressure.

C. Recommendations

Tax

Recommendation XXII-1 Review and update the tax sharing policy. (Refer to Finding XXII-1.)

The current tax sharing policy needs to be reviewed and updated on a consistent basis to ensure its relevance to the current situation both at AW and the ever-changing US tax environment.

Internal Audit

Recommendation XXII-2 Expand the Audit Methodology and Framework document to include the audit selection and evaluation process. (Refer to Finding XXII-2.)

There is a process in place to select and evaluate potential audit engagements, but that process is not documented. There are many advantages to documenting the process, including consistency of the process, process evaluation, and maintenance of the process. Documented processes are more critical for a department with consistent turn over. Ideally, a ranking system for potential audits could be developed and then used to determine which potential audit engagements are selected and moved to the audit calendar for execution.

As noted by the IIA (Institute of Internal Auditors) and described above, the audit organization is operating within industry standards. However, a process to further strengthen AW internal audit would be a risk analysis and evaluation of potential audits across the company with a quantified evaluation of risk factors in an area. IIA recommended a risk-based approach for AW IA in their 2017 report citing Standard 2010 that requires IA to “establish a risk-based audit plan based upon a documented risk assessment.”¹⁵⁹⁸ Schumaker & Company concurs and recommends this also.

Recommendation XXII-3 Continue the process whereby documented planning and results of the EY SOx testing is shared with AW and documented results maintained by the Internal Audit Group. (Refer to Finding XXII-3.)

Same as *Chapter VI – Internal Controls - Recommendation VI-1.*

As described in *Finding XXII-3*, it was not clear initially that the SOx internal control planning and testing, currently outsourced to EY, was shared with AW, except at the Audit Committee level. However, subsequent to field work, information was received showing that in the 2013 through 2019 time-frame, planning memos for the SOx control testing did exist and are made available to AW annually. These were provided to S&C for review, post fieldwork, as well as an example of one SOx



internal control test memo for a specific SOx control from each year 2013 through 2019. The planning memo summarizes the business process and technology internal controls testing program and includes information regarding Materiality, Control Overview, Testing Overview, and Sampling Methodology. This information enables AW management to evaluate the operating effectiveness of key internal SOx controls and supports management's assessment of the control environment in accordance with the requirements of the Sarbanes-Oxley Act of 2002. The planning and test memorandums are maintained by IA and shared during weekly meetings with participation from PwC, EY, IA, and the Business and TI compliance groups. Control testing results and status are reported to the Disclosure and Audit, Finance & Risk Committees quarterly. Exceptions in the control performance are tracked in a Summary of Aggregated Deficiencies file.¹⁵⁹⁹

The planning and testing results documentation, as well as the process as described, are appropriate to maintaining and overseeing the outsourced AW SOx internal control program. The process and resulting documentation should be continued and improved, as is possible, going forward.¹⁶⁰⁰

Recommendation XXII-4 Adjust the reporting structure so that the Internal Audit Vice President reports administratively to the Chief Executive Officer. (Refer to Finding XXII-4.)

To clearly show the independence of the AW Internal Audit Group, the IA VP should report to the Chief Executive Officer instead of the EVP Chief Financial Officer. This allows the AW Internal Audit group to be independent in appearance as well in actuality.

XXIII. Affiliate Cost Allocations and Relationships

The following items will be primarily covered as part of *Phase One Chapter V Affiliate Relationships* or *Chapter IX Affiliate Cost Methodologies*, not necessarily specifically in this chapter.

- ◆ Identify the accounting and allocation procedures for separating the costs of inter-company transactions of NJAW from affiliates.
- ◆ Determine the accuracy of allocations when allocating joint/common costs between NJAW and its affiliates. Any discrepancies shall be corrected by providing direct cost allocations when possible and explanations where the costs cannot be directly allocated.
- ◆ Review the time sheet reporting practices of employees with shared responsibilities to determine allocations. Further, determine if the duties of employees who bill time for NJAW and/or its affiliates permit for cross-subsidization.
- ◆ Evaluate competitive and noncompetitive bidding procedures.
- ◆ Identify all of NJAW's lease arrangements with its affiliates, determine if the terms of the arrangements are consistent with lease arrangements in competing local markets, have recommended cost allocations and are set at arms' length. Review affiliate charges and cost allocation methodologies among NJAW and its affiliates for adherence to applicable legal, regulatory, and contractual requirements.
- ◆ Review affiliate charges and cost allocation methodologies among NJAW and its affiliates for adherence to applicable, legal, regulatory, and contractual requirements.

The following items will be primarily covered as part of this chapter in *Phase Two*, so additional work likely occurred beyond *Phase One* activities.

- ◆ We shall examine and determine if the holding company structure, affiliates, and their diversified activities have had or may have any detrimental effects on NJAW.
- ◆ We shall review/evaluate NJAW's interactions with its affiliates by:
 - Reviewing NJAW's files covering all contracts and transactions with other affiliates.
 - Evaluating independence of purchasing on behalf of NJAW on all staff levels. Assess whether performance evidences that purchasing is acting in the best interests of NJAW and its ratepayers.
 - Evaluating NJAW's relationships with its affiliates and the ability of NJAW's internal controls and structure to ensure that purchases made on behalf of NJAW are in the best interest of NJAW and its ratepayers.
- ◆ We shall examine and determine if NJAW has an internal system to provide assurance that its goals and objectives are accomplished at the lowest possible cost and maximum benefit to its ratepayers. The internal controls should give a true and accurate account of the transactions of NJAW and its affiliates, and should show that the transactions have been carried out with integrity and according to standards consistent with regulatory and legal requirements.



- ◆ We shall examine and determine if NJAW has internal controls that protect against irregular, illegal, and/or improper transactions.
- ◆ In addition, we shall review the following communication areas and shall:
 - Evaluate all correspondence between directors and officers to determine if discussions were conducted:
 - At arms’ length
 - In the best interests of NJAW’s ratepayers

A. Background & Perspective

See *Phase One* chapters for background and perspective information and data.

B. Findings & Conclusions

Finding XXIII-1 American Water Holding Company Structure, Affiliates, and Their Diversified Activities do not seem to negatively impact NJAW.

Based on the information and data reviewed in *Phase One Chapter V – Affiliate Relationships* or *Chapter IX – Affiliate Cost Methodologies*, the American Water holding company structure, affiliates, and their diversified activities do not seem to have any detrimental effects on NJAW.

Finding XXIII-2 NJAW’s interactions with its affiliates is reasonable.

In *Phase One Chapter V – Affiliate Relationships*, reviewing of NJAW’s files covering all contracts and transactions with other affiliates was reasonable.

In *Phase One Chapter IV – Procurement and Purchasing*, it also indicated that the following was reasonable for purchasing on behalf of NJAW:

- ◆ Independence of purchasing on behalf of NJAW on all staff levels was reasonable, because both Corporate Procurement and State Procurement groups seem to positively help NJAW, including acting in the best interests of NJAW and its ratepayers.
- ◆ NJAW’s relationships with its affiliates and the ability of NJAW’s internal controls and structure to ensure that purchases made on behalf of NJAW are in the best interest of NJAW and its ratepayers.

Finding XXIII-3 While controls exist for billing activities, NJAW does not seem to have any internal system to provide assurance that its goals and objectives are accomplished at the lowest possible cost and maximum benefit to its ratepayers.

As indicated in *Phase One Chapter IV – Procurement and Purchasing*, we are not aware of any internal system NJAW has to provide assurance that its goals and objectives are accomplished at the lowest possible cost and maximum benefit to its ratepayers, as procurement and purchasing are primarily done by AWWSC, not NJAW.

As indicated in *Phase One Chapter V – Affiliate Relationships*, AWWSC conducts numerous controls around the AWWSC billing process to protect against irregular, illegal, and/or improper transactions; therefore, the internal controls should give a true and accurate account of the transactions of NJAW and its affiliates, and should show that the transactions have been carried out with integrity and according to standards consistent with regulatory and legal requirements.

Because AWWSC is responsible for procurement and purchasing, it is not necessary that NJAW itself has internal controls that protect against irregular, illegal, and/or improper transactions.

Finding XXIII-4 Interactions with NJAW Board of Directors regarding affiliate relationships and transactions are reasonable.

As indicated in *Phase One Chapter V – Affiliate Relationships*, written and verbal correspondence between NJAW directors and officers takes place in connection with the regularly scheduled Board of Directors meetings,¹⁶⁰¹ which in practice NJAW holds quarterly Board meetings, plus one additional meeting (five meetings per year).¹⁶⁰² It appears that such correspondence is at arms' length and in the best interests of NJAW's ratepayers.

C. Recommendations

Recommendation XXIII-1 Using a system let NJAW understand that its goals and objectives are accomplished at the lowest possible cost and maximum benefit to its ratepayers. (Refer to Finding XXIII-3.)

Provide NJAW with access to a system to provide assurance that its goals and objectives are accomplished at the lowest possible cost and maximum benefit to its ratepayers.



XXIV. Cash Management

This chapter provides a review of New Jersey American Water Company's (NJAW's) cash management function and its impact on the regulated utility operations in New Jersey.

In this section, we performed a general overview of NJAW's cash management, including:

- ◆ Evaluation of cash management and forecasting for NJAW and affiliates as appropriate to determine:
 - The details of NJAW's and its affiliates' cash management methodologies.
 - If NJAW's cash is held separately from the cash of its affiliates.
- ◆ Assessment of the quantified or potential impact of write-offs by and on NJAW.

Our principal objectives in reviewing these functions was to also verify that associated activities are being conducted in an effective and efficient manner, that functions performed complement overall strategic goals, and that resultant reporting provides appropriate management information to achieve those goals.

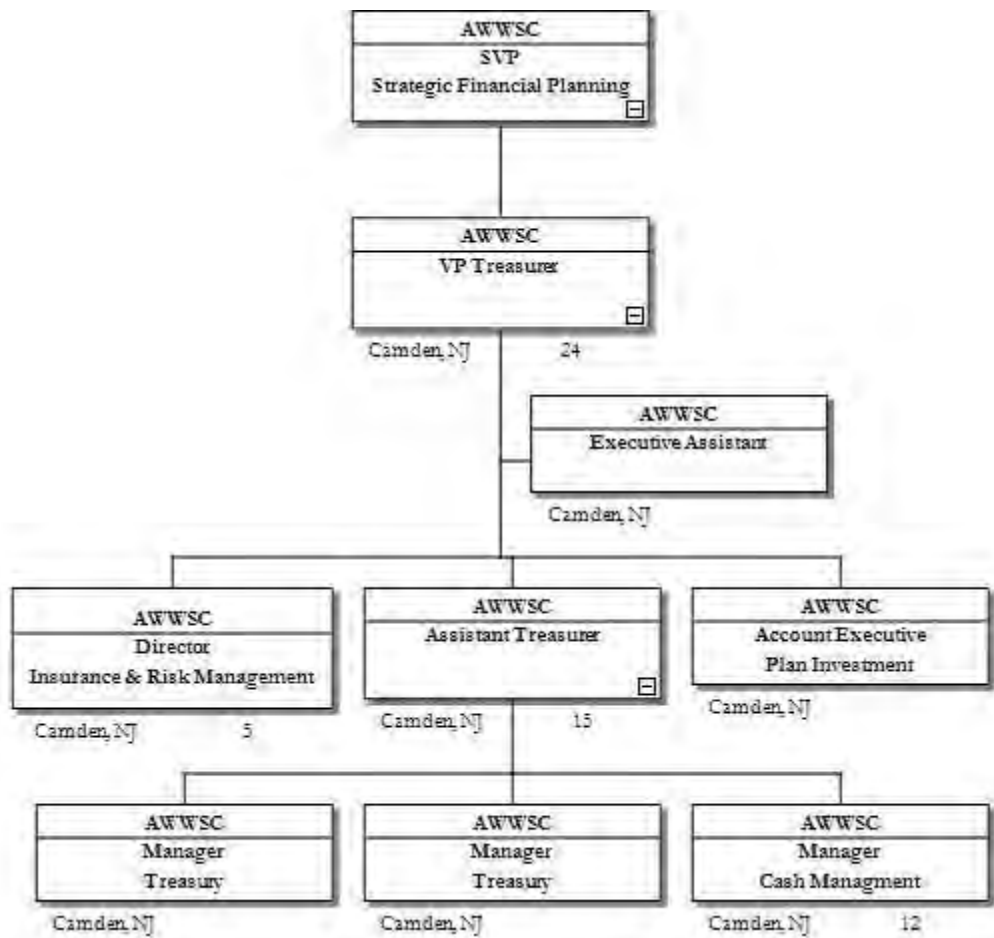
A. Background & Perspective

Treasury Organization

The Treasury organization is headed by the Vice President Treasurer, who has three direct reports and an Executive Assistant in a department of 24 as shown in *Exhibit XXIV-1*. The VP Treasurer reports to the Senior Vice President Strategic Financial Planning. Reporting to the VP Treasurer is an Assistant Treasurer (position currently open as of May 2019), the Director of Insurance and Risk Management, and an Account Executive Plan Investment.¹⁶⁰³ Traditionally reporting to the Assistant Treasurer are three managers – two Managers of Treasury (one manager position currently open, May 2019), and the Manager Cash Management.¹⁶⁰⁴



**Exhibit XXIV-1
Treasury Organization
as of May 2019**



Source: Interview 45 and Information Response 535

The current VP Treasurer has been in this position since February 2019. Previously to this position, he worked as the VP of Internal Audit. His career started at American Water Company (American Water or AW) in the mid-Atlantic division and previous to AW, he worked for a large public accounting firm (KPMG) where he earned his CPA.¹⁶⁰⁵ Treasury responsibilities include:¹⁶⁰⁶

- ◆ Financings, Borrowing and Investments
 - Maintaining Treasury Policies
 - Investments
 - Debt, Short- and Long-term
- ◆ Cash Management Operations
- ◆ Insurance and Risk Management

Of the list above, Financings and Cash Management activities are covered in this chapter, while Insurance and Risk Management activities are covered in the Insurance and Risk Management section of *Chapter XXI – Support Services*, and Short and Long Term Debt are covered in the *Chapter XXII – Finance*.

Alongside the above responsibilities, the Treasurer acts as a support to Divisions Operations, ensuring liquidity is available to accomplish the goals of the Divisions and Corporation. The VP Treasurer sees his role as a support role to the CFOs, and in this case specifically the Eastern Divisional CFO, who makes the financing decisions for NJAW.¹⁶⁰⁷

Treasury Policies

NJAW is generally a net borrower and does not routinely invest excess cash either on a short-term or long-term basis. However, in those situations where the company has excess cash for a short period of time, the funds would be invested in instruments such as short-term money market accounts and Treasury investments. There are two policies that govern these activities:¹⁶⁰⁸

- ◆ The Treasury and Insurance Policy dated October 29, 2012
- ◆ The Short-Term Investment Practice dated October 15, 2010

The Treasury and Insurance Policy is thorough and specifies general short-term investment guidelines. The Investments/Cash Management section of the policy notes that if excess cash exists beyond the liquidity requirements of the company, then the company will seek investment opportunities to maximize returns with reasonable and prudent risk levels.¹⁶⁰⁹

The Short-Term Investment Practice gives additional detailed organizational responsibilities for Short Term cash investment and reporting metrics to supplement the policy. In essence, the policy provides requirements for the investment of available short-term cash with the primary objective being principle preservation.¹⁶¹⁰

Cash Management Operations

The VP Treasurer's stated goal is that funds be available for all accounts payable, payroll and potential acquisition needs of the company. The planning for this occurs starting with the Treasurer supported by the day-to-day work in the Cash Management Operations area.¹⁶¹¹

The cash management team is led by the Manager of Cash Management, see *Exhibit XXIV-1*. Cash management work includes reconciling the NJAW Mellon Bank lockbox account and accounting for the account receivable receipts when limited or incorrect customer information accompanies the receipt. Matching those receipts to the correct customer account can be incredibly time consuming, but is an important step to ensure customer payments are properly credited and late charges are not incurred. Available cash balances are swept into a concentration account controlled at the Corporate level (AW Capital Corporation) on a daily basis. The account and transfer of funds is monitored and reconciled on



a daily basis by cash management operations.¹⁶¹² Additional details for NJAW cash receipts and cash disbursements follow.

Cash Collections and Disbursements

Cash is collected from NJAW customers through various methods, listed below:¹⁶¹³

- ◆ Checks mailed through a lockbox;
- ◆ Electronic payments initiated at customer's bank;
- ◆ Cash or checks paid at stores and other payment agents;
- ◆ Credit card and electronic checks initiated through the internet or phone;
- ◆ Autopay, whereby a customer's bank account is automatically debited when their bill is due and
- ◆ Third-party collection agency for customer accounts that are significantly past due.

Third-party vendors support the payment processes listed above. These vendors are:¹⁶¹⁴

- ◆ Mellon Bank for Lockbox & Automated Clearing House (ACH) transactions,
- ◆ CheckFree for OTC transactions, and
- ◆ Paymentus for credit card and electronic check transactions.

Each third-party vendor sends a standard data file daily to American Water's secure FTP site monitored by Technology & Innovation. Once received, the data files are posted to SAP. This data file enables the specific customers' account to be credited for their payment remitted. Check digits (or verification digits), which are a part of the customer's account number, are used along with batch totals in these data files to improve and enhance the accuracy of payment data recorded. Every day, Cash Management Operations performs a reconciliation that compares cash received to the credits reducing a customer's receivable balance. Then at the end of the month, Cash Management Operations reconciles the lockbox bank account to the general ledger. These reconciliations are prepared by an accountant in the group and approved by a supervisor. On an ongoing basis, specialists in the Cash Management Operation area research and correct customer payments that were not systemically applied to a customer account, due to incorrect or missing information accompanying the remittance. The cash management operations goal is to correct errors and have customer remittances applied to the correct customer within 2 days of receipt.¹⁶¹⁵

Accounts payable (AP) disbursements are made after the AP payment has been processed, verified, and approved by the Accounts Payable area. An electric payment file, within the accounting system, SAP, is created for pending checks, ACHs, and wires.¹⁶¹⁶

Cash disbursements are made using checks and electronically submitted payments. Check remittances are controlled with checks being printed within a locked, limited access room where blank check stock is securely stored. ACHs and wire payments are controlled with a review performed by Treasury, incorporating batch totals, to ensure accuracy. The batch total of ACH and wire payment amounts are reviewed prior to release so that adequate funds are available to cover the payments.¹⁶¹⁷

Treasury uses a “Pos Pay” system, a system generated positive pay file, that is sent to the bank by Cash Management Operations for each payment type. With this system, only payments listed in the AW system generated file will be released, or paid, by the bank. To ensure the bank receives a complete payment list, Pos Pay totals are compared to bank totals by Cash Management Operations. These totals are also reviewed by a supervisor. If an exception is identified in the Pos Pay file by the bank, the exception is reviewed, adjusted, and cleared for processing by a reviewer and an approver within Cash Management Operations. If an adjustment is not made and approved the day the Pos Pay exception is identified, the bank will reject the check.¹⁶¹⁸

Customer Refund Checks are handled differently than Accounts Payable disbursements. Customer refunds are initiated from a data file created within the Customer Information System (CIS). The file created in CIS is subject to various CIS edits and approvals. This customer refund file is then accessed by an authorized cash management person through CIS and the data sent to a printer within a cash management locked, limited access room and checks printed and processed. A system generated Pos Pay file with the customer refund data is sent to the bank by cash management. Pos Pay file totals are verified with the file totals reported as received by the bank before bank processing begins and exceptions are handled as for the account payable disbursements described above.¹⁶¹⁹

At month-end, a general ledger reconciliation of all outstanding checks is completed by a cash management and reviewed. All outstanding checks are noted to be systemically issued checks minus systemically cleared checks. Any variances noted during this process are researched and cleared.¹⁶²⁰

Money Pool

The Treasury department is responsible for the corporate money pool and monitoring the money pool cash activity by each affiliate. Treasury manages NJAW and other affiliates daily cash processes including banking relations and advisement on refinancing and investment opportunities, anticipated interest rates, and the level of NJAW's maximum short-term loan balance during the year based on their historical short-term balance, needs, and etc. Treasury is directed in its activities for NJAW by the NJAW State Finance Team. This team determines expected NJAW financing needs, considering capital expenditures, planned acquisitions, expected income throughout the year, corporate assumptions, and company dynamics, to list a few. Once Treasury and the NJAW State Finance Team agree to the NJAW's financing needs, these needs are consolidated with those of all AW affiliates during the budgeting process. AW Capital Corporation through the Treasury department is then responsible for securing the short-term financing required by American Water and its subsidiaries for the upcoming year and will obtain long-term financing for affiliates as needed throughout the year. Any financing drawn from AW Capital Corporation possess the same terms secured by AWCC from external sources.¹⁶²¹

On a daily basis, customer remittances are received through various channels, as described above and credited to NJAW. Available cash at the end of the day is swept to an AW Capital Corp cash account. Cash Management (within Treasury) is responsible for the cash collection and Treasury is responsible for the cash disbursement processes. All disbursements are made from an AW Capital Corporation bank account. The AW Capital Corp bank account is comprised of cash receipts from all American



Water affiliates lockbox accounts, including NJAW. This enables Treasury to monitor the funds available each day and manage short-term financing requirements for American Water. Although all cash is combined and disbursed from the AW Capital Corporation bank account, receipts and disbursements are accounted for by each individual affiliate. Therefore, based on NJAW's daily net cash position, Treasury will either draw on, or pay down, the amount of short-term debt outstanding on NJAW's books daily. Generally, NJAW is in a net borrowing position. If NJAW does find itself with short term debt paid down and excess cash available, there are specific short-term investment options available, see above Short-Term Investment section.¹⁶²²

NJAW Bank Account

AW uses a consolidated approach to cash management with all disbursements processed from one Corporate Bank account. NJAW has one lockbox account with the Bank of New York Mellon and customer receipts are processed through this account and available balances swept into a concentration account at AW Capital Corporation, daily. The bank account and transfer of funds is monitored and reconciled on a daily basis by Treasury cash operations.¹⁶²³

Year end balances of the NJAW Mellon Bank account are shown in *Exhibit XXIV-2*. Review of the bank account balances show a significant balance at the close of every year during the audit period.¹⁶²⁴

Exhibit XXIV-2
NJAW Mellon Bank / Lockbox Account
as of December 31, 2011 - 2018

	Bank Ledger
31-Dec	Balance
2018	\$1,858,696
2017	\$2,629,315
2016	\$2,579,002
2015	\$1,448,673
2014	\$1,430,166
2013	\$1,342,380
2012	\$1,359,738
2011	\$1,013,847

Source: Information Response 432

Cash and Treasury Forecasting – Daily and Monthly

The Treasury VP works with all American Water operations companies to understand and meet their cash needs. Treasury relies on the strategic plan overall and the specific company budgets, such as NJAW, more specifically to plan for cash needs and the supporting financings. Financings are planned to line up with market fluctuations so that AWCC offerings are made in the best market environment. The financings are also planned too to meet the needs of the operating entity overall, as described in their annual business plan.¹⁶²⁵

To forecast needs on a daily basis, Treasury reviews the consolidated cash position on the day using a format referred to as a Daily Cash Positioning Schedule. This schedule is used to determine daily short-term borrowing needs. AW utilizes a commercial paper program for short term financings. The input to the daily cash positioning schedule come from several sources, such as:¹⁶²⁶

- ◆ Bank portals
- ◆ Internal AW systems such as accounts payable, payroll, human resources, and benefits and
- ◆ Scheduled activity such as Acquisitions and Capex activity

Note that even though the cash positioning and analysis is performed at the Corporate level all affiliate funds are accounted for separately in the SAP system.¹⁶²⁷

For monthly forecasting, the Treasury Department prepares a consolidated 12-month rolling cash forecast at the beginning of the year and updates this throughout the year. The forecast is used to predict the outstanding commercial paper balance by month and through to year-end, for planning purposes. All information is gathered from internal systems such as, the Treasury Department, Financial Planning and Analysis, Engineering, and State Finance leads.¹⁶²⁸ Treasury currently performs this function on a daily basis and reviews AW's consolidated needs with the CFO on a weekly basis.¹⁶²⁹



B. Findings & Conclusions

Treasury

Finding XXIV-1 Short term investment policy and practice is appropriate for NJAW needs.

NJAW is a net borrower and so invests money only occasionally. However, the short-term investment policy of money market and treasury investments is appropriate focusing on principal preservation.¹⁶³⁰

Finding XXIV-2 The Treasury and Insurance Policy and the Short Term Investment Practice are due for review.

The Treasury and Insurance Policy is dated October 29, 2012 and was set for review November 30, 2015. The Short-term Investment Practice is dated October 15, 2010 and no review date is set. Through interviews we understand the policies and practices have not changed significantly, however, the age of these policy documents justifies a review and update.

Cash Management

Finding XXIV-3 NJAW cash is not held in a separate bank account.

Customer receipts are processed through an NJAW Bank of Mellon Lockbox account and available balances swept into a concentration account at AW on a daily basis. The account and the transfer of NJAW funds is monitored and reconciled daily so that the cash balance attributable to NJAW is always known. End of the year account balances for the NJAW Bank of Mellon Lockbox Account are listed in *Exhibit XXIV-2*.¹⁶³¹

Finding XXIV-4 Cash forecasting and analysis is appropriate.

The process for cash forecasting and analysis is appropriate using primarily the Daily Cash Positioning Schedule as a tool for this process.

Finding XXIV-5 A policy and practice document for Cash Forecasting does not exist.

Through interviews and document request process, it was determined that a NJAW policy and practice did not yield such documents specific to cash forecasting.¹⁶³²

C. Recommendations

Treasury

Recommendation XXIV-1 Review and update, if needed, the Treasury and Insurance Policy and the Short Term Investment Practice. (Refer to Finding XXIV-2.)

The Treasury and Insurance Policy and the Short-term Investment Practice policies are dated October 2012 and October 2010. The issuance date of both these policies necessitates a review and update be performed of both these policies.

Cash Management

Recommendation XXIV-2 Create a policy and practice document for the cash forecasting process. (Refer to Finding XXIV-5.)

Although personnel interviewed were very knowledgeable of this process and detailed descriptions were provided in request to a cash forecasting policy, a policy and practice should be created to document this information.



XXV. Accounting & Property Records

This chapter provides a review of New Jersey American Water Company, Inc.'s (NJAW's) accounting and property records function and its impact on the regulated utility operations in New Jersey. In the review of this section, we performed a general overview of NJAW's accounting and property records, including:

- ◆ *Accounts Receivable*: Reviewed the processes for receiving and securing accounts receivable.
- ◆ *Payroll*: Reviewed the independence, processing, and accountability of the payroll function, including the time and resources spent by employees on payroll.
- ◆ *Budget*: Evaluated the budget reporting, tracking, revision, and analysis at all levels
- ◆ *Property Records*: Evaluated work order procedures, corporate accounting manual and property records.

The principal objectives in reviewing these functions was also to verify that associated activities are conducted in an effective and efficient manner, that functions performed complement overall strategic goals, and that resultant reporting provides appropriate management information to achieve those goals.¹⁶³³

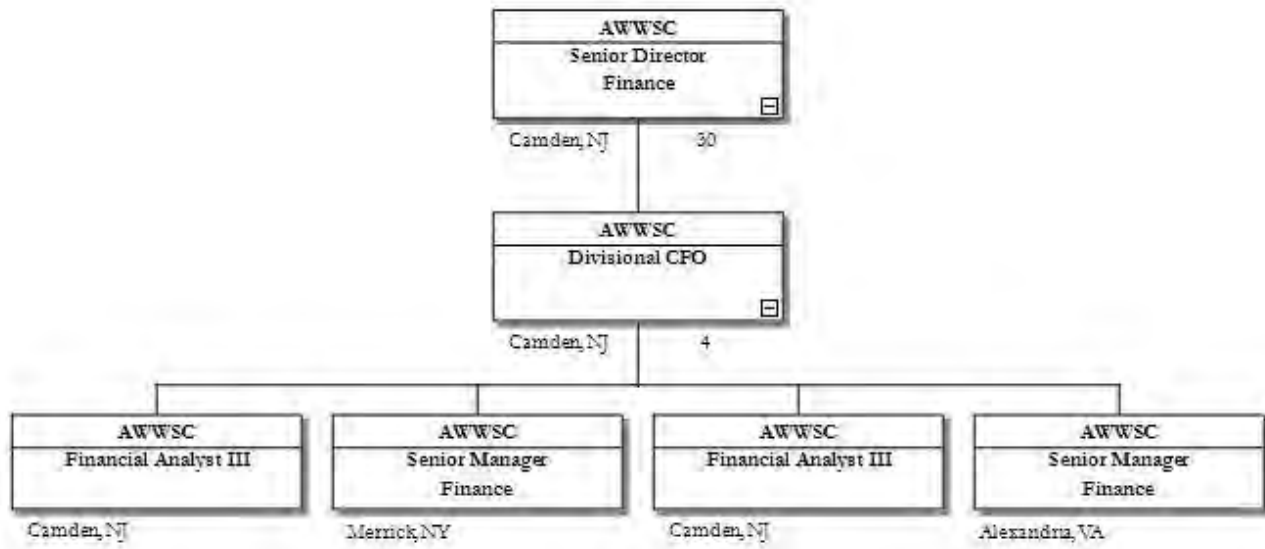
A. Background & Perspective

Accounting

The NJAW Finance organization is led by a Divisional Chief Financial Officer (CFO) who is responsible for the Eastern Division subsidiaries of American Water Works Company, Inc. (American Water or AWK), comprised of New York, Maryland, Virginia, and New Jersey. The focus of the Divisional Finance group is operational. The Divisional CFO reports to the Senior Director Finance as shown in *Exhibit XXV-1*. All divisional CFOs, six in total, report to the Senior Director of Finance including the Eastern Division CFO. *Exhibit XXV-1* shows the Eastern Division CFO reporting to the Senior Director Finance and four direct reports to the Divisional CFO: two Senior Managers and two Financial Analysts.¹⁶³⁴



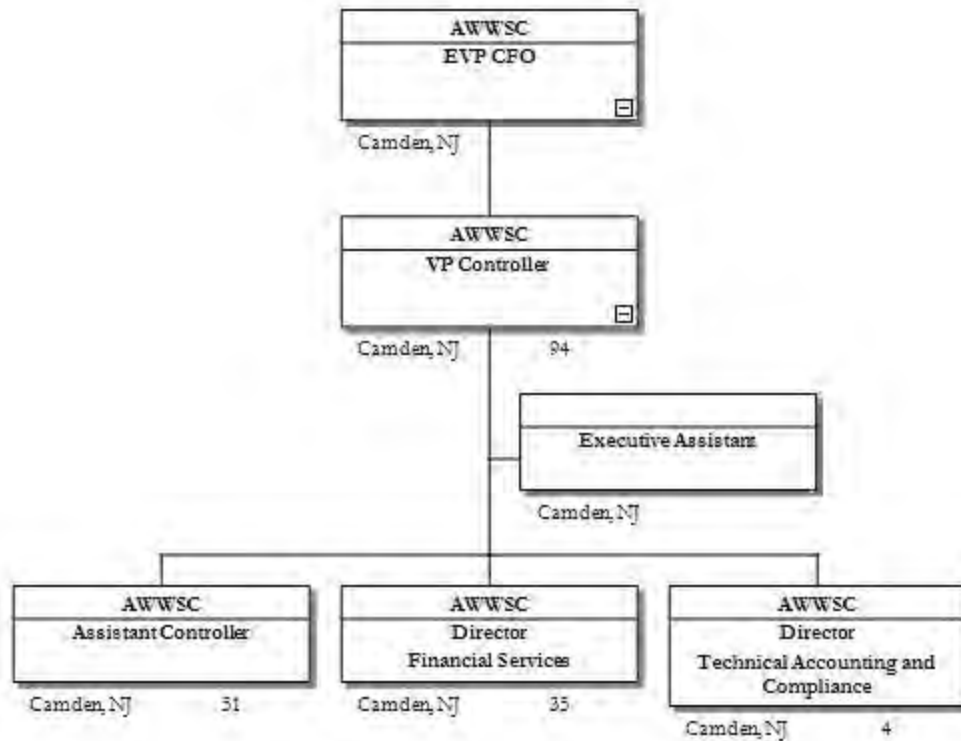
Exhibit XXV-1
NJAW (Divisional) Finance Organization
 as of May 2019



Source: Interview 43

Running congruently with NJAW Finance is AW Accounting. AW Accounting is led by the AWWSC VP Controller who reports to the AWWSC EVP-CFO as shown in *Exhibit XXV-2* below. The AWWSC VP Controller is supported by two Directors, an Assistant Controller and an Executive Assistant. These Directors and Assistant Controller are supported by a staff of 90 individuals.¹⁶³⁵

Exhibit XXV-2
AWWSC Accounting Organization
as of May 2019



Source: Interview 43

The VP Controller has responsibility for AW Accounting and interfaces regularly with the Eastern Division CFO. Three areas report to the Controller and are listed below and then described in more detail in this section:

- ◆ Technical Accounting & Compliance, where external financial reporting tasks are performed
- ◆ Financial Services, which includes the Payroll and Accounts Payable (AP) tasks
- ◆ Assistant Controller, who is responsible for General Accounting and External Reporting

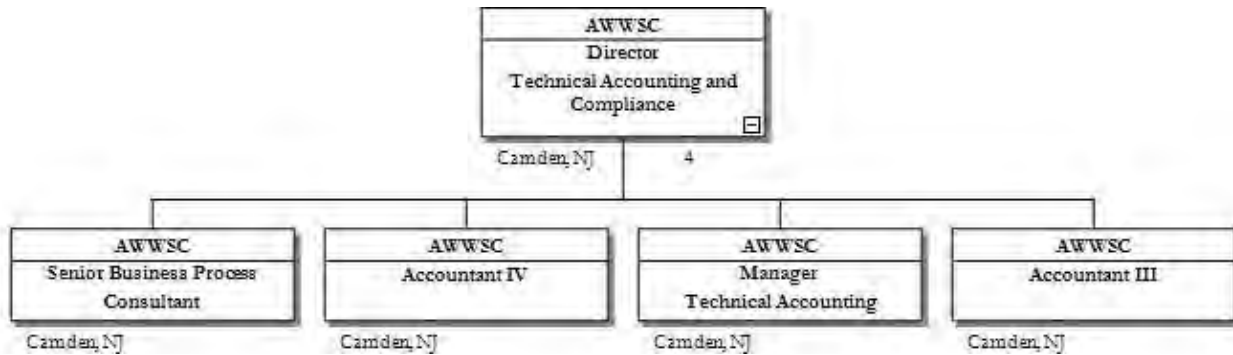
Technical Accounting & Compliance

The Director of Technical Accounting & Compliance reports to the VP Controller and has a department of four reporting to them as shows in *Exhibit XXV-3*. This department is responsible for technical accounting research, SOx financial controls, and business systems support such as the Blackline system that supports the account reconciliation process. The Director of Technical Accounting & Compliance also coordinates the external internal control audit used for the annual



financial audit as well as third party auditor management testing related to the ongoing review and testing of SOx controls.¹⁶³⁶

Exhibit XXV-3
Technical Accounting and Compliance Organization
as of April 2019



Source: Interview 84 and Information Response 52

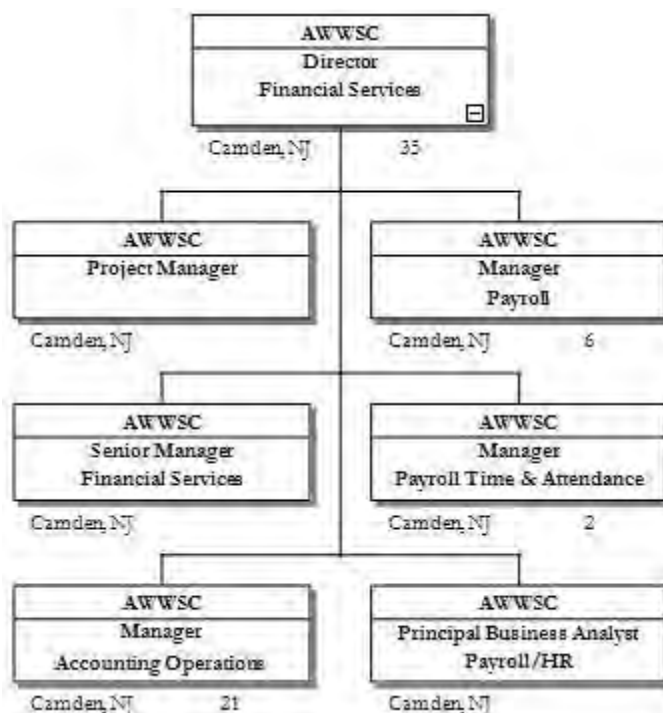
The Director of Technical Accounting & Compliance coordinates the review of new accounting standards or pronouncements. She will review and then present a summary of the new standard or pronouncement, summarizing the changes.¹⁶³⁷ Also, the Financial SOx internal control process is monitored and controlled in this area. See *Chapter VI – Internal Controls* for more details regarding internal controls.¹⁶³⁸

The Director of Technical Accounting & Compliance has a long-time background with utility accounting, reporting including SEC reporting and internal controls. In the past, the Director of Technical Accounting & Compliance was responsible for external reporting but that responsibility is now with the Assistant Controller.

Financial Services / Payroll and Accounts Payable

The Payroll and the Accounts Payable areas are led by the Director of Financial Services as shown in *Exhibit XXV-4*.¹⁶³⁹ As of April, 2019, the Director of Financial Services had six direct reports and a department of 35. She has been with AW 14 years in various positions with approximately one year in her current position.¹⁶⁴⁰

**Exhibit XXV-4
Director of Financial Services Organization
as of April 2019**



Source: Interview 68 and Information Response 52

Payroll

The Payroll Manager reports to the Director of Financial Services, as shown in *Exhibit XXV-4*. She has been with AW since January 2019 and previous to that was consulting with AW specifically assigned to the payroll function. Her work encompasses both the regulated and non-regulated affiliates. The regulated affiliate employees use the MyTime application for time entry. Non-regulated affiliate employees use an Automatic Data Processing (ADP) interface for time entry, called ADP Vantage. AW also contracts with ADP to remit payroll taxes and submit payroll tax reporting for regulated and non-regulated affiliates.¹⁶⁴¹

The MyTime interface is an internally developed payroll reporting system.¹⁶⁴² The MyTime system has a default template function and only allows employees to charge to WBSs that are assigned to the employee. Hourly workers use a positive time reporting system and management employees use an exception time system. Ideally, time is input daily by employee, but minimum requirement is to input time before the conclusion of each pay cycle. An employee has up to two pay periods to correct mistakes in the payroll system themselves. For mistakes three weeks and older, an employee must go to Human Resources to adjust their time records. An employee can input time in advance such as when an employee is scheduled to be out for vacation.¹⁶⁴³



The Payroll Manager's primary responsibility is the accuracy of the amounts paid to employees. There are various verification steps performed to ensure accuracy. Three examples of these verification steps are a review of \$0.00 paychecks, review of any check with hours less than 80 for a two-week reporting period and a review of checks that vary from the previous payroll run. An SAP module is used to process the data from the verification audits performed by the Payroll Manager, called Spinifex. Either Spinifex or Excel are the tools used to audit the payroll numbers and perform the verification checks. Once the Payroll Manager's verifications are complete, payroll is released.¹⁶⁴⁴

The Payroll Manager is responsible for all calculations and the accuracy of all deductions, taxes, and garnishments from paychecks. All calculations and deductions are subject to verification audits on an ongoing basis, as a part of the payroll verification process.¹⁶⁴⁵

The Payroll Manager works with her team to ensure that payroll taxes remitted by ADP. She verifies those remittances and approves before payments are made.¹⁶⁴⁶

Payroll Operations

The Payroll Manager is also responsible for payroll operations. Payroll operations as defined here as the payroll process from hire to ongoing payroll remittance. Payroll operations begins with the new hire and that associated process, through completion of the new hire paperwork and access granted to the payroll system – either My Time for employees of the regulated companies or ADP Vantage for employees of non-regulated companies. The payroll system access allows employees to input their time and have that time reviewed and approved by their manager. Employees have ongoing online access to their reported time information with details such as regular and overtime hours.¹⁶⁴⁷

At the close of pay period, payroll inputs are audited for completeness, confirming that all active employees have time input for all days of the pay period. Once completeness is verified, the data is reviewed for errors, such as incorrect WBS codes. A review is also made for hours input over 40 for a weekly period or 80 for a two-week period, noting overtime and confirming that overtime is applicable for that employee.¹⁶⁴⁸

Once these reviews are complete and corrections made as needed, the gross to net pay calculation is performed. At that point, the payroll data file is passed to ADP for manual check creation and processing. There are approximately 100 manual checks, currently. Those employees with direct deposit are paid through a separate AW application called "ipay" and paystubs made available online.¹⁶⁴⁹

At the conclusion of payroll processing, a summary journal entry is posted to the general ledger and third-party payments for withholdings, benefits and garnishments posted to a specific general ledger account. These accounts hold the accrued liabilities and as these payments are remitted the ledger accounts reduced. Any balances remaining in these liability accounts are reviewed to determine that the remaining balance is appropriate. Garnishment checks created by ADP are returned to payroll so that necessary paperwork can be matched with the check before it is mailed and submitted to the appropriate third party.¹⁶⁵⁰

MyTime Conversion

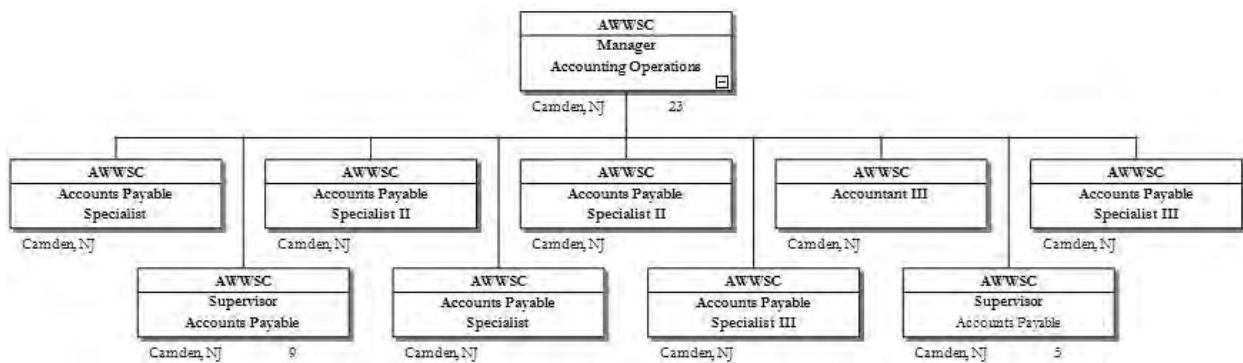
The MyTime system currently used for time input went live in 2019. This was the culmination of much work across departments at AW, including multiple test phases of the system before it went “Live”. The MyTime system will allow for time input using a phone app and other easily accessible platforms by employees.¹⁶⁵¹

When the new time system went live, the Divisional CFO reviewed the month end financial results for a negative impact of the new system coming online and noted none. An adverse effect would be usual for a new system of this magnitude and scope, but with the company communication regarding the system¹⁶⁵² and the seven test phases run before the system went live,¹⁶⁵³ no negative effects were noted.¹⁶⁵⁴ Essentially, the turn on of the MyTime payroll system did not impact the month end accounting results at all. The VP Controller noted that a lot of pre-training of the system was conducted for New Jersey American Water, and the operation companies, as well as AWWSC.¹⁶⁵⁵

Accounts Payable

Also, reporting to the Director of Financial Services is the Manager of Accounting Operations, as shown in *Exhibit XXV-4*, above. The Accounting Operations organization is shown in *Exhibit XXV-5*.¹⁶⁵⁶

Exhibit XXV-5
Accounting Operations Organization
as of April 2019



Source: Interviews 68 and 69

The Manager of Accounting Operations has been with the company, in the Accounts Payable department, for 12 years. He is responsible for payment of all Accounts Payable (AP) invoices, purchasing credit cards (also called P-Cards), unclaimed property (also referred to as Escheat), 1099 reporting, and T&E Reimbursement. Note that T&E reimbursement are processed in this department but paid through the payroll department. He has a department of 23 to accomplish these tasks organized as shown in *Exhibit XXV-5*.¹⁶⁵⁷

Processing and Payment of Accounts Payable Invoices

Of the AP invoices, or bills, that are received, approximately half are received through the mail and half are received electronically. Bills received electronically are loaded to a bolt on system that interfaces with SAP. If a paper copy bill is received through the mail, the bill is scanned using Optical Character Recognition (OCR), reviewed for accuracy, corrected, and uploaded to the SAP bolt on system. The approval process for the bills occurs in “Workflow”, also a bolt on system to SAP. When the bill is approved, it is then recorded in SAP and queued for payment. Invoices are basically processed on a first in first out (FIFO) basis but takes the following circumstances into account, in order of priority:¹⁶⁵⁸

- ◆ Vendor invoices from vendors that have placed a credit hold on an AW account (this is very rare)
- ◆ Invoices with discounted terms
- ◆ Invoices that can be paid by credit card
- ◆ Invoices greater than \$10,000
- ◆ Invoices with closest due dates and
- ◆ Small dollar invoices, process last

Note that approval levels follow delegation of authority (DoA) rules. These rules are maintained in the Workflow system and govern the approval process that occurs before an invoice is processed and placed in the payment queue.¹⁶⁵⁹

Payment by Purchasing Card (P-Card)

The AW P-Card program is coordinated through PNC using a specific PNC program called “IntelliLink.” Employees who need a P-Card will apply and when accepted will receive a specific AW P-Card. The IntelliLink program also has an app for employees using the card, showing all purchases made with their specific P-Card. The employee assigns account codes to their purchases in the app, thereby coding those purchases to the appropriate account. The app will suggest some coding, such as plane or hotel card expenditures will show a travel expense coding suggestion. Suggested coding can be accepted or overridden by employees as they code the various purchases listed. Invoice or receipt images are available in the app for review as the employee codes the expenditure. When an employee concludes coding the expenditures listed, he signs off on P-Card expenses for that period and the listing, still residing in the IntelliLink app, goes to supervisor for approval. Once approved, the purchasing data is uploaded to SAP. If an employee has a personal expense on the P-Card, those are coded to accounts receivable (AR). Experience has shown that AR balances to be paid off by employees are paid off relatively quickly. This account is reviewed monthly and reconciled. This account is also listed and monitored as a SOx control.¹⁶⁶⁰

Travel and Expense (TE) Reimbursement

The PNC IntelliLink program is also used for TE Reimbursement, but for reporting only. These expenses are not incurred on an AW P-card but incurred by an employee with a personal credit card or other means. This is an expense funded by an employee and so needs to be reimbursed. Expenses as incurred by the employee are uploaded to the IntelliLink app by employee along with description, coding, date and amount of expense. The documentation, usually a receipt or invoice, is also uploaded and employee signs off on

the now documented expenditure. When approval of the expenditure is complete, payment is initiated, and employee reimbursed through the payroll department. The AP area is responsible for the processing, but the payroll area is responsible for reimbursement. The IntelliLink program has been in place approximately a year during the 2018- and 2019-time frame. Previous to this, an electronic spreadsheet reimbursement form was completed by the employee, who attached receipts and signed the document. When the TE document and receipts were approved, payment was initiated.¹⁶⁶¹

1099 Reporting

The 1099 reporting process is an annual event but the set up for this work occurs throughout the year and begins with the onboarding of a new NJAW vendor. Procurement drives most of the purchasing and this onboarding process. When they bring on a new supplier, they must obtain a W-9 form, the form that denotes if a 1099 is needed or not. The completed W-9 form contains all the vendor information needed for the 1099 form. Before a first payment is released to a vendor, a completed W-9 needs to be on file or the payment will not be released. The Manager of AP does not remember any exceptions to this process. The AP department begins the 1099 preparation work several months before year-end. During the year, system vendor files are reviewed to confirm W-9 existence and completeness so that it is known that the information needed to complete the 1099 forms for each vendor is available. When this validation step is complete, the file data is uploaded to a 1099 program, separate from the SAP program. The 1099 program, along with creating 1099s, also performs TIN (taxpayer identification number) matching process and also performs a review for missing fields on the 1099 form, if any. These processes can be run several times until it shows that all TINs are valid, and all 1099 form data is available. When these processes are complete, the 1099s are created and issued before end of January to comply with the January 31st deadline. Corrections, if needed, are made in the month of February and corrected 1099s created and additional corrected reports created and filed.¹⁶⁶²

Unclaimed Property

When NJAW checks are 90 days outstanding, they are voided and placed in an unclaimed property account. Uncashed checks/unclaimed property are mostly low dollar checks such as customer refunds. To coordinate the unclaimed property reporting needed in most of the 50 states, the AP area uses a tracker system. This system maintains all the state rules for reporting and remitting unclaimed property. The uncashed check information is input to the system including name, address, dollar amount and type of check. For an example of the type of information the tracker holds, each state has a specific deadline for unclaimed property. Thirty-eight states have an October 31st deadline and each of these states have varying reporting formats. The deadlines and reporting requirements reside in the system used by AP for this process. The tracker creates the different forms required depending on the state, holding over 100 formats. The unclaimed property process begins with correspondence being mailed to the owner (payee) of the uncashed check. This correspondence lets the owner know that there is a check available for them and to notify NJAW if they would like the check reissued and mailed to them. If no response is received, the unclaimed property is reported and remitted to the state in which the check owner resides. This remittance process occurs once a year. On an ongoing basis, the unclaimed property account is reconciled to the general ledger, monthly.¹⁶⁶³

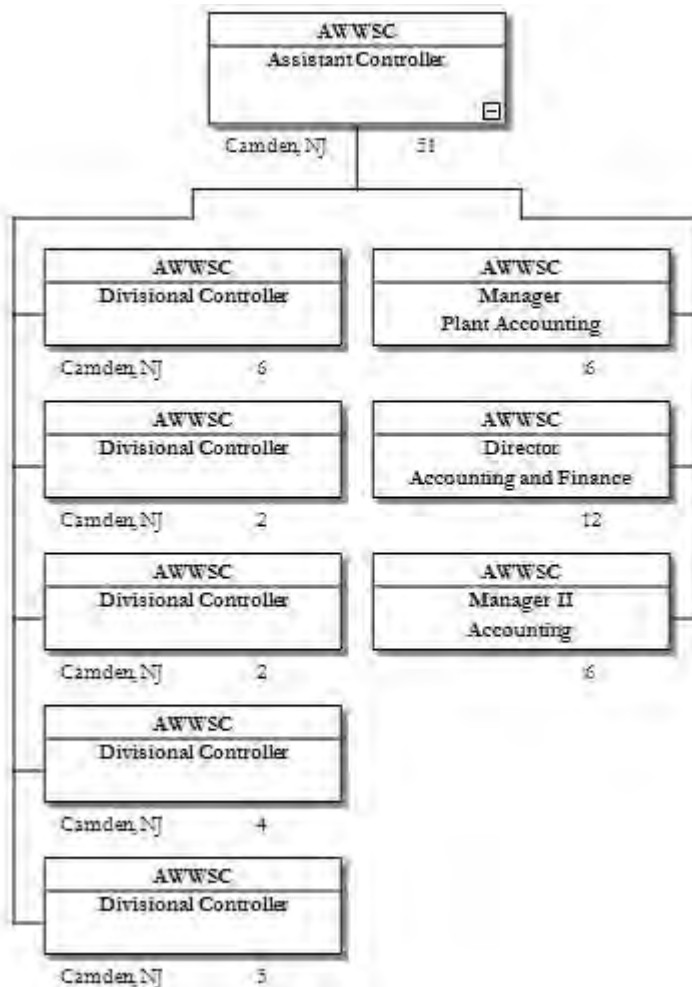


The Manager of Accounts Payable also pursues unclaimed property for AW, reviewing state specific unclaimed property web sites and utilizing various services to secure any available monies. The Manager of Accounting Operations estimates this amount to be about \$250,000 annually in additional funds to the company due to this process.¹⁶⁶⁴

Assistant Controller’s Organization – General Accounting and External Reporting

The third role reporting to the VP Controller, shown in *Exhibit XXV-2*, is the Assistant Controller. This section describes the Assistant Controller’s organization. The organization structure for the Assistant Controller and his staff of 51, including his eight direct reports, is shown in *Exhibit XXV-6*.¹⁶⁶⁵

Exhibit XXV-6
Assistant Controller’s Organization
 as of April 2019



Source: Interview 67 and Information Response 52

The Assistant Controller's Organization is along divisional, as well as functional lines. Each divisional controller has responsibility for a division and a function, such as the Eastern division (New York, Maryland, Virginia, and New Jersey) and a function, such as accounts receivable and revenues. For example, along the division lines, one of the divisional controllers with 2 reports is focused on NJAW. This focus takes the form of monthly close work, balance sheet and income statement review, and budget results analysis. Another divisional controller also with 2 staff has functional focus on Accounts Receivable and the uncollectible accounts receivable allowance with a company focus on the AWWSC. The other divisional controllers have the remaining operational companies and significant functional areas.¹⁶⁶⁶

Described below is the Accounts Receivable function as it exists at AW and NJAW, the Plant Accounting area, General Accounting tasks, including the close of the books and records at both the division level and corporate level and a review the policies and procedures that govern the work in this area.

Accounts Receivable

The Accounts Receivable (AR) function is the responsibility of one divisional controller. Responsibilities include revenue postings, fluctuational review of revenues, reconciliation of balance sheet to sub accounts receivable ledger, uncollectible provision, unbilled revenue / reconciliation, and miscellaneous billing such as storm damage billing.¹⁶⁶⁷

This divisional controller monitors sales levels in various ways. He performs variance analysis and relies on processing controls such as bill batches in the customer service area. Bill batches not posted fully will be noted and flagged for research so that they can be adjusted to process fully and post. The detailed revenue analysis occurs in the Budgeting and Internal Reporting (BIR) area, known as revenue analytics.¹⁶⁶⁸

The Divisional Controller also monitors customer payments which cause the reduction of the AR balance. Customer payments are made in several ways: mailed to lockbox, through use of an auto pay option, remitted at third party locations (such as Wawa) and with credit card payments. Application of customer payments occur in the treasury area. Any payment that is not referenced to a known account is posted to a suspense account to be researched and applied to the appropriate customer after the research is complete. Reconciliation of the subledger to the AR balance are made on a regular basis. If a customer account is not paid after 30 days a past due letter is sent and upon determination, the meter is shut off and service stopped. When the account ages to 150 days, the account is written off. Historically, accounts aged past 150 days have only a small percentage likelihood of being collected.¹⁶⁶⁹

The uncollectible allowance for accounts receivable is based on a study of how customers have paid in past. With that historical data, the allowance can be estimated based on how much the account has aged. With these percentages, aging brackets are used to estimate percentage collectible and the allowance for bad debt calculated. For example, accounts receivable aged 150 days are above 90% uncollectible based on historical trends. However, there is also discretion applied (at the Divisional CFO level) as the customer details of the older aging categories are reviewed. For instance, customers that have historically paid late, past 90 days, are treated separately from the aging bracket as a whole.¹⁶⁷⁰



Accounts Receivable and Allowance for Doubtful Accounts Policy and Practice

Both a policy and a practice exist at AW that pertain to AR and associated AR write-offs. The policy is entitled Revenue and Receivables Policy and addresses timing, key methods, approvals, reporting and roles and responsibilities. Differences between the regulated affiliates and the market-based business are also noted. The practice is entitled Regulated Utility Allowance for Doubtful Accounts. This practice as the name suggests, details how the Revenue and Receivable policy is carried out with a focus on the regulated entities.¹⁶⁷¹

Per the Revenue and Receivable policy, “the allowance for doubtful accounts is calculated based on the age of the receivable using the appropriate aging category percentage. These percentages are determined by Accounting and are estimated based on historical write-off data.”¹⁶⁷² The practice is more specific and gives this guidance regarding annual uncollectible percentages:¹⁶⁷³

“calculation is performed by reviewing historical payment trends, analyzing accounts, and determining realistic uncollectible percentages by state. The percentages are reviewed annually but may be updated more frequently if an adjustment is needed (i.e. change in economic conditions).”

More specifically, the practice describes a process for the review of uncollectible percentages and adjustments away from the standard percentage based on historical events or knowledge of the reviewing professional. With known information, an aged account that would be discounted heavily based on its age, is discounted partially or not at all. In usual circumstances the uncollectible amount is calculated by multiplying the accounts receivable aging buckets by the corresponding uncollectible percentages. Once the uncollectible amount is calculated, the amount is compared to prior year actuals and the current year budget for reasonableness.¹⁶⁷⁴

The information as documented in the Policy and Practice is consistent with all other information gathered and reviewed through the audit process, including interview with the Divisional Controller responsible for AR and AR write offs. His description of the process, mirrors the practice and policy.¹⁶⁷⁵

Uncollectible Accounts Receivable History

Net write offs as a percent of billed revenues is very flat, averaging ½ a percent for the last 8 years, and ranging in dollars from a low of \$2.8 million in 2013 to a high of \$3.5 million in 2014, as shown in *Exhibit XXV-7*. Uncollectible expense ranges from a high of \$4.7million to a low of \$2.1million in 2015 and 2012, respectively. As a percent of billings, net write-offs are very flat with a low point of 0.42% in 2017 and a high of 0.52% in 2015 with the audit period closing, 2018, at 0.45%.

Exhibit XXV-7
Write offs for the last 8 years
2011 to 2018

Year	Uncollectible Expense	Reserve Balance Beg of the Year	Reserve Balance End of the Year	Net Write Offs
2011	\$2,131,284	(\$4,083,755)	(\$3,342,975)	\$2,872,064
2012	\$4,376,545	(\$3,342,975)	(\$4,665,483)	\$3,054,037
2013	\$3,277,148	(\$4,665,483)	(\$5,142,105)	\$2,800,526
2014	\$3,358,542	(\$5,142,105)	(\$5,040,633)	\$3,460,013
2015	\$4,652,307	(\$5,040,633)	(\$6,275,069)	\$3,417,872
2016	\$2,938,993	(\$6,275,069)	(\$5,843,806)	\$3,370,255
2017	\$2,257,373	(\$5,843,806)	(\$5,024,888)	\$3,076,292
2018	\$2,328,171	(\$5,024,888)	(\$4,106,105)	\$3,246,954

Year	Net Write Offs	Billed Revenues	% of Billings
2011	\$2,872,064	\$612,359,498	0.47%
2012	\$3,054,037	\$637,166,071	0.48%
2013	\$2,800,526	\$629,754,803	0.44%
2014	\$3,460,013	\$664,315,382	0.52%
2015	\$3,417,872	\$701,746,816	0.49%
2016	\$3,370,255	\$727,254,559	0.46%
2017	\$3,076,292	\$737,478,115	0.42%
2018	\$3,246,954	\$722,615,284	0.45%

Source: Information Response 243

Plant Accounting

Along with the Divisional Controllers, the Manager of Plant Accounting reports to the Assistant Controller as shown in *Exhibit XXV-6*. The Manager of Plant Accounting has been with AW since August 2018 continuing the longevity in his plant accounting career of 20 plus years outside AW. The Manager of Plant Accounting has six people in his department, and they are responsible for all plant accounting, depreciation and the AFUDC calculations and recording. The calculations are outputs of the Power Plant fixed asset system. Power Plant has been in use in the plant accounting area since 2007 and is upgraded periodically. In early 2019, there was an upgrade performed, but this upgrade did not affect any of the current operations in the Plant Accounting area.¹⁶⁷⁶

Plant accounting supports all the operational companies in the AW states including New Jersey. NJAW has a dedicated person in the plant area, who has been with the company 6 years, with 2 of those years specifically focused on NJAW.¹⁶⁷⁷ All work order processing and recording is done in the field and then



reviewed by plant accounting. Asset unitization and asset retirement are a part of the Plant Manager's responsibilities.¹⁶⁷⁸

Assistant Controller's Role

The Assistant Controller is responsible for the Divisional Controllers, Plant Accounting area, and External Reporting as shown in *Exhibit XXV-6*. External Reporting is responsible for accounting and reporting for the regulated and non-regulated companies, as well as all of AW's Securities Exchange Commission (SEC) reporting, including AW's reporting on Form 10-Qs and, 10-Ks. The Assistant Controller also is responsible for any debt financing reporting requirements which requires the public accountant's sign off quarterly. He works with Treasury to determine the timing for additional needed debt.¹⁶⁷⁹

The Assistant Controller has 31 SOx controls that are the responsibility of the Accounting group. These controls are reviewed monthly, quarterly, and semiannually depending upon the frequency of the performance of the control. The Assistant Controller submits a 302 for internal controls that he oversees.¹⁶⁸⁰

Policies and Practices

The accounting and reporting tasks are governed by AW internal policies and practices, listed in *Exhibit XXV-8*.¹⁶⁸¹ These policies and practices document the processes in the accounting area. The accounting processes culminate each month, quarter and year in the close process, finalizing the recording of a period's activities. The tasks and order of a monthly close process are shown in *Exhibit XXV-9*.¹⁶⁸²

Exhibit XXV-8
Listing of Accounting Policies and Practices
as of December 31, 2018

Title	Date of Policy	Next Review	Scheduled Review Overdue
Account Reconciliation	12/31/2016	12/31/2017	x
Accounting for Internal Use Software Costs	12/31/2016	12/31/2017	x
Accrual Practice	12/31/2016	12/31/2017	x
Allowance for Funds Used During Construction Practice	12/31/2016	12/31/2017	x
Capitalization Practice	12/31/2016	12/31/2017	x
Financial Reporting Policy	8/1/2012	12/31/2015	x
Financial Reporting Practice	8/1/2012	3/4/2016	x
General Accounting Policy	12/31/2018	blank	
Goodwill Impairment Accounting Practice	5/31/2007	blank	x
Indirect Overhead Capitalization Practice	12/31/2016	12/31/2017	x
Intangible Asset Accounting Policy	12/31/2016	12/31/2017	x
Inventory Count Practice	12/31/2016	12/31/2017	x
Journal Entry Practice	12/31/2016	12/31/2017	x
Non-utility Asset Depreciable Lives	12/31/2016	12/31/2017	x
Payroll Accrual Practice	9/1/2011	blank	x
Regulated Depreciation and Amortization Practice	12/31/2016	12/31/2017	x
Regulated Utility Allowance for Doubtful Accounts Practice	12/31/2016	12/31/2017	x
Regulatory Accounting Policy	12/31/2018	12/31/2020	
Regulatory Accounting Practice	12/1/2018	blank	
Revenue and Receivables Policy	12/31/2018	12/31/2021	
Spreadsheet Practice	10/3/2008	10/3/2011	x
Utility Plant and Capital Asset Accounting Policy	12/31/2016	12/31/2017	x
Time, Attendance and Paid Time Off Practice	7/1/2014	7/1/2017	x
Time, Attendance and Paid Time Off Policy	1/1/2015	7/1/2016	x

Source: Information Responses 41 and 44

Review of the policies and practices shows that most are overdue for a review and potential update, as shown above in *Exhibit XXV-8*. The policies and practices overall are on point, comprehensive and detailed. However, it is not clear that the specifics included in the policies and practices are current.

Monthly, Quarterly, and Annual Close Process

The close process, in the accounting area, is a critical process to review and evaluate the reporting of the financial activity that has occurred during the period to be sure that the that data is input appropriately, is reasonable, reflects the financial status of the company, and is in compliance with accounting rules and regulations. The close process occurs at the end of every month, quarter, and year. As the close process finalizes, financial statements are compiled and reviewed, for either the month, quarter, or yearend timelines. The tasks to conduct a company close are very specific and at AW the monthly close is completed by the ninth day of the month after all close and results analysis tasks are complete. A high-level listing of the close tasks is shown in *Exhibit XXV-9*.¹⁶⁸³



**Exhibit XXV-9
Monthly Close Schedule
2018**

DAY #1 OF CLOSE
Journal Entry Review and Posting
Subsystems closed and balances transferred to GL as of the last WD of the prior month
Power Plant Settlements/Processing
DAY #2 OF CLOSE
Preapre ASC450 Contingency File
Journal Entry Review and Posting
Power Plant Settlements/Processing
DAY #3 OF CLOSE
Run Service Co Bill
ASC450 Contingency File Finance Review
Journal Entry Review and Posting
Power Plant Settlements/Processing
DAY #4 OF CLOSE
B/S Review Meeting
Pre-Tax Close Complete
Journal Entry Review and Posting
P&L Reviews
Power Plant Settlements/Processing
DAY #5 OF CLOSE
Tax Close Complete
DAY #6 OF CLOSE
Post-Tax Earnings to Senior Management
Prelim P&L Flux to ExRpt
Prelim SDs & Rollfrwds to ExRpt (Quarterly)
Tax Review Complete
DAY #8 OF CLOSE
Final SDs & Rollfrwds to ExRpt (Quarterly)
Final P&L Flux to ExRpt
DAY #9 OF CLOSE
BS Flux to ExRpt

Source: Information Response 351

Not shown on the close calendar in *Exhibit XXV-9* are various meetings that occur during the close process. Just before or just as the month ends, there is a month end, pre-close meeting to discuss the upcoming close. During the days of close, there is a meeting every afternoon for 30 minutes. During days 1 through 3, all Divisional Controllers attend a meeting with the Divisional CFO and Corporate Controller attending as they are able. As the close process continues, attendance is determined by the month's activities and events. The Assistant Controller's team performs a balance sheet fluctuation review on day 4 before the tax close, looking for significant items, \$1 million and 10% in variances. An income statement fluctuation review is performed concurrently by BIRs at this time, as well. Another meeting is held on day 4 for 90 minutes discussing the balance sheet fluctuation review noted above for all AW companies. The fourth day of close is the pretax close, where the records are as complete as they can be at this time in preparation for the calculation of the tax accrual for the month that is closing. After the tax accrual is recorded and financial records closed on day 5, the accounting records and resulting financial statements are ready for final review on day 6. Day 6 is also the day that earnings are released to senior management and preliminary financial statements reviewed by External Reporting on a quarterly basis. Some adjustments may occur to the financials due to this last review, but it is rare. If adjustments are made, those

are posted on Day 7. The income statement is deemed final on Day 8. On days 8 and 9, the CFO and Controllers attend a call and discuss the close and accounting for the preliminary closed month. The balance sheet review follows and is finalized on day 9 or 10 of the month.¹⁶⁸⁴

Throughout the process, the Divisional CFO reviews the data using budget to actual analysis with +/- 5% and \$10,000. She also relies on her experience to target fluctuations that require additional follow up.¹⁶⁸⁵

As the month end numbers are finalized, there are a few unscheduled meetings to address remaining questions.¹⁶⁸⁶ These can take the form of calls with the Divisional CFOs, Divisional Controllers and the Assistant Controller.¹⁶⁸⁷

Quarter End Close Process

The quarterly close process incorporates the month-end close procedures and adds on a pre-close call led by, the Controller. Many people are included on the call, including Senior Director of Finance, CFO, and Divisional CFOs. Additional procedures for the quarter close include a review of potential contingencies, items requiring management's judgements and of the estimate for the TCJA (Tax Cuts and Job Act) regulatory liability. The VP Controller coordinates with the external auditors, PWC, for their quarterly review engagement. The Divisional CFO updates the Senior VP of the Eastern Division during this process. The quarterly close has the same seven-day target date as used in month end close.

¹⁶⁸⁸

Also incorporated into the quarter close process is a Business Performance Review meeting of the Executive Leadership Team, referred to as the ELT. The ELT includes the CEO, CFO, COO, CIO/CTO, EVP General Counsel, SVP Human Resources, and SVP External Affairs. The focus of the team is getting a sense of where quarter results will land and the meaning of the results. Also, discussed during the ELT meeting are topics such as safety, financial results, cost and financials metrics, and growth.¹⁶⁸⁹

The quarter work concludes with the NJAW senior management team presenting the quarter results to the NJAW Board of Directors.¹⁶⁹⁰

Year End Close Process

The year-end close has the same steps as the quarter close but adds an additional board meeting in late December or January to approve the strategic and budget plan for the upcoming year.¹⁶⁹¹

With the AW Board of Directors approval of the consolidated budget in December, the NJAW Board then approves its budget in January. The NJAW Board has not historically made changes to plans approved at the AW Board of Directors level and approval seems to be more about communication and having NJAW adopt the plan officially. For this coming year, the AW Board of Directors' met to approve the AW 2020 consolidated annual budget on December 6, 2019.¹⁶⁹²



Also, as a part of the year end procedures the Representation Letter and Subsequent Events Letter are signed, usually in March, near the end of the month. At this same time, March, the Annual Report for the BPU is compiled and finalized.¹⁶⁹³

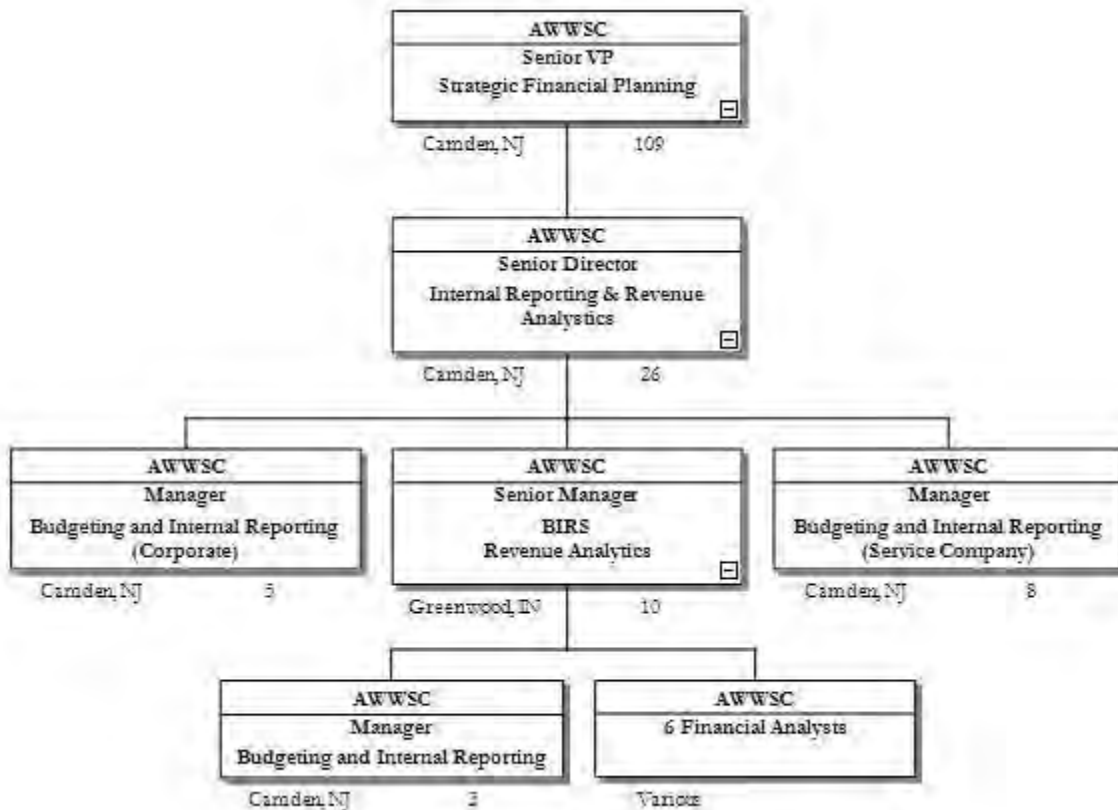
Budget Process

The budget process begins with the preparation of the budget calendar prepared by BIRs, the Budget, Internal Reporting and Revenue Analytics organization.¹⁶⁹⁴

Budget, Internal Reporting and Revenue Analytics Organization

Budget, Internal Reporting and Revenue Analytics (BIRs) department is led by a Senior Director and his three direct reports, a Senior Manager and two managers, as shown in *Exhibit XXV-10*. The Senior Manager focuses his efforts on revenue analytics and the two managers focus on budgeting and internal reporting. One manager focuses on the AW Corporate organization and the other focuses on AWWSC. The Senior Director reports to SVP Strategic Financial Planning as shown in *Exhibit XXV-10*.¹⁶⁹⁵

**Exhibit XXV-10
BIRs Organization
as of May 2019**



Source: Interview 5 and Information Response 52

Budget Process

The budget process for NJAW starts with the AW strategic goals, developed by the ELT, and communicated to the Senior Vice Presidents – in the case of NJAW, the SVP of the Eastern Division. The Divisional SVP is responsible for communicating those goals with her team and the message is disseminated through those involved with the budgeting process, while the Divisional CFO leads the NJAW initiative. The Divisional CFO is the liaison with budget owners. The budget owners are those that create budgets for their departments. The initial budget work is completed in the March to July time frame, accumulated and uploaded to Hyperion by early July. At this time, both Years 1, and the outer years, Years 2 to 5 are uploaded in to Hyperion. In August, a budget presentation is made, which includes a discussion of Years 1 through 5, to the Executive Leadership Team (ELT), in what is described as a very interactive session.¹⁶⁹⁶

With the detailed current year budget and years 2 through 5 of the budgets complete, the Divisional CFO presents the NJAW budget to the SVP of the Eastern Division and then the AW Board of Directors and then the NJAW Board of Directors, at the conclusion of the process.¹⁶⁹⁷

Integral to the process is the budget calendar with milestones and assigned duties. With the budget calendar, NJAW engages in a detailed “bottoms up” budgeting process with the majority of April through July spent developing the next year’s budget, including the outer years of Years 2 to 5. The budget is developed by NJAW and the AWWSC finance teams with input from key functional areas. The functional leaders will identify resources required to operate their area of responsibility. Examples of these are labor estimates, such as headcount, overtime, and capitalization rate, and maintenance estimates, production cost estimates, and other O&M estimates. The NJAW finance team reviews these inputs, conducts analyses, and review the analysis with functional teams and with leadership, such as the Divisional SVP.¹⁶⁹⁸

The capital budget process occurs concurrently with the O&M budget and begins with management, technical, and operating functions discussing system needs and identifying potential solutions. Corporate Planning Studies (CPS) and a Planning (High Risk Asset Management) Risk Register are reviewed as part of the process to identify needs to be addressed and prioritized. The Project Prioritization Model is used in this process. This model was developed by AWK Engineering to assist management in sorting out complex and competing goals associated with the development of a capital plan. The resulting prioritization ranking helps management schedule capital projects as a part of an overall strategic planning process and formulates a five-year Capital Plan. The goal of the five-year Capital Plan is to address known system needs while minimizing system risks. This five-year plan is submitted to American Water corporate management to be included with the other AW subsidiaries and combined to create the American Water five-year Capital Plan.¹⁶⁹⁹

With the Capital and O&M components of the budget finalized, the NJAW budget is then finalized in total and then by area, by month. A consolidated AW budget is finalized and presented to the AWK Board of Directors in December and the following month, the NJAW budget is presented to the NJAW Board, as mentioned above.¹⁷⁰⁰



Shown in *Exhibit XXV-11* are excerpted calendar dates and deadlines used during the budget process. The entire calendar is very detailed with dates for loading data into systems and draft due dates for review throughout the process. The excerpts in *Exhibit XXV-11* have been chosen to show the flow of the process and give an example of the inputs and results of the process.¹⁷⁰¹

Exhibit XXV-11
Budget Calendar Excerpts
Example from the 2018 Budget Year

Date	Task

Source: IR Response 357

After the consolidated budget is finalized with the presentation to the AWK Board of Directors in December and the NJAW Board in January, the budget is uploaded to Hyperion/SAP in January for the year.¹⁷⁰²

Property Records

Asset details and values are maintained in the Continuing Property Records (CPR) system maintained and reconciled to the General Ledger by Accounting.¹⁷⁰³ Work order processing and recording is performed in the field. Unitization or retirements is performed by the Plant Accounting Manager.¹⁷⁰⁴

Capital Planning and Review

As a part of the annual budgeting process, described above, NJAW performs a detailed capital decision making process that includes personnel from management, technical, and operating functions. This process and these people develop a five-year capital plan. With the approval of the current year plan, the NJAW Capital Investment Management (CIM) Committee approves individual projects that fit within the plan. Those projects are initiated using the work order process and constructed. Projects are reviewed monthly to confirm the projects stay within the approved amount.¹⁷⁰⁵

Work Order Process

Before constructed assets are finalized, unitized, and then maintained in the CPR system, their costs are accumulated by project and work order and maintained in the Construction Work in Process portion of the general ledger. The work order process begins with project initiation and work initiated through the company's SAP Project Management (PM) system. Field Personnel and local operations coordinate the work and information about the work using the SAP PM system by inputting ongoing work data as it is performed. The work order is originally created in the SAP PM system and details include:¹⁷⁰⁶

- ◆ Job scope including location
- ◆ Number of resources required
- ◆ Duration of job
- ◆ Task list
- ◆ Materials

Upon finalization of the work order, it is released and sent to a field system (called "ClickSchedule") and the work is scheduled and assigned.¹⁷⁰⁷

The Plant Manager performs internal review of projects on an ongoing basis. He chooses projects randomly with an emphasis on higher dollar projects. He will review the workorder activity and confirms accuracy and appropriateness of the project.¹⁷⁰⁸



B. Findings & Conclusions

Payroll

Finding XXV-1 There are four to five payrolls to process each month.

There are approximately four to five payroll runs each month. One AW company has a pay per week agreement driving that number. However, most payrolls at AW are biweekly.¹⁷⁰⁹ We realize the difficulty in changing payroll schedules. The difficulties encompass employee needs and expectations not being met and pay schedules possibly being integral to contracts. However, the amount of time and work saved by reducing a payroll from 52 weekly to 26 biweekly payrolls is significant.

Accounting

Finding XXV-2 Most policies and practices are overdue for review and update.

As shown in *Exhibit XXV-8*, of the 24 policies and practices reviewed, four are dated currently and 20 are overdue for their review. The oldest of these is one dated 2011, followed by two others dated 2015.

According to NJAW since the end of fieldwork several policies from the list in *Exhibit XXV-8* have been updated. These are:

- ◆ General Accounting Policy
 - ◆ Revenue and Receivables Policy
 - ◆ Utility Plant and Capital Asset Accounting
 - ◆ Account Reconciliation Practice
 - ◆ Journal Entry Practice
-

Budget Process

Finding XXV-3 The budget process is not documented appropriately.

The budget process was described in interviews in great detail and is driven by a calendar. The process is well known and described in detail by the Divisional CFO, but it has not been formed into a practice or policy document.¹⁷¹⁰

This is similar to the recommendation made in the previous management audit, *Recommendation XII-1*, Document the process for developing the five-year business plan.

Finding XXV-4 There is not a documented link between the Strategic Plan and the Budget Process.

Without budget process documentation, there is also lacking a clear link from the strategic plan to the budget process. Ideally, the strategic plan should drive the budget process at AW and NJAW. The process is driven by the budget calendar and is cost driven beginning with an update of the previous year budget adjusted for known upcoming events in all AW organizations. Comments occur after an initial budget is prepared and submitted and adjustments made before final submission. From various descriptions it appears that the strategic plan is shared through the company during the budget process.¹⁷¹¹ However, it is clear that the budget reviewers line up with the strategic plan with the budget as the budget is finalized and the final budget is in line with AW goals.¹⁷¹² However, there is not a documented process describing when the strategic plan is discussed with managers and how that information is used in creating budgets for their areas. For information regarding the Strategic Plan and process, see *Chapter XVII-Strategic Planning*.



C. Recommendations

Payroll

Recommendation XXV-1 Review the possibility of reducing payroll run frequencies to lessen the amount of work in the payroll area. (Refer to Finding XXV-1.)

Based on various agreements and current employee expectations, it may not be possible to reduce the number of payrolls, but an analysis should be performed comparing cost of reducing payroll frequencies to the benefits. With the results of this analysis, a plan of action can be determined.

Accounting

Recommendation XXV-2 Review and update all Policy and Practice documents that have past their review date. (Refer to Finding XXV-2.)

Policies and practices are the documents that govern activities and keep the tasks and review process current. As they move past the designated review date, they need to be reviewed to determine that they are still applicable or if slight changes need to be made to reflect needed current tasks and review processes. Current P&P keep processes consistent and in line with designated company policy.

Budget Process

Recommendation XXV-3 Create a Policy and Practice document for the budget process. (Refer to Finding XXV-3.)

Creating a formal policy allows the process as it exists to be reviewed and approved from an overview perspective and allows for input and agreement from various people and organizations across the company. A documented process also ensures consistency of the process across the company as personnel changes.

Recommendation XXV-4 Create a visible link between the strategic plan and the budget. (Refer to Finding XXV-4.)

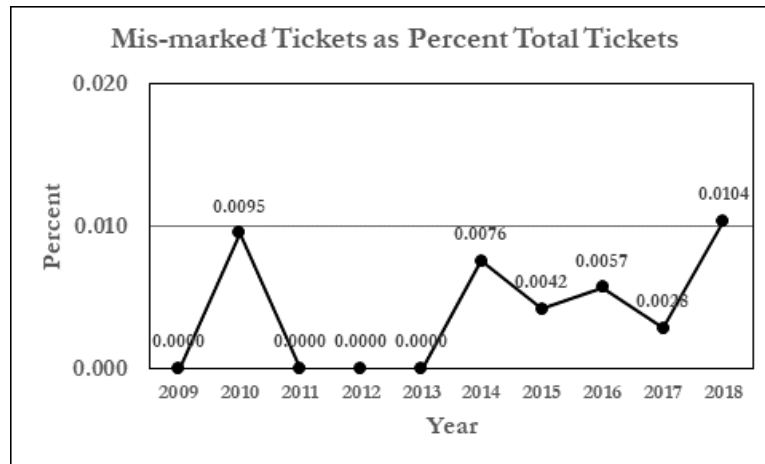
As a part of the documentation of the budget process, there should also be documented a visible link between the strategy developed for AW and the dissemination of those goals and ideas through the company, especially during the budget process. The budget should be a direct result of company goals as determined through the strategy process and reflected in the documented process as such.

XXVI. Company Contractor Performance

A. Background & Perspective

NJAW uses a contractor to mark the location of its underground assets when notified from the New Jersey One Call process. The company monitors the effectiveness of its Mark Out contractors by measuring the number of hits or underground utility strikes that occurred where NJAW’s underground facilities were mismarked as shown in *Exhibit XXVI-1*. The total percent of mismarks from 2009-2018 was 0.0045% (88 out of 1,959,767). Yearly percentages for the period ranged from 0.0000% in 2009, 2011, 2012, and 2013 to 0.0104% in 2018.¹⁷¹³

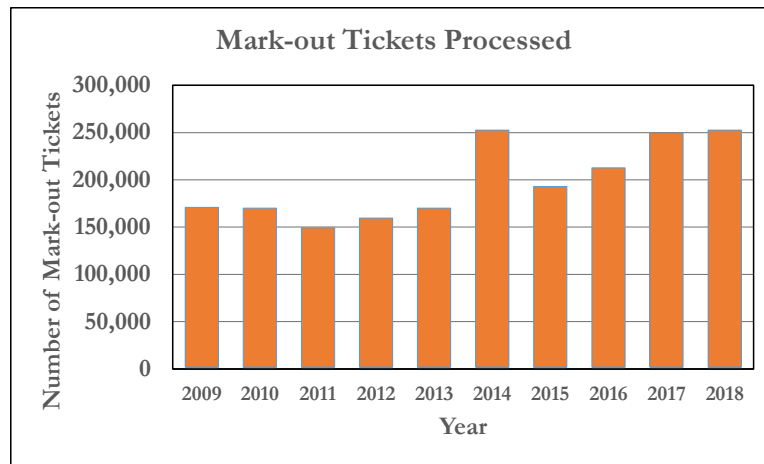
Exhibit XXVI-1
Mismarked One Call Tickets as Percent Total Tickets
2009 to 2018



Source: Information Response 368

Exhibit XXVI-2 indicates that the volume of New Jersey One Call tickets processed by NJAW’s contractor has increase 48.4% from 2009 (168,633) to 2018 (250,530).¹⁷¹⁴

**Exhibit XXVI-2
New Jersey One Call Tickets Processed
2009 - 2018**



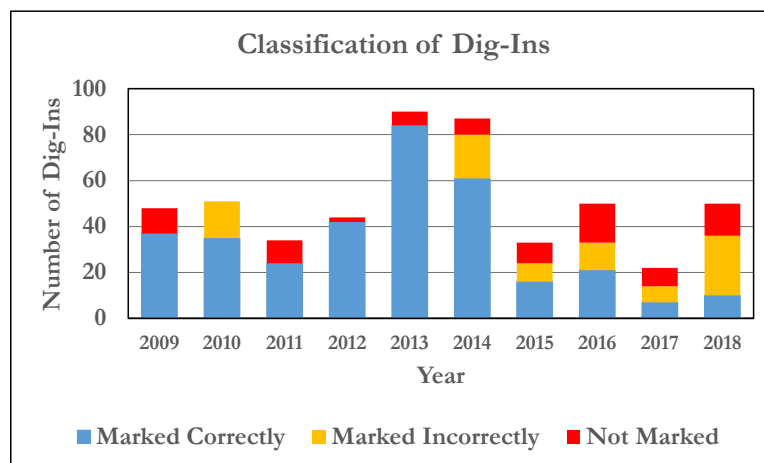
Source: Information Response 368

NJAW experienced 509 hits of its underground assets between 2009 and 2018:¹⁷¹⁵

- ◆ 337 (66.2 %) of the hits occurred even though NJAW’s facilities were correctly marked.
- ◆ 88 (17.3%) of the hits occurred because the locating contractor incorrectly marked NJAW facilities.
- ◆ 84 (16.5%) of the hits occurred for locations that were unmarked.

Exhibit XXVI-3 presents the 2009-2018 total data by year.¹⁷¹⁶

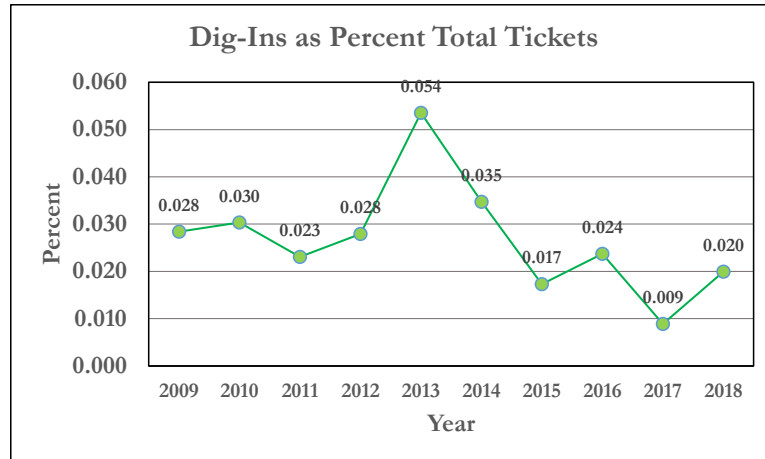
**Exhibit XXVI-3
Classification of Hits
2009 - 2018**



Source: Information Response 368

Yearly hits as a percent of yearly total One Call tickets is given in *Exhibit XXVI-4*. The 2009-2018 average was 0.027%. The highest percent occurred in 2013 at 0.054% and the lowest occurred in 2017 at 0.009%.¹⁷¹⁷

Exhibit XXVI-4
Hits as Percent of Total One Call Tickets
 2009 - 2018



Source: Information Response 368

NJAW Field Operations employees are in contact with the contract Mark Out employees daily. The company monitor performance of the contractor by the number of miss-marked hits experienced which has been 1 hit per 22,270 (1,959,762 divided by 88) locates over the 2009-2018.¹⁷¹⁸

In addition to the Mark Out contractors, NJAW contracts with numerous third party vendors for construction and related services as shown in *Exhibit XXVI-5*.¹⁷¹⁹

Exhibit XXVI-5
Contractor Management Process
July, 2019

New Jersey American Water contracts for a wide variety of services and sources these services from third party vendors based on their technical competency, quality, workmanship, safety record and overall value to New Jersey American Water. In most cases and depending on the type of work being performed, contractors are put through a thorough screening process and are vetted to ensure they meet or exceed New Jersey American Water standards. This process includes but is not limited to commercial, technical and safety qualification and reviews.

In most cases, before work begins, a contract is initiated. The contract will include all required commercial and legal terms and conditions, scope of work, pricing and safety requirements. Subject matter experts in Supply Chain, Legal, Safety, Engineering and Operations are consulted and provide input into the contracts. In some cases, Master Service Agreements (MSA) are used for contractors that perform work for New Jersey American Water on a continuous basis.

The contract owner, typically a designee from either Operations or Engineering, is responsible for the day-to-day management of the contractor. Company Inspectors, Foreman, and Supervisors observe the work to ensure the work is completed pursuant to the contract requirements, specifications, quality standards, and laws and regulations are followed. The contract owner is responsible for reviewing and approving invoices for payment for work completed.

Source: Information Response 89

Exhibit XXVI-6 presents an overview of NJAW's extensive process it uses to evaluate the qualifications and ability of potential vendors to perform the work covered by the contract. *Exhibit XXVI-7* shows American Water Corporate web site informing potential vendors how to qualify to become a NJAW contractor.¹⁷²⁰

Exhibit XXVI-6
Vendor Evaluation Process
July, 2019

New Jersey American Water does not certify vendors. At the time a new vendor is on-boarded, the new vendor is required to provide the following documentation:

- Completed W-9
- Certification of Insurance (if required)
- All required company and contact information
- Supplier Diversity information

Once this information is received, the American Water Supply Chain Support Team will do the following:

- Run a D&B check on the vendor to determine financial strength and risks
- Run the vendor through various Diversity databases to check/confirm diversity status
- Confirm IRS TIN matches

Contractors, however, are required to complete a prequalification procedure and depending on the type of work being performed, may be required to join Avetta. Avetta is an outside company American Water contracts to monitor and audit contractor safety and insurance requirements.

Once this process is completed, the vendor is added to the vendor master in the business system. Please see the list of attachments that are required to complete the qualifications required by American Water at the following website:
<https://amwater.com/corp/partners-suppliers/suppliers>

Source: Information Response 275

Exhibit XXVI-7
American Water Suppliers Web Page
September, 2019

SUPPLIERS

We realize that to successfully fulfill our mission of providing safe and reliable water services to our customers and communities, the relationships we forge with our suppliers are key.

We partner with suppliers with specific goals in mind that help us to accomplish extraordinary things, such as:

- Enabling Innovation
- Reducing Costs
- Promoting Sustainability
- Supporting Diversity

We welcome a variety of suppliers and strive to maintain a diverse list of companies who work with us. To do this, we've implemented a Supplier Diversity Program to better offer smaller organizations and those run by women and minorities, the opportunity to supply us with essential products and services.

If you'd like to explore opportunities for providing products or services, please read the information in the Becoming a Supplier section below. You'll also find the information needed to register with us. Once registered, your information will be forwarded to the appropriate Supply Chain strategic buyer. If we are able to use the products or services you provide, a buyer will contact you to discuss the possibility of our companies working together.

Becoming a Supplier

[Purchase Order Terms & Conditions](#)

[Invoicing Requirements](#)

[What American Water Buys](#)

[Code of Ethics](#)

[Supplier Diversity at American Water](#)

We seek to include diverse suppliers in each of our strategic sourcing projects and welcome minority-owned, woman-owned and disabled veteran-owned businesses (MBE/WBE/DVBE) to contact us at supplierdiversity@amwater.com or fill out our online form below.

Source: <https://amwater.com/corp/partners-suppliers/suppliers>



NJAW uses an Outside Auditor to conduct audits of its vendors for contract compliance. *Exhibit XXVI-8* provides the steps the Auditor and Company Representative use to plan the audit. The Fieldwork tasks performed the outside auditor are shown in *Exhibit XXVI-9*. The audit is completed using the action items shown in *Exhibit XXVI-10*.¹⁷²¹

**Exhibit XXVI-8
Vendor Audit Planning
June, 2019**

Planning – Client Relationship Manager (Planner) and Lead Auditor

Staff	Activity
Planner/Lead	
Planner	
Planner	
Planner/Lead	
Planner	
Planner	
Planner	
Planner	
Planner/Lead	

Source: Information Response 593

**Exhibit XXVI-9
Vendor Audit Fieldwork
June, 2019**

Fieldwork – Lead Auditor, Auditor(s), Client Relationship Manager

Staff	Activity
Lead/Staff	
Lead/Staff	
Lead/Staff	
Staff	
Lead/Staff	
Lead/Staff	
Lead/Staff	
Staff	
Staff	
Lead	
Lead	
Planner	
Lead	

Source: Information Response 593

**Exhibit XXVI-10
Vendor Audit Completion
June, 2019**

Completion – Lead Auditor, Client Relationship Manager (Planner)

Staff	Activity
Lead	
Lead/Planner	
Lead/Planner	
Lead/Planner	
Lead	

Source: Information Response 593

B. Findings & Conclusions

Finding XXVI-1 The One Call Mark Out Process is effective.

Exhibit XXVI-1 through *Exhibit XXVI-4* demonstrate the effectiveness of the One Call Location methodology.

Finding XXVI-2 Contractor and vendor qualification is very comprehensive.

An overview of the vendor qualification process is given in *Exhibit XXVI-5* - *Exhibit XXVI-7*.

Finding XXVI-3 The Company's Outside Auditor that performs vendor contract audits uses a thoroughly documented methodology.

The Outside Auditors Planning, Fieldwork, and Completion steps are summarized in *Exhibit XXVI-8* through *Exhibit XXVI-10*.

C. Recommendations

None



XXVII. Cyber Risk Mitigation/Cyber Security (CRM/CS)

Schumaker & Company evaluated New Jersey American Water Company, Inc.'s (NJAW's) Cyber Risk Mitigation plan and adherence to New Jersey Board of Public Utilities (NJBP or Board) ordered Cyber Security Program Requirements. The scope of this review consisted of an examination of:

- ◆ Governance – the structure for identifying and responding to cyber threats
- ◆ Overall approaches
- ◆ Risk Assessment – the approaches, processes, methods, and controls applicable to identifying cyber risks and addressing them from preventive and responsive perspectives
- ◆ Promoting broad awareness of the importance and severity of risks and of the exposures creating those risks
- ◆ Ensuring the recruitment and training of resources dedicating significant time to cyber risk identification, mitigation, and response
- ◆ Ensuring that third-party contractors, vendors, and consultants adopt and enforce sufficient measures
- ◆ Cooperation with New Jersey agencies and groups responsible for government actions and clearinghouses for addressing cyber risks, experiences, and mitigation and response methods
- ◆ Status of actions and plans for addressing BPU cyber order
- ◆ Findings of NJAW and American Water cyber preparedness and response audits or examinations

A. Background & Perspective

The New Jersey Board of Public Utilities (“Board”) initiated a matter in order to establish requirements to mitigate cyber risks to critical systems of electric, natural gas, and water/wastewater utilities (“Utilities”) as shown in Docket No AO16030196 in the following paragraphs.

Utilities’ computerized systems are increasingly susceptible to cybersecurity attacks, including data breaches, corporate theft, and sabotage perpetrated by actors throughout the world. Due to the critical nature of the Utilities’ services, the Board recognized that action is necessary to mitigate cyber security risks to Utilities’ computerized systems. In addition, to the extent information is shared and provided by the Utilities; the Board recognized that such information is confidential and sensitive and requires appropriate confidentiality protections.

The New Jersey Domestic Security Preparedness Act was enacted after the events of September 11, 2001 to establish a domestic security preparedness planning group and task force to enhance and integrate security and preparedness measures throughout the State. N.J.S.A. App. A:9-68. “No record held, maintained or kept on file by the [New Jersey Domestic Security Preparedness Task Force (“Task Force”)]



or planning group shall be deemed to be a public record under the provisions of [the Open Public Records Act, N.J.S.A.1 or the common law concerning the access to public records.” N.J.S.A. App. A-9-74a.¹⁷²²

In the wake of the September 11 attacks, it became evident that Utilities could be prime targets for additional attacks. The State of New Jersey has found it necessary to develop standard utility industry security practices. In 2004, the Board ordered all utilities to implement the Best Practices and Recommended Response Protocols to the Homeland Security Advisory Systems (“Security Documents”) developed by the Task Force, which superseded the preliminary utility security protocols and best practices initially implemented by the Board on December 11, 2001. See 1/M/0 Revised Security Best Practices For All Public Utilities and Cable Television Companies, BPU Okt. No. A004070733, Order dated August 20, 2004. Pursuant to N.J.S.A. 48:2-36.1, the Board “may by order in writing require any public utility to submit to the Board any data, material and relevant to any inquiry, investigation, or proceeding.” Pursuant to N.J.A.C. 14:3-6.7, utilities are required to report various suspicious activities, including (a)(2) “forced entry to any utility facility, or entry achieved by deception;” and (a)(5) “intentional damage to any utility facility or equipment.” In 2011, the Board directed public utilities to report to Reliability and Security Staff regarding operation and use of their Industrial Control Systems (“ICS”). See 1/M/0 Cyber Incident Reporting for Utility Industrial Control Systems, BPU Dkt. No. E011 090575, Order dated October 23, 2011. The Board directed utilities under its jurisdiction to identify whether they use ICS, including Supervisory Control and Data Acquisition (“SCADA”), to monitor and/or remotely control utility facilities. It further directed those utilities who responded affirmatively to report cyber incidents involving those systems directly to the Director of Reliability and Security and Reliability and Security Staff designated by the Director of Reliability and Security (“Reliability and Security Division Staff”) and to NJOHSP. In 2013, President Barack Obama identified cyber threats to critical infrastructure as one the most serious security challenges facing our nation. See Executive Order No. 13636, February 19, 2013. To demonstrate his point, the President cited repeated attempts to sabotage the power grid and similar infrastructure by a host of enemies from hackers to nation states. He suggested that more needed to be done. (2013 State of the Union Address). In 2015, pursuant to Executive Order No. 178 (Christie), the Governor established the New Jersey Cyber Security and Communications Integration Cell (“NJCCIC”) under NJOHSP to coordinate cybersecurity information sharing and analysis between and among the government and private sectors. Specifically, NJCCIC was created to “receive relevant cybersecurity threat information form appropriate sources, including public utilities and private industry.

The U.S. Department of Homeland Security reported that attacks against utilities’ digital infrastructure doubled in 2014. Moreover, a cyber-attack on the power distribution system in Ukraine in late 2015 underscored the risk for utilities in the U.S. The attack, triggered by unauthorized access to industrial control systems, caused regional disruptions to more than 225,000 people. See Alert (IR-ALERT-H-16-056-01), U.S. ICS-CERT, February 25, 2016. 2 BPUApp. A:9-74a. Pursuant to Executive Order No. 5 (Corzine), the Task Force is now part of the New Jersey Office of Homeland Security and Preparedness (“NJOHSP”).

B. Findings & Conclusions

Due to the sensitivity of some of the information reviewed, only a brief high level discussion of NJAW cybersecurity is presented.

Finding XXVII-1 NJAW has developed good documentation describing their overall cybersecurity program.

Schumaker & Company consultants reviewed all of the cybersecurity documentation (on-site due to the confidential nature). Generally, the process control computers (technologies which are used to run various water and waste water plants and the distribution and collections systems) are located in a separate physical network from the administrative network computers (business computers). Firewalls separate these network from each other and also provide separation from the Internet. Web facing resources are appropriately contained in the DMZ or demilitarized zone network. Generally Internet facing computers are located within a DMZ (a third network which is configured to allow access from the Internet if certain conditions are met). In some cases, only these computers are allowed to access computers within the administrative network. In short, access from the Internet is controlled via multiple firewalls.¹⁷²³ This configuration is documented in written documentation.

Finding XXVII-2 NJAW requires two factor authentication for access to their network and its resources.

Any access to the NJAW network requires two factor authentication. The use of a username and password is single factor authentication. Two factor authentication requires another of authentication in addition to just a username and password. The second form of authentication could be one of several such as a fingerprint reader, a certificate on the computer, a separate code with is sent to a user's dongle or cell phone, etc. They have even implemented two factor authentication for Microsoft Office and for all Virtual Private Network (VPN) access to their internal network.¹⁷²⁴

Finding XXVII-3 Outside access to NJAW resources is limited to certain personnel and again requires two factor authentication.

However, this access may need to be expanded due to the COVID-19 virus currently underway in the USA.

Finding XXVII-4 NJAW uses the active directory organizational groups and security groups within Microsoft Active Directory to control access to network resources.

Although cybersecurity is primarily associated with network and computer penetration via the Internet, just as important is protection from internal access from within the organization. The primary tool used to control internal access by unauthorized personnel is Microsoft Active Directory. Active Directory is a security database which controls access to various resources (computers servers, printers, and other items) on a Microsoft network. Network Administrators essential assign rights to various groups of



personnel and individuals users are placed in these groups to obtain rights to various resources on the network. In essence it is a software systems which not only grants users with rights but also limits the ability of what users can do with these rights – such as being limited to viewing but not changing a resource. Schumaker & Company consultants performed a high level review of the implementation of this system.¹⁷²⁵

Finding XXVII-5 All network users login into the network using a Cisco appliance which is integrated with Microsoft Active Directory.

In addition to the use of Active Directory, NJAW has also implemented a Cisco appliance for further controlling network access. In particular, this further helps support the two factor authentication process. This is particularly important on Virtual Private Network (VPN) access to the NJAW network. This permits NJAW to better control external access to the NJAW network.¹⁷²⁶

Finding XXVII-6 Table top exercises have been conducted to further reinforce NJAW responsiveness to unusual threats.

NJAW has conducted some table top exercises to further evaluate its cybersecurity processes.¹⁷²⁷

Finding XXVII-7 NJAW has developed an Excel spreadsheet which identifies the specific requirements of the Utility Cyber Security Program Requirements identified in BPU Docket No. AO16030196.

Schumaker & Company consultants reviewed this spreadsheets during our investigations.¹⁷²⁸

Finding XXVII-8 Network backup is accomplished and detailed in written backup procedures which run automatically.

Since the computers are located at an IBM datacenter, IBM is responsible for performing adequate backup of these resources. However, NJAW should be monitoring these backups to ensure they are being correctly performed. Ransomware is an external threat which can be somewhat minimized by appropriate network backups. It would be incumbent on NJAW to periodically ensure that important information can be adequately recovered.¹⁷²⁹

Finding XXVII-9 NJAW has periodically performed penetration testing on its firewalls.

NJAW has had penetration testing performed on its network by third parties. In addition, NJAW has taken advantage of the penetration testing that the Department of Homeland Security (DHS) periodically preforms for utilities. Findings from these tests have been implemented into NJAW security policies and procedures.¹⁷³⁰

Finding XXVII-10 NJAW runs a program that periodically tests users conformance to adequate security conformance.

All NJAW personnel have been trained regarding basic computer security considerations. In addition, NJAW periodically populates users email boxes with messages which highlight security issues to see if any user “takes the bait.” Individuals that fail the exercise are identified for further security training.¹⁷³¹

C. Recommendations

Recommendation XXVII-1 Ensure that network backups are adequately being performed. (Refer to Finding XXVII-8.)

NJAW should periodically test IBM backup procedures to ensure that:

- ◆ An individual file can be recovered – This would involve secretly placing a test file at some locations on the network and after a period of time asking IBM to recover the file.
- ◆ Complete virtual machine recovery.



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- ¹ / Interview 77 and Information Response 3
 - ² / Information Response 9
 - ³ / Interview 40
 - ⁴ / Information Response 18, including Attachments 1-16
 - ⁵ / Information Response 18, including Attachments 1-16
 - ⁶ / Draft Report Comments
 - ⁷ / Other Schumaker & Company audits
 - ⁸ / Interview 3
 - ⁹ / Interview 36
 - ¹⁰ / Information Response 544 referring to Information Response 324
 - ¹¹ / Interview 78
 - ¹² / NJAW Draft Report Comments
 - ¹³ / Information Response 624
 - ¹⁴ / Interview 36
 - ¹⁵ / Interview 36
 - ¹⁶ / Information Response 545
 - ¹⁷ / Interview 78
 - ¹⁸ / Information Response 545
 - ¹⁹ / Interview 36
 - ²⁰ / Interview 78 and Information Response 529
 - ²¹ / Information Response 472
 - ²² / Information Response 352
 - ²³ / Information Response 20 Update
 - ²⁴ / Interviews 76 and 77
 - ²⁵ / Information Response 439 referring to Information Response 1 accounts
 - ²⁶ / Information Response 26
 - ²⁷ / Interview 76
 - ²⁸ / Interview 5
 - ²⁹ / Interview 5 and Information Response 19 and 468
 - ³⁰ / Interview 5
 - ³¹ / Interview 5
 - ³² / Interview 76 and Information Responses 20 and 29
 - ³³ / Interview 5 and Information Response 469
 - ³⁴ / Interview 5
 - ³⁵ / Information Response 469
 - ³⁶ / Interview 5
 - ³⁷ / Information Response 26 Attachment
 - ³⁸ / Information Response 28 Attachment
 - ³⁹ / Interview #42, #66 and #95
 - ⁴⁰ / Interview #42, #66 and #95
 - ⁴¹ / June and August 2020 client update
 - ⁴² / June and August 2020 client update
 - ⁴³ / Interview 2
 - ⁴⁴ / Information Response 41
 - ⁴⁵ / Interview 77

- 46 / Information Response 444 - 047
- 47 / Information Response 720
- 48 / Information Response 444 - 047
- 49 / Information Response 444-047
- 50 / Information Response 444-044
- 51 / Information Response 719
- 52 / Information Response 721
- 53 / Information Response 51 and Interviews 14 and 77
- 54 / Information Response 51 and Interviews 14 and 77
- 55 / Information Response 51 and Interviews 14, 77, and 694
- 56 / Information Response 584
- 57 / Information Response 87
- 58 / Information Response 87
- 59 / Information Response 88
- 60 / Information Response 480
- 61 / Information Responses 104 and 111
- 62 / Interview 64
- 63 / https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1173&context=mae_facpub
- 64 / https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1173&context=mae_facpub (Page 25)
- 65 / https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1173&context=mae_facpub (Page 4)
- 66 / Information Response 580
- 67 / AW Board minutes from the past three years, Board packets from the past year, Audit, Finance and Risk Committee minutes from the past three years and Audit, Finance and Risk Committee packets from the past year
- 68 / Information Response 155
- 69 / Information Response 394
- 70 / Information Response 172
- 71 / Information Response 173
- 72 / Information Response 175
- 73 / Interviews 11 and 13
- 74 / Draft Reviewer
- 75 / Information Response 221 and NJAW Draft Report Comments
- 76 / Interview 89
- 77 / Interviews 80/94
- 78 / Interview 93
- 79 / Information Response 217
- 80 / Information Response 224
- 81 / Information Response 224
- 82 / Information Response 224
- 83 / Information Response 116
- 84 / Information Response 116
- 85 / Information Response 123
- 86 / Information Response 115
- 87 / Information Response 122
- 88 / Information Response 122
- 89 / Information Response 117
- 90 / Information Response 117
- 91 / Information Response 117



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- 92 / Information Response 122
 - 93 / Interview 12
 - 94 / Interview 12 and Information Response 478
 - 95 / Interview 12
 - 96 / Information Response 1 Attachment 14
 - 97 / Interview 15
 - 98 / Information Response 403
 - 99 / NJAW Draft Report Comments
 - 100 / Information Response 404 and Attachment
 - 101 / Interview 15
 - 102 / Interview 15
 - 103 / NJAW Draft Report Comments
 - 104 / Information Responses 18/272, 297, and 324
 - 105 / Review of Information Response 698. 3 projects: Raritan Filters, Springfield PFAS, and Canal road.
 - 106 / Evaluation of Information Response 658
 - 107 / Interview 81
 - 108 / Information Response 621
 - 109 / Information Response 621
 - 110 / Information Response 311
 - 111 / Information Response 330 Attachment 1
 - 112 / Information Response 330 Attachment 1
 - 113 / Information Response 330 Attachment 2
 - 114 / Interview 79
 - 115 / Interview 15
 - 116 / Interview 79
 - 117 / Interview 6
 - 118 / Information Response 331
 - 119 / Interview 42 and Information Response 528
 - 120 / Interview 42 and Information Response 528
 - 121 / Interview #42, #66 and #95
 - 122 / June and August 2020 client update
 - 123 / June and August 2020 client update
 - 124 / Information Response 528
 - 125 / Information Response 430
 - 126 / Information Response 432
 - 127 / Information Response 429
 - 128 / Interview 70
 - 129 / Interviews 5, 14, 43, Information Response 357, 14, 95, & 99
 - 130 / Interviews 5, 14, 43, 68
 - 131 / Interviews 5, 14, 43, 68
 - 132 / Information Response 31
 - 133 / Information Response 129
 - 134 / Interviews 6 & 82
 - 135 / Interviews 6 & 82
 - 136 / Interviews 6 & 82
 - 137 / Interviews 6 & 82
 - 138 / Interviews 6 & 82

139 / Interviews 6 & 82
140 / Interviews 6 & 82
141 / Interviews 6 & 82
142 / Interviews 6 & 82
143 / Interview 14
144 / Information Response 1 and Associated Attachments for 2009 to 2018
145 / Information Response 1 and Associated Attachments for 2009 to 2018
146 / Information Response 1 and Associated Attachments for 2009 to 2018
147 / Information Response 1
148 / Information Responses 72 and 77
149 / Information Response 603
150 / Information Response 603
151 / Information Response 603
152 / Information Response 604
153 / Interview 44 and Draft Report Comments Update
154 / Information Response 568
155 / Interview 44
156 / interview 44
157 / Information Response 570
158 / Interview 44 and Draft Report Comments Update
159 / Interview 44
160 / Interview 44
161 / Interview 44
162 / Information Response 3 and Draft Report Comments Update
163 / Information Response 3
164 / Information Response 3
165 / Information Response 2 Update
166 / Information Response 2 Update
167 / Information Response 3
168 / Information Response 6
169 / Information Response 538
170 / Information Response 6
171 / Information Response 6
172 / Information Response 536 Attachments
173 / Information Response 5
174 / Interviews 76 and 77
175 / Information Response 4
176 / Information Response 5
177 / Information Response 7
178 / Information Response 7
179 / Information Response 7
180 / Information Response 7
181 / Information Responses 8 and 81
182 / Information Response 10
183 / Information Response 11 and Draft Report Comments Update
184 / Information Response 11
185 / Information Response 11



186 / Information Response 536 Attachment 1 (LT)
187 / Information Response 11
188 / Interview 77
189 / Information Response 536 Attachment 2 (ST)
190 / Information Response 340 referred to from 539
191 / Information Response 340 referred to from 539/Attachment 8
192 / Information Response 340 referred to from 539
193 / Interview 5
194 / Interviews 5 and 39
195 / Interviews 5 and 39
196 / Interview 5
197 / Interview 5
198 / Interview 5
199 / Interview 5 and Information Response 465 and Draft Report Comments Update
200 / Information Response 184 Attachment
201 / Information Response 1
202 / Information Response 1
203 / Information Response 12
204 / Interviews 76 and 77
205 / Interview 77
206 / Information Response 13
207 / Information Response 14
208 / Information Response 14 and Interview 76
209 / Information Response 14
210 / Interviews 5 and 14 and Information Response 464
211 / Interviews 5 and 14
212 / Interviews 5, 39, and 76 and Information Response 575
213 / Information Response 575
214 / Interview 76 and Information Response 575
215 / Interview 39
216 / Interview 39
217 / Interview 39
218 / Interview 76
219 / Interviews 39 and 76 and Information Response 574
220 / Information Response 574
221 / Interview 40
222 / Interview 40
223 / Interview 40
224 / Information Response 546 Update
225 / Interviews 39 and 40
226 / Interview 39
227 / Interview 40
228 / Interview 39
229 / Interview 39
230 / Interview 77 and Information Response 3
231 / Information Response 9
232 / Interview 40

233 / Information Response 52
234 / Information Response 52
235 / Interview 10
236 / Interview 10
237 / Interview 10
238 / Interview 10
239 / Interview 10
240 / Interview 10
241 / Interview 10
242 / Interview 10
243 / Interview 10 and Information Response 15
244 / Interview 10
245 / Information Response 470
246 / Interview 10
247 / Interview 10
248 / Interview 10
249 / Interview 10
250 / Interview 10 and Information Response 52
251 / Interview 10
252 / Interview 41
253 / Interview 41
254 / Interview 41
255 / Interview 41
256 / Information Response 534
257 / Information Response 607
258 / Information Response 15
259 / Information Response 15
260 / Information Response 16
261 / Information Response 16 and Interview 10
262 / Information Response 16
263 / Information Response 16
264 / Information Response 17
265 / Information Response 607
266 / Interview 75
267 / Interviews 3 and 36
268 / Interview 3
269 / Information Response 3 and 36
270 / Interview 3
271 / Interview 36
272 / Interview 3
273 / Interview 3
274 / Interview 3
275 / Interview 3
276 / Interview 3
277 / Interview 3
278 / Information Response 473 Attachment 1
279 / Interview 3



280 / Interview 3
281 / Interview 36
282 / Interview 36
283 / Interview 36
284 / Interview 36
285 / Interview 36
286 / Draft Report Comments
287 / Interview 36 and Draft Report Comments
288 / Interview 36
289 / Interview 36
290 / Interview 78 and Draft Report Comments
291 / Information Response 474
292 / Information Response 623
293 / Interview 78
294 / Interview 38
295 / Interview 38
296 / Interview 38
297 / Interview 38
298 / Interview 38
299 / Interview 38
300 / Interview 38
301 / Interviews 38 and 78 and Information Response 541
302 / Information Response 18 Attachment 1
303 / Information Response 18 Attachments
304 / Interview 78
305 / Interview 78
306 / Interview 78
307 / Interview 3
308 / Information Response 471, which refers to 201 Attachment
309 / Information Response 18 Attachment 2
310 / Information Response 18 Attachment 2
311 / Information Response 18 Attachment 2
312 / Information Response 18 Attachment 1
313 / Information Response 18 Attachment 1
314 / Information Response 18 Attachment 1
315 / Information Response 18 Attachment 3
316 / Information Response 18 Attachment 3
317 / Information Response 18 Attachment 3
318 / Information Response 18 Attachment 4
319 / Information Response 18 Attachment 5
320 / Information Response 18 Attachment 5
321 / Information Response 18 Attachment 5
322 / Information Response 18 Attachment 6
323 / Information Response 18 Attachment 6
324 / Information Response 18 Attachment 6
325 / Information Response 18 Attachment 7
326 / Information Response 18 Attachment 7

327 / Information Response 18 Attachment 7
328 / Information Response 18 Attachment 8
329 / Information Response 18 Attachment 8
330 / Information Response 18 Attachment 9
331 / Information Response 18 Attachment 10
332 / Information Response 18 Attachment 10
333 / Information Response 18 Attachment 10
334 / Information Response 18 Attachment 11
335 / Information Response 18 Attachment 11
336 / Information Response 324 Attachment
337 / Information Response 324 Attachment
338 / Information Response 324 Attachment
339 / Interview 36
340 / Information Response 18 Attachment 12
341 / Information Response 18 Attachment 12
342 / Information Response 18 Attachment 13
343 / Information Response 18 Attachment 13
344 / Information Response 18 Attachment 13
345 / Information Response 18 Attachment 13
346 / Information Response 18 Attachment 14
347 / Draft Report Comments
348 / Information Response 18 Attachment 14
349 / Information Response 18 Attachment 14
350 / Information Response 18 Attachment 15
351 / Draft Report Comments (Updated Practice)
352 / Draft Report Comments (Updated Practice)
353 / Draft Report Comments (Updated Practice)
354 / Interview 36
355 / Information Response 18 Attachment 16
356 / Information Response 18 Attachment 16
357 / Information Response 18 Attachment 16
358 / Information Response 472
359 / Information Response 472
360 / Interview 78 and Information Response 529
361 / Draft Report Comments
362 / Information Response 472
363 / Information Response 472
364 / Information Response 472
365 / Interview 78
366 / Information Response 352
367 / Information Response 352
368 / Interview Summary 3
369 / Information Response 19
370 / Information Response 20
371 / Information Response 20 Attachment 1
372 / Interviews 36 and 37
373 / Interview 37



374 / Interviews 36 and 37
375 / Interview 37
376 / Interview 37
377 / Interview 37
378 / Interview 37
379 / Interview 37
380 / Interview 37
381 / Interview 37
382 / Interview 37
383 / Interview 37
384 / Interview 37
385 / Interview 37
386 / Interview 37
387 / Interview 37
388 / Information Response 547
389 / Information Response 547
390 / Information Response 547
391 / Information Response 21
392 / Information Response 18, including Attachments 1-16
393 / Draft Report Comments
394 / Draft Report Comments
395 / Other Schumaker & Company audits
396 / Draft Report Comments
397 / Interview 3
398 / Interview 36
399 / Information Response 544 referring to Information Response 324
400 / Interview 78
401 / Draft Report Comments
402 / Information Response 18 Attachment 13
403 / Information Response 18 Attachment 16
404 / Information Response 624
405 / Interview 36
406 / Interview 36
407 / Information Response 545
408 / Interview 78
409 / Information Response 545
410 / Interview 36
411 / Interview 78 and Information Response 529
412 / Information Response 472
413 / Information Response 352
414 / Information Response 20 Update
415 / Information Response 545
416 / Interview 78 and Information Response 529
417 / Information Response 20 Attachment 1 Updated
418 / Information Response 23
419 / Information Response 23
420 / Information Response 20 Attachment 1 Updated and Information Response 22 Attachment 1

421 / Information Response 20 Attachment 1
422 / Information Response 20 Attachment 1
423 / Information Response 20 Attachment 1 Updated
424 / Interviews 2 and 44
425 / Information Response 22 Attachment 3
426 / Information Response 22 Attachments 1 and 2
427 / Information Response 24
428 / Information Response 24 Attachment 1
429 / Information Response 24 Attachment 2
430 / Information Response 24 Attachment 3
431 / Information Response 25
432 / Information Response 25
433 / Interviews 76 and 77
434 / Information Response 25
435 / Information Response 25
436 / Information Response 25
437 / Information Response 25
438 / Information Response 25
439 / Information Response 25
440 / Information Response 25
441 / Information Response 25
442 / Information Response 25
443 / Information Response 25
444 / Information Response 25
445 / Information Response 26
446 / Information Response 27
447 / Information Response 28
448 / Information Response 29 Referring to Information Response 20
449 / Information Response 29
450 / Information Response 30
451 / Information Response 30 plus Attachment 1
452 / Information Response 30
453 / Information Response 30
454 / Information Response 30
455 / Interview 76
456 / Information Response 30
457 / Information Response 20 Update
458 / Information Response 31
459 / Information Response 129
460 / Information Response 31 Attachment
461 / Interviews 76 and 77
462 / Information Response 439 referring to Information Response 1 accounts
463 / Information Response 26
464 / Interview 76
465 / Interview 5
466 / Interview 5 and Information Response 19 and 468
467 / Interview 5



468 / Interview 5
469 / Interview 76 and Information Responses 20 and 29
470 / Interview 5 and Information Response 469
471 / Interview 5
472 / Information Response 469
473 / Interview 5
474 / Information Response 26 Attachment
475 / Information Response 28 Attachment
476 / Information Response 23 and Interview 43 and 84
477 / Information Response 23 and Interview 84
478 / Interview 84
479 / Interview 84
480 / Interview 84
481 / Interview 84 and <https://symmetrycorp.com/blog/sap-grc-access-process-control/>
482 / Interview 84
483 / Interview 84
484 / Information Response 30-001
485 / Information Response 30-001
486 / Interviews 10, 45, 67, 68, 69, 70, 71, 72, 73, and 74
487 / Interview 71 and Information Response 30
488 / Interview 69 and Information Response 30
489 / Interview 69 and Information Response 30
490 / Interview 74 and Information Response 30
491 / Interview 10 and Information Response 30
492 / Information Response 337
493 / Information Response 337
494 / Information Response 337
495 / Information Response 337
496 / Interviews 42, 66 and 84
497 / Information Response 31, 556 and 711
498 / Information Response 31 and Interviews 9,14, 98, 99, and 100
499 / Interviews 42, 66 and 95
500 / Interview 95
501 / Interview #42, #66 and #95
502 / June and August 2020 client update
503 / June and August 2020 client update
504 / June and August 2020 client update
505 / June and August 2020 client update
506 / Information Response 34
507 / Information Response 34
508 / Interview 2
509 / Information Response 36
510 / Posted on our Board Governance Documents website
https://ir.amwater.com/dA/fbdc556cff/2020.04.29_Corporate%20Governance%20Guidelines_FINAL.pdf
511 / Interview 5 and Information Response 469
512 / Information Response 40 Referring to 29
513 / Interview 77

514 / Information Response 38
515 / Interview 77
516 / Information Response 39
517 / Information Response 41
518 / Interview 77 and Information Response 42
519 / Information Response 42
520 / Information Response 19
521 / Interview 77
522 / Information Response 19 Attachment 1
523 / Information Response 19 Attachment 1
524 / Information Response 19 Attachment 1
525 / Information Response 19 Attachment 1
526 / Information Response 19 Attachment 1
527 / Information Response 19 Attachment 2
528 / Information Response 19 Attachment 2
529 / Information Response 19 Attachment 2
530 / Information Response 19 Attachment 2
531 / Information Response 19 Attachment 2
532 / Information Response 19 Attachment 3
533 / Information Response 19 Attachment 3
534 / Information Response 19 Attachment 3
535 / Information Response 42 Update
536 / Information Response 42 Update
537 / Information Response 19 Attachments 1, 2, and 3
538 / Interview 47
539 / Interview 7
540 / Interview 7
541 / Interview 47
542 / Interview 47
543 / Information Response 44
544 / Information Response 44 Attachment 1
545 / Information Response 44 Attachment 2
546 / Interview 77
547 / Consultant Opinion
548 / Information Response 45
549 / Information Response 18 Attachment 11 and 45 Attachment 1
550 / Information Responses 18 Attachment 14 and 45 Attachment 2
551 / Information Response 18 Attachment 14 plus moved from \$100,000 to \$250,000 in Draft Report Comments
552 / Information Response 686-SSFP and 686-SSFP Attachment
553 / Prior Audit Report
554 / Information Response 52 Attachment 2
555 / Information Response 41
556 / Interview 77
557 / Information Response 48
558 / Information Response 47 Attachment 1
559 / Information Response 47 Attachment 1
560 / Information Response 47 Attachment 1



561 / Information Response 47 Attachment 1
562 / Information Response 47 Attachment 1
563 / Information Response 47 Attachment 1
564 / Information Response 47 Attachment 2
565 / Information Response 47 Attachment 2
566 / Information Response 47 Attachment 2
567 / Information Response 47 Attachment 2
568 / Information Response 49
569 / Information Response 49 Attachment 2
570 / Information Response 49 Attachment 1
571 / Information Response 49
572 / Information Response 50
573 / Information Response 444 - 047
574 / Information Response 444 - 047
575 / Information Response 720
576 / Information Response 721
577 / Information Response 444 - 047
578 / Information Response 444 - 047
579 / Information Response 444-044
580 / Information Response 719
581 / Information Response 721
582 / Information Response 51
583 / Information Response 51 and Interviews 14 and 77
584 / Information Response 51 and Interviews 14 and 77
585 / Information Response 51 and Interviews 14 and 77
586 / Information Response 51 and Interviews 14, 77, and 694
587 / Consultant Summary
588 / Interview 2
589 / Information Response 497
590 / Interview 58
591 / Interview 58
592 / Interview 58
593 / Interview 58
594 / Information Response 506
595 / Interview 13 and Information Response 52
596 / Interview 13
597 / Interview 25
598 / Interview 59
599 / Interview 59
600 / Interview 59
601 / Interview 59
602 / Interview 59
603 / Interview 2
604 / Information Response 102
605 / Consultant Knowledge
606 / Information Response 445
607 / Information Response 445

608 / Information Response 445
609 / Information Response 102
610 / Information Response 102
611 / Information Response 102
612 / Information Response 60
613 / Consultant Analysis
614 / Information Response 548
615 / Information Response 480
616 / Consultant Analysis
617 / Information Response 103
618 / Information Response 584
619 / Information Response 87
620 / Information Response 87
621 / Information Response 88
622 / Information Response 480
623 / Information Responses 104 and 111
624 / Interview 2
625 / Information Response 580
626 / Information Response 580
627 / Information Response 580
628 / Information Response 580
629 / Information Response 580
630 / Information Response 580
631 / Information Response 580
632 / Information Response 580
633 / Information Response 580
634 / Information Response 580
635 / Information Response 580
636 / Information Response 580
637 / Information Response 580
638 / Information Response 501
639 / Information Response 501
640 / Information Response 501
641 / Interview 61 and Consultant Analysis
642 / Information Response 566
643 / Interview 61 and Consultant Analysis
644 / Interview 61 and Consultant Analysis
645 / Interview 61 and Consultant Analysis
646 / Information Response 580
647 / Information Response 457
648 / Information Response 457
649 / Information Response 582
650 / Information Response 253
651 / Information Response 253
652 / Information Response 253
653 / Interview 23
654 / Interview 64



655 / https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1173&context=mae_facpub

656 / https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1173&context=mae_facpub (Page 25)

657 / https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1173&context=mae_facpub (Page 4)

658 / Information Response 580

659 / Information Response 454

660 / Information Response 454

661 / RFP Section 3.2.1

662 / AW Web Page

663 / Information Response 126-1

664 / Information Response 558

665 / Information Response 625

666 / AW Web Site

667 / Recent Corporate press release on their web site

668 / Information Response 653

669 / Interviews 98 & 99

670 / AW Web Page

671 / American Water Works Company, Inc. Corporate Governance Guidelines, available on the AW Web Page

672 / American Water Works Company, Inc. Corporate Governance Guidelines, available on the AW Web Page

673 / Information Response 644 an Interview 98 & 99

674 / American Water Works Company, Inc. Corporate Governance Guidelines, available on the AW Web Page

675 / Information Response 646

676 / AW Corporate Guidelines and Review of Board minutes and Interview 98 & 99 and 100

677 / AW BYLaws dated August, 2015

678 / Information Response 127, 126-2, Article III, Section 2

679 / Information Response 554 and Corporate Web Site

680 / Information Response 554 and Corporate Web Page

681 / AW web site, Information Response 554

682 / AW web site, Information Response 554

683 / AW web site, Information Response 554

684 / Committee Charters and Corporate Governance Guidelines available on AW's web site; also Information Responses 555 & 556, and Interviews 98 & 99

685 / Interviews 98 & 99

686 / Information Response 555 & 556: review of Board and Audit, Finance and Risk Committee minutes performed on-site

687 / Interviews 98 & 99

688 / Information Response 3

689 / AW 10K and Proxy Statements

690 / Interviews 98 & 99. Note: IR backup cited in Internal Controls chapter

691 / Information responses 555 & 556

692 / 2010 -2018 Proxy Statements. 2018 statement is the most recent available during field work

693 / Wall Street Journal, article by Jean Eaglesham date 12/19/2019

694 / Information Response 126-2

695 / Information Response 129

696 / Information Response 126-1, 137/138

697 / Information Response 31. Review of NJAW Board minutes and attachments

698 / Information Response 625

699 / 10K chart on Board compensation

700 / Information Response 648

- 701 / Information Response 129
- 702 / Information Response 561
- 703 / Information Response 645
- 704 / Information Response 556 (AW Board minutes) and Interview No. 98 & 99 and Information Response 647
- 705 / Information Response 645
- 706 / Information Responses 712, 20, and 29 (Attachment 1)
- 707 / AW Code of Ethics available on the AW Web Site
- 708 / Information Responses 628 and 376
- 709 / Interview 79 and Information Response 136
- 710 / Information Responses 626 and 715 (Note: Company refused to show us a filled out investigation report.)
- 711 / Interview 79 and Information Response 136
- 712 / Information Response 629
- 713 / Interviews 98 & 99 and Information Response 560
- 714 / Information Response 561
- 715 / Information Response 630
- 716 / Information Response 136 and AW Web Site
- 717 / AW Web Site
- 718 / Interviews 98 & 99
- 719 / Information Response 644
- 720 / Information Response 627
- 721 / Information response 32-2
- 722 / Information response 643
- 723 / Information Response 383/384/385
- 724 / Interview No. 100
- 725 / Information Response 135; Non-response to request for monthly management reports
- 726 / Interview No. 102
- 727 / Information Response 714
- 728 / AW Board minutes from the past three years, Board packets from the past year, Audit, Finance and Risk Committee minutes from the past three years and Audit, Finance and Risk Committee packets from the past year
- 729 / 2019 10K
- 730 / 2019 10K
- 731 / Information Response 52
- 732 / Analysis of Information Response 52
- 733 / Information Response 52
- 734 / Corporate handout
- 735 / Corporate handout
- 736 / Corporate handout
- 737 / Author's evaluation of organization charts via corporate handout
- 738 / Information Responses 24/391
- 739 / Information Responses 24-2/391
- 740 / Information Responses 24-3/391 and 387
- 741 / Information Responses 24-4/391
- 742 / Information Responses 30 and 392
- 743 / Information Response 60; this includes data from Service Company support
- 744 / Information Response 388
- 745 / Interviews 100 and 102
- 746 / Information Response 389



747 / Information Response 390; Note: in Supply Chain/Fleet, and other areas reviewed, policies and practices not reviewed in the period of noted organizational changes

748 / Information Response 18

749 / Information Response 150

750 / Interview 7

751 / Interview 7

752 / Interview 7

753 / Interview 7

754 / Interview 7

755 / Information Response 393 Attachment

756 / Interview 7

757 / Interview 7

758 / Information Response 393 Attachment

759 / Interview 7

760 / Interview 7

761 / Interview 7

762 / Interview 7

763 / Interview 7

764 / Interview 7

765 / Interview 7

766 / Interview 7

767 / Interview 7

768 / Information Response 395

769 / Information Response 148

770 / Information Responses 148 and 150, plus Draft Report Comments

771 / Information Response 148

772 / Information Response 149

773 / Interview 7

774 / Information Response 162 Attachment 3 (policy) and Attachment 4 (practice)

775 / Information Response 162 Attachment 3

776 / Information Response 162 Attachment 3, plus Draft Report Comments about changes in plan terminology

777 / Information Response 162 Attachment 4

778 / Information Response 162 Attachment 2

779 / Information Response 401 Attachment

780 / Information Response 397 Attachment

781 / Information Response 397

782 / Information Response 151 Update

783 / Information Response 162 Attachment 3

784 / Information Response 399

785 / Information Response 399 Attachment 1

786 / Information Response 399 Attachment 1

787 / Information Response 399 Attachment 2, plus Draft Report Comments

788 / Information Response 399 Attachment 2, plus Draft Report Comments

789 / Information Response 399 Attachment 3

790 / Information Response 399 Attachment 3, plus Draft Report Comments

791 / Information Response 399 Attachment 4

792 / Information Response 399 Attachment 4

793 / Information Response 399 Attachment 4
794 / Information Response 399 Attachment 5
795 / Information Response 399 Attachment 5
796 / Information Response 399 Attachment 5
797 / Information Response 399 Attachment 6, plus Draft Report Comments
798 / Information Response 399 Attachment 6
799 / Information Response 399 Attachment 6
800 / Information Response 399 Attachment 7
801 / Information Response 399
802 / Information Response 162 Attachment 3
803 / Information Response 162 Attachment 3
804 / Information Response 162 Attachment 3
805 / Information Response 157 Attachment
806 / Information Response 157 Attachment
807 / Information Response 157 Attachment Page 4
808 / Information Response 156 Attachments
809 / Information Response 156 Attachment 1
810 / Information Response 156 Attachment 2
811 / Information Response 156 Attachment 3
812 / Information Response 156 Attachment 4
813 / Information Response 156 Attachment 5
814 / Information Response 156 Attachment 6
815 / Information Response 156 Attachment 7
816 / Information Response 156 Attachments 1, 2, 3, 5, 6, and 7
817 / Information Response 156 Attachments 1, 2, 3, and 7
818 / Information Response 141
819 / Information Response 143
820 / Information Response 141
821 / Information Response 141 Attachment 2
822 / Information Response 141 and Attachment 3 and Information Response 143
823 / Information Response 142
824 / Information Response 144 Attachment 1 and 2
825 / Information Response 145
826 / Information Response 145
827 / Information Response 145, plus Draft Report Comments
828 / Information Response 145
829 / Information Response 146
830 / Information Response 147
831 / Information Response 147
832 / Information Response 147
833 / Information Response 147 and Draft Report Comments
834 / Information Response 147
835 / Information Response 147
836 / Information Response 147 Attachment
837 / Information Response 158 Attachment 1 (policy) and Attachment 2 (practice)
838 / Information Response 159
839 / Information Response 158 Attachment 1



840 / Information Response 158 Attachment 1
841 / Information Response 158 Attachment 2
842 / Information Response 158 Attachment 2
843 / Information Response 160 Attachment 1
844 / Information Response 160 Attachment 1
845 / Information Response 160 Attachment 1
846 / Information Response 160 Attachment 1
847 / Information Response 160 Attachment 1
848 / Information Response 160 Attachment 2
849 / Information Response 161
850 / Information Response 161 and Draft Report Comments
851 / Information Response 161 Attachment
852 / Information Response 162 Attachment 2
853 / Information Responses 163 and 398
854 / Information Response 164
855 / Information Response 165 Attachments 1 and 2
856 / Information Response 166 Attachments 1 and 2, plus Draft Report Comments
857 / Information Response 166 Attachment 3
858 / Information Response 166 Attachment 4, 5, and 6
859 / Information Response 166 Attachment 7
860 / Information Response 166 Attachment 7
861 / Information Response 166 Attachment 8
862 / Information Response 152
863 / Interview 7
864 / Information Response 167, plus Draft Report Comments
865 / Information Response 168 Attachment 1
866 / Information Response 168 Attachment 2
867 / Information Response 153
868 / Information Response 154 Attachment
869 / Information Response 155
870 / Information Response 394
871 / Draft Report Comments
872 / Information Response 394 Attachments 1-13, plus Draft Report Comments with effective dates
873 / Information Response 394 Attachments 14+
874 / Information Response 54
875 / Information Responses 639 and 559 and 54
876 / 2019 10K and Author's Evaluation
877 / Information Response 169, 171-16
878 / Information Response 171-16 (Attachment 14)
879 / Information Responses 640 and 714
880 / AW Corporate Governance Guidelines and Author's review of 3 years of Board minutes and 1 year of Board information packets
881 / Information Response 695
882 / Information Response 171 and 171-12&13
883 / Information Response 640
884 / Interview 100
885 / Information Responses 34 and 640, plus 170, 172, 173, 175, 68, 79, 95, 99, and 79-2 and 68
886 / Information Response 79-2

887 / Information Response 79-3
888 / Information Response 95 and 99
889 / Information Responses 79, 95, 99, 170, 172, 173, 175, and 638
890 / Information Response 34
891 / Information Responses 79, 95, 99, 170, 172, 173, 175
892 / Information Response 79-2, Section IV
893 / Information Response 713
894 / Information Response 34
895 / Information Response 174
896 / Information Response 65
897 / Information Response 66 and 174
898 / Information Response 60-2, 67
899 / Review of Information Response 60 and all exhibits
900 / Author's Opinion
901 / Interviews 98 & 99
902 / Information Response 176
903 / Interview 100
904 / Information Response 176
905 / Information Response 174
906 / Interviews 98/99, 100 and review of 3 years of Board and Audit Committee minutes. Specific details of risks redacted.
907 / Information Response 172
908 / Information Response 172
909 / Information Response 173
910 / Information Response 175
911 / <https://www3.epa.gov/npdes/pubs/primer.pdf> page 7
912 / Interview 2
913 / <https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-information-system-sdwis-federal-reporting>
914 / Information Response 497
915 / <https://www.epa.gov/npdes>
916 / Information Response 497
917 / Consultant Analysis
918 / Information Response 52
919 / Interviews 2, 11, and 13, Information Response 52, and Consultant Analysis
920 / Consultant observation
921 / Interview 11
922 / Interview 13
923 / Interviews 2 and 31
924 / Interviews 2 and 31
925 / Interviews 2 and 31
926 / <https://www.novacare.com/>
927 / Interview 31
928 / Information Response 494
929 / <https://www.avetta.com/solutions/supplier-prequalification>
930 / Interview 31
931 / <https://www.dekra.us/en/organizational-safety-reliability/overview/>
932 / Information Response 494
933 / Information Response 145



934 / Information Response 145
935 / https://www.mindtools.com/pages/article/newTMC_5W.htm
936 / <https://www.taproot.com/>
937 / Information Response 494
938 / Interview 31
939 / Information Response 60
940 / Interviews 2, 11, and 30
941 / Interview 30
942 / https://www9.state.nj.us/DEP_WaterWatch_public/
943 / <https://www.environmental-expert.com/software/horizon-laboratory-information-management-system-574006>
944 / Interview 58
945 / Information Response 584
946 / Interview 30
947 / Interview 58
948 / Interviews 13 and 30
949 / Interview 13 and 30
950 / <https://www.state.nj.us/dep/watersupply/dwc-lead-public.html>
951 / Interview 13 and 30
952 / <https://www.njib.gov/njeit>
953 / Interview 13 and 30
954 / Draft Reviewer
955 / Interview 24
956 / Information Response 60
957 / Information Response 481
958 / Information Response 481
959 / Information Response 481
960 / Information Response 481
961 / Information Response 481
962 / Information Response 481
963 / Information Response 481
964 / Information Response 481
965 / Consultant Analysis
966 / Information Response 481
967 / Consultant Conclusion
968 / Information Response 8
969 / Information Response 7
970 / Information Response 64
971 / Information Response 501
972 / Information Responses 86 and 180
973 / Information Response 86 and Interview 52
974 / Interview 11
975 / Information Response 521
976 / Information Response 452
977 / Information Response 196
978 / Information Response 194
979 / Information Response 83
980 / Information Response 83.

981 / Information Response 83
982 / Interview 11 and Information Response 188
983 / Interviews 11 and 22
984 / Information Response 93
985 / Information Response 182
986 / Information Response 70
987 / Information Response 93
988 / Information Response 93
989 / Information Response 94
990 / Information Response 94
991 / Information Response 486
992 / Information Response 486
993 / Information Response 486
994 / Information Response 73
995 / Information Response 70
996 / Information Response 64
997 / Interview 19
998 / Information Response 79
999 / Interview 19
1000 / Information Response 79
1001 / Consultant Analysis
1002 / Interviews 11, 13, 17, 18, 1, and Consultant Summary
1003 / Interviews 11, 13, 17, 18, 1, and Consultant Summary
1004 / Information Response 197
1005 / Information Response 197
1006 / Information Response 197
1007 / Information Response 194
1008 / Information Response 197lead
1009 / Information Response 55
1010 / Information Response 89
1011 / Interview 2
1012 / <https://www.avetta.com/>
1013 / Interview 2
1014 / Interview 2
1015 / Information Response 58 and Consultant Analysis
1016 / Information Response 197
1017 / Information Response 197
1018 / Interviews 21 and 52
1019 / Interviews 21 and 52
1020 / Interviews 21 and 52
1021 / Interview 13
1022 / Interview 13 and Information Response 52
1023 / Interviews 13, 24, 30, and 31
1024 / Interview 8, 13, 23, 24, 34, 35
1025 / Interview 2, Information Response 52, and Consultant Analysis
1026 / Interview 47 and Information Responses 550 and 551
1027 / Consultant Observations



1028 / Interview 2, Information Response 52, and Consultant Analysis
1029 / Information Response 255
1030 / Information Response 60
1031 / Information Response 60 and Consultant Analysis
1032 / Consultant Analysis
1033 / https://www.gwfathom.com/fathom-smart-grid-for-water/#ui_Software
1034 / Interview 49
1035 / Interview 49
1036 / Consultant Analysis
1037 / Interview 52
1038 / Interview 52
1039 / Information Response 497, Google Maps, and <https://www13.state.nj.us/DataMiner/Search/SearchByCategory>
1040 / Interview 60 and Information Response 608
1041 / Interview 47
1042 / Interview 47
1043 / Interview 60
1044 / Interview 60
1045 / Information Request 60 and Consultant Analysis
1046 / Interview 80
1047 / Interviews 80/94
1048 / Interview 92
1049 / Interview 92
1050 / Interviews 80/94
1051 / Interview 92
1052 / Interview 80/94
1053 / Interview 92
1054 / Interview 89
1055 / Interview 92
1056 / Interview 93 and Draft Report Comments
1057 / Interview 92
1058 / Interview 92
1059 / Interview 92
1060 / Interview 92 and Draft Report Comments
1061 / Interviews 80/94
1062 / Interviews 80/94 and 92
1063 / Interviews 80/94
1064 / Interview 92 and Draft Report Comments
1065 / Interview 92
1066 / Interview 89
1067 / Interviews 89 and 92 and Draft Report Comments
1068 / Information Response 234
1069 / Interview 89
1070 / Interview 92 and Draft Report Comments
1071 / Interviews 80/94
1072 / Interview 89
1073 / Interview 89
1074 / Interview 89

1075 / Interview 89
1076 / Interview 89
1077 / Interview 93
1078 / Interviews 80/94
1079 / Interview 93
1080 / Interviews 80/94
1081 / Interview 93
1082 / Interview 93
1083 / Interview 93
1084 / Interview 93
1085 / Interview 93
1086 / Information Response 664 Attachment
1087 / Information Response 664 Attachment
1088 / Interview 90
1089 / Interview 90
1090 / Interview 90
1091 / Information Response 650
1092 / Information Response 650
1093 / Information Response 650 Attachment 2
1094 / Information Response 230
1095 / Interview 90
1096 / Interview 90
1097 / Interview 90
1098 / Information Response 662
1099 / Interview 90
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1101 / Interview 90
1102 / Interview 91
1103 / Interview 90
1104 / Interview 90
1105 / Information Response 650
1106 / Interview 90
1107 / Interview 91
1108 / Interview 91
1109 / Interview 91
1110 / Interview 91
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1112 / Interview 91
1113 / Interview 91
1114 / Interviews 80/94
1115 / Interviews 80/94
1116 / Interviews 80/94
1117 / Information Response 652
1118 / Information Response 207
1119 / Information Response 210
1120 / Interviews 80/94
1121 / Information Response 211



1122 / Interviews 80/94
1123 / Information Response 213
1124 / Information Response 218
1125 / Information Response 219
1126 / Information Response 212
1127 / Information Response 247
1128 / Information Response 217
1129 / Information Response 217 Attachment 1
1130 / Information Response 217 Attachment 1
1131 / Information Response 217 Attachment 1
1132 / Information Response 217 Attachment 1
1133 / Information Response 217 Attachment 1
1134 / Information Response 217 Attachment 1
1135 / Information Response 217 Attachment 1
1136 / Information Response 217 Attachment 1
1137 / Information Response 217 Attachment 2
1138 / Information Response 214
1139 / Interviews 80/94
1140 / Interviews 92 and 93
1141 / Interviews 80/94
1142 / Interviews 92 and 93
1143 / Information Response 260
1144 / Information Response 225
1145 / Information Response 223
1146 / Interviews 80/94
1147 / Information Response 229
1148 / Information Response 228
1149 / Information Response 231 Attachment
1150 / Information Response 226 Attachment
1151 / Interview 90
1152 / Information Response 222 Attachment
1153 / Information Response 222 Attachment
1154 / Information Response 222 Attachment
1155 / Information Response 232
1156 / Information Response 232
1157 / Interviews 80/94
1158 / Information Response 233
1159 / Information Response 238
1160 / Information Response 215
1161 / Information Response 216
1162 / Information Response 237
1163 / Information Response 241
1164 / Interviews 80/94
1165 / Information Response 242
1166 / Information Response 244
1167 / Information Response 243 Attachment
1168 / Interview 90and Information Response 243

1169 / Information Response 245
1170 / Interview 90
1171 / Information Response 235
1172 / Information Response 236
1173 / Information Response 235
1174 / Information Response 235
1175 / Information Response 235
1176 / Information Response 236
1177 / Information Response 235
1178 / Information Response 250 Attachment
1179 / Information Response 252
1180 / Information Response 252 Attachment
1181 / Information Response 253 Attachment 1
1182 / Information Response 253 Attachment 2
1183 / Information Response 254
1184 / Information Response 255
1185 / Information Response 257 Attachment
1186 / Information Response 259
1187 / Information Response 221 and Draft Report Comments
1188 / Interview 89
1189 / Interviews 80/94
1190 / Interview 93
1191 / Information Response 217
1192 / Information Response 224
1193 / Information Response 224
1194 / Information Response 224
1195 / Information Response 224
1196 / Interview 4
1197 / Information Response 116
1198 / Information Response 116
1199 / Information Response 123
1200 / Information Response 115
1201 / Information Response 122
1202 / Information Response 122
1203 / Information Response 117
1204 / Information Response 117
1205 / Information Response 117
1206 / Information Response 122
1207 / Interview 12
1208 / Interview 12
1209 / Information Response 264
1210 / Information Response 263
1211 / Information Response 266 Attachment
1212 / Information Response 267 Attachment (Insurance Other Than Group Administrative Fees)
1213 / Information Response 268
1214 / Interview 12
1215 / Interview 12



1216 / Interview 12
1217 / Interview 12
1218 / Interview 12
1219 / Interview 12 and Information Response 475
1220 / Information Response 475
1221 / Information Response 269
1222 / Information Response 261
1223 / Information Response 176
1224 / Information Response 265
1225 / Information Response 176 Attachment 1
1226 / Information Response 176 Attachment 1
1227 / Information Response 176 Attachment 2
1228 / Information Response 176 and Attachments
1229 / Information Response 176
1230 / Information Response 176
1231 / Information Response 503
1232 / Information Response 176 and Information Responses 72, 73, 185, 186, 288, 489, 495, and 498
1233 / Interview 12
1234 / Interview 12 and Information Response 478
1235 / Interview 12
1236 / Interview 15
1237 / Interview 15
1238 / Interview 15
1239 / Information Response 405
1240 / Information Response 405
1241 / Interview 15
1242 / Interview 15
1243 / Draft Report Comments
1244 / Interview 15
1245 / Interview 15
1246 / Interview 15
1247 / Information Response 402
1248 / Information Response 402
1249 / Interview 15
1250 / Interview 15 and Draft Report Comments
1251 / Interview 15
1252 / Information Response 1
1253 / Draft Report Comments
1254 / Interview 15
1255 / Interview 15
1256 / Interview 15 and Draft Report Comments
1257 / Interview 15
1258 / Interview 15
1259 / Interview 15
1260 / Interview 15
1261 / Information Response 114 – Reed Report
1262 / Interview 15

- 1263 / Interview 15
- 1264 / Information Response 406 Attachment
- 1265 / Information Response 1 Attachment 14
- 1266 / Interview 15
- 1267 / Information Response 403
- 1268 / Draft Report Comments
- 1269 / Information Response 404 and Attachment
- 1270 / Interview 15
- 1271 / Interview 15
- 1272 / Draft Report Comments
- 1273 / Interview 57 and Information Response 685
- / Information Response 46
- 1275 / Information Response 686
- 1276 / Information Response 686
- 1277 / Information Response 687
- 1278 / Information Response 302
- 1279 / Information Response 301
- 1280 / Information responses 301 and 690
- 1281 / Information Responses 297/304, 298 and 297/304 and 691
- 1282 / Information Response 691
- 1283 / Information Responses 300 & 305
- 1284 / Information Response 689
- 1285 / Interview 57
- 1286 / Information Responses 18/272, 297, and 324
- 1287 / Information Response 416
- 1288 / Information Response 416
- 1289 / Information Response 655
- 1290 / Information Response 655
- 1291 / Interview 101
- 1292 / Information Response 270/710
- 1293 / Review of information Response 710. 2019 on track for total purchase of approximately \$550 Million on a straight line basis. This is close to 2017 total purchasing amounts.
- 1294 / Information Response 601-1
- 1295 / Information Responses 416 and 601-1
- 1296 / Information Response 601-3
- 1297 / Information Response 601-4
- 1298 / Information Responses 416 and 601-3
- 1299 / Information Response 601-4
- 1300 / Information Response 601-5
- 1301 / Information Response 601-3
- 1302 / Information Response 601-6
- 1303 / Information Response 601-8
- 1304 / Information Response 601-9
- 1305 / Information Response 601-10
- 1306 / Information Response 601-11
- 1307 / Information Response 601-12
- 1308 / Information Response 601-13



1309 / Information Response 601-14
1310 / Information response 601-15
1311 / Information Response 601
1312 / Information Response 704
1313 / Information Response 705
1314 / Information Response 706
1315 / Information Response 473/540
1316 / Information Response 681
1317 / Information Response 474
1318 / Information Responses 595 and 421/280
1319 / Information Responses 474 and 654 and Interview 101 and Information Response 717 in on cost savings reports
1320 / Information Response 594
1321 / Information Response 18/271, 364, and 272/274
1322 / Interview 101
1323 / Information Response 324 Attachment.
1324 / Procurement Policy POL-PROC01, date 4/30/2019
1325 / Information Response 18-2, 3, 272-2,3
1326 / Contract Management Policy (POL-PROC03, date 8/1/2012) and Practice (PRA-PROC03/01, date 8/1/2012)
1327 / Information Response 18-3
1328 / Electronic Disbursement Request Practice PRA-PROC01/01, date 8/1/2012
1329 / Information Response 18-4
1330 / Information Response 18-5
1331 / Goods and Services Receipt Practice PRA-PROC01/07, date 6/1/2013
1332 / Information Response 18-6 and **Invoice Processing Practice PRA-PROC0102, date 8/1/2012**
1333 / Information Response 18-7 and Materials and Supplies Policy POL-OPS04, date 11/30/2012
1334 / Information Response 18-8 and Open Purchase Orders Practice PRA-PROC0106, date 8/1/2012
1335 / Information Response 18-10.
1336 / Processing Requisitions and Purchase Orders Practice PRA-PROC0104, date 8/1/2012
1337 / Information Response 18-12 & 13 and Purchasing Card Policy (POL-PROC02, date 3/1/2013) and , Practice (PRA-PROC02/01, date 3/1/2013)
1338 / Information Response 18-14, 272-4
1339 / Sourcing Practice PRA-PROCC001/03 date 8/1/2012
1340 / Information Response 18-14, section 2
1341 / Interview No. 101
1342 / Information Response 698
1343 / Information Response 18-15. Supplier Diversity Practice, date June, 2009
1344 / Information Response 18-16. Vendor Master Database Practice PRA-PROC01/05, date 8/1/2012
1345 / Information Responses 699 and 701
1346 / Information Response 657
1347 / Information Response 657
1348 / Information Response 419
1349 / Information Response 420
1350 / Information Response 417
1351 / Information Response 418
1352 / Information Response 656
1353 / Information Response 276
1354 / Information Response 275
1355 / Information Response 273

- 1356 / Information Response 682-2
- 1357 / Information Response 275
- 1358 / Information Response 273
- 1359 / Information Response 682-3
- 1360 / Information Responses 703 and 708
- 1361 / Information Responses 277/203, 658, and 700
- 1362 / Information Response 376/201/278
- 1363 / Information Response 279
- 1364 / Information Response 659
- 1365 / Information Response 593
- 1366 / Information Response 660
- 1367 / Information Response 697
- 1368 / Information Response 286
- 1369 / Information Response 633 and 286
- 1370 / Information Response 632
- 1371 / Interview 101
- 1372 / Information Responses 281, 282, and 684, and 716 (ABC inventory classifications documented, but here are no indications it is used in any analysis)
- 1373 / Information Response 283
- 1374 / Information Responses 683 and 707. Inventory scorecards are no longer used.
- 1375 / Information Response 284
- 1376 / Information Response 285
- 1377 / Information Response 709. Note that the sample screen shots they gave us had practically no information entered.
- 1378 / Information Response 592
- 1379 / Information Responses 280/421 and 595
- 1380 / Information Response 589
- 1381 / Information Response 589
- 1382 / Information Response 590
- 1383 / Information Response 591.
- 1384 / Information Responses 545 and 591
- 1385 / Information Response 545.
- 1386 / Information Response 590.
- 1387 / Information Response 472.
- 1388 / Information Response 352.-3,4,6
- 1389 / Review of Information Response 698. 3 projects: Raritan Filters, Springfield PFAS, and Canal road.
- 1390 / Evaluation of Information Response 658
- 1391 / Information Response 287
- 1392 / Interview 56, AWWSC Organization Charts, and Information Response 287
- 1393 / Information Response 296/289/290-2
- 1394 / Information Response 18-5
- 1395 / Information Response 289
- 1396 / Information Response 296/289/290-3 and Information Response 296/289/290-4
- 1397 / Information Response 296
- 1398 / Interview 101 and Information Responses 668 and 718
- 1399 / Information Responses 666 and 678
- 1400 / Information Response 679
- 1401 / Information Responses 292 and 661
- 1402 / Analysis of Information Response 661



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- 1403 / Information Response 661
 - 1404 / Information Response 292 analysis
 - 1405 / Information Response 667
 - 1406 / Interview 56
 - 1407 / Information Response 288
 - 1408 / Interview 56 and Information Response 598
 - 1409 / Information Responses 52-2 and 287-2
 - 1410 / Information Responses 677 and 678
 - 1411 / Information Response 678
 - 1412 / Information Response 290-2, Section D
 - 1413 / Interview 56 and Information Response 288
 - 1414 / Information Response 599
 - 1415 / Information Response 678
 - 1416 / Interview 101 and Information Response 669
 - 1417 / Information Response 289/290-2
 - 1418 / Information Response 289/290-3
 - 1419 / Information Response 289/290-4
 - 1420 / Information 290-2, Section B
 - 1421 / Information Response 290-2, Section D and Information Responses 668, 678, and 679
 - 1422 / Information Response 293 Information Response 672.
 - 1423 / Interview 56 and Information Response 596
 - 1424 / Information Response 673
 - 1425 / Information Response 290-2 and 670
 - 1426 / Interview 56
 - 1427 / Information Responses 290-2/Section E, 597, and 294, just one Penske inspection sheet
 - 1428 / Information Response 600
 - 1429 / Information Responses 674 & 676
 - 1430 / Information Response 597
 - 1431 / Information Response 294
 - 1432 / Information Response 671
 - 1433 / Interview 56 and Information Response 290
 - 1434 / Information Response 675
 - 1435 / Information Response 295
 - 1436 / Interview 81
 - 1437 / Interview 81
 - 1438 / Information Response 312
 - 1439 / Interview 81
 - 1440 / Interview 81
 - 1441 / Interview 81
 - 1442 / Interview 81
 - 1443 / Draft Report Comments
 - 1444 / Interview 81
 - 1445 / Interview 81
 - 1446 / Interview 81
 - 1447 / Interview 81
 - 1448 / Interview 81
 - 1449 / Draft Report Comments

1450 / Interview 81
1451 / Interview 81
1452 / Interview 81
1453 / Interview 81
1454 / Interview 81
1455 / Information Response 313
1456 / Interview 81
1457 / Information Response 319 Attachment 1
1458 / Information Response 319 Attachment 2
1459 / Information Response 310
1460 / Information Response 318
1461 / Interview 81
1462 / Interview 81
1463 / Information Response 314
1464 / Information Response 317
1465 / Information Response 315
1466 / Information Response 307
1467 / Information Response 308
1468 / Information Response 308
1469 / Information Response 309
1470 / Information Response 324
1471 / Information Response 320
1472 / Information Response 622
1473 / Information Response 327
1474 / Information Response 327
1475 / Information Response 328
1476 / Information Response 329
1477 / Interview 81
1478 / Interview 81
1479 / Information Response 322
1480 / Information Response 322
1481 / GitHub website
1482 / Information Response 322
1483 / Interview 81
1484 / Information Response 322
1485 / Information Response 323
1486 / Information Response 323
1487 / Information Response 323
1488 / Information Response 321
1489 / Interview 81
1490 / Information Response 621
1491 / Information Response 621
1492 / Information Response 311
1493 / Information Response 330
1494 / Information Response 330 Attachment 1 and Interview 79
1495 / Information Response 330 Attachment 1
1496 / Information Response 330 Attachment 1



1497 / Information Response 330 Attachment 1
1498 / Information Response 330 Attachment 1
1499 / Interview 79
1500 / Information Response 330 Attachment 1
1501 / Information Response 330 Attachment 1
1502 / Information Response 330 Attachment 1
1503 / Information Response 330 Attachment 1
1504 / Information Response 330 Attachment 1
1505 / Information Response 330 Attachment 1
1506 / Information Response 330 Attachment 1
1507 / Information Response 330 Attachment 1
1508 / Information Response 330 Attachment 1
1509 / Information Response 330 Attachment 2
1510 / Interview 79
1511 / Information Response 330
1512 / Information Response 330 Attachment 3
1513 / Information Response 330 Attachment 4
1514 / Information Response 330 Attachment 5
1515 / Information Response 330 Attachment 6
1516 / Information Response 330 Attachment 1
1517 / Information Response 330 Attachment 1
1518 / Information Response 330 Attachment 2
1519 / Interview 79
1520 / Interview 15
1521 / Interview 79
1522 / Interview 6
1523 / Information Response 331
1524 / Interview 45
1525 / Interview 45 and Information Response 52
1526 / Information Response 340
1527 / Information Response 340
1528 / Information Response 340, Attachment 13
1529 / Information Response 340
1530 / Information Response 430
1531 / Information Response 430
1532 / Information Response 430
1533 / Information Response 430
1534 / Information Response 430
1535 / Information Response 430
1536 / Interview 45
1537 / Information Response 430
1538 / Information Response 430
1539 / Information Response 24, Attachment 2
1540 / Information Response 01-010, page 23
1541 / Information Response 1-01, Attachment 9, Page 21
1542 / Information Response 1-01, Attachment 9
1543 / Information Response 01-010, Page 21

1544 / Information Response 01-010, Page 21
1545 / Information Response 334
1546 / Information Response 1-010
1547 / Interview 45
1548 / Information Response 342
1549 / Information Response 343
1550 / Information Response 343
1551 / Interview 44 and Information Response 568
1552 / -Interview 44
1553 / Interview 44
1554 / Information Response 427
1555 / Information Response 426
1556 / Information Response 426
1557 / Information Response 426
1558 / Information Response 426
1559 / Information Response 427
1560 / Information Response 427
1561 / Information Response 427
1562 / Interviews 42 and 66 and Information Responses 23 and 528
1563 / Interview 42
1564 / Interview 42
1565 / Interview 42 and Information Response 692
1566 / Information Response 527
1567 / Information Response 528 and Interview 42
1568 / Interview 42 and The Institute of Internal Auditors Website, <https://na.theiia.org>
1569 / Information Response 528
1570 / Information Response 528
1571 / Information Response 528 and Interview 42
1572 / Information Response 528 and Interview 42
1573 / Interview 42
1574 / Interview 42
1575 / Interview 42
1576 / Interview 42
1577 / Interview 42
1578 / Information Response 352
1579 / Email citing Sabri Keskin, from N DeVecchis 9/11, 11:50 pm
1580 / Interview 42
1581 / Interview 42
1582 / Interview 42
1583 / Interview 42 and Information Response 352
1584 / Interview 42
1585 / Interview 42 and Information Response 529
1586 / Interview 42
1587 / Information Response 530
1588 / Information Response 530
1589 / Information Response 530
1590 / Information Response 530



1591 / Information Response 530
1592 / Interview 42 and Information Response 528
1593 / Interview 42 and Information Response 528
1594 / Interview #42, #66 and #95
1595 / June and August 2020 client update
1596 / June and August 2020 client update
1597 / Information Response 528
1598 / Information Response 530
1599 / June and August 2020 client update
1600 / June and August 2020 client update
1601 / Information Response 31
1602 / Information Response 129
1603 / Interview 45
1604 / Interview 45 and Information Response 535
1605 / Interview 45
1606 / Interview 45
1607 / Interview 45
1608 / Information Response 430
1609 / Information Response 430
1610 / Information Response 430
1611 / Interview 45
1612 / Interview 45 and Information Response 432
1613 / Information Response 433
1614 / Information Response 433 and Interview 45
1615 / Information Response 433 and Interview 45
1616 / Information Response 433 and Interview 45
1617 / Information Response 433 and Interview 45
1618 / Information Response 433 and Interview 45
1619 / Information Response 433 and Interview 45
1620 / Information Response 433 and Interview 45
1621 / Information Response 6
1622 / Information Response 6
1623 / Information Response 432
1624 / Information Response 432
1625 / Interview 45
1626 / Information Response 429
1627 / Interview 45 and Information Responses 429 and 432
1628 / Information Response 429
1629 / Draft Report Comments
1630 / Information Response 430
1631 / Information Response 432
1632 / Information Response 429
1633 / Interview 43
1634 / Interview 43
1635 / Interview 43
1636 / Interview 84 and Information Response 52
1637 / Interview 43

1638 / Interview 43 and 84
1639 / Interview 68 and 43
1640 / Interview 68
1641 / Interview 70
1642 / Interview 43
1643 / Interview 43
1644 / Interview 70
1645 / Interview 70
1646 / Interview 70
1647 / Interview 71
1648 / Interview 71
1649 / Interview 71
1650 / Interview 71
1651 / Interview 43
1652 / Interview 43
1653 / Interview 43
1654 / Interview 43
1655 / Interview 14
1656 / Interview 68 and 69
1657 / Interview 69
1658 / Interview 69
1659 / Interview 69
1660 / Interview 69
1661 / Interview 69
1662 / Interview 69
1663 / Interview 69
1664 / Interview 69
1665 / Interviews 43 and 67 and Information Response 52
1666 / Interviews 67 and 72
1667 / Interview 73
1668 / Interview 73
1669 / Interview 73
1670 / Interview 73
1671 / Information Response 41-018 and -021
1672 / Information Response 41-021
1673 / Information Response 41-018
1674 / Information Response 41-018 and Interview 73
1675 / Interview 73
1676 / Interview 74
1677 / Interview 74
1678 / Interview 74
1679 / Interview 67
1680 / Interview 67 and draft report fact check company comment
1681 / Information Responses 41 and 44
1682 / Information Response 351
1683 / Information Response 351
1684 / Interview 67



1685 / Interview 14 and Nick DeVecchis 4/17/2019 email
1686 / Interview 14
1687 / Interview 14
1688 / Interview 14
1689 / Interview 14
1690 / Interview 14
1691 / Interview 14
1692 / Interview 14
1693 / Interview 14
1694 / Interview 5 and Information Response 357
1695 / Interview 5 and Information Response 52
1696 / Interview 5, 14 and Information Response 95
1697 / Interview 5
1698 / Interview 5, 14 and Information Response 95 & 357
1699 / Information Response 14
1700 / Interview 5, 14 and Information Response 95 & 357
1701 / Information Response 357
1702 / Interview 5
1703 / Information Response IR 41-023 (att 22)
1704 / Interview 74
1705 / Information Response 14
1706 / Information Response IR 362
1707 / Information Response IR 362
1708 / Interview 74
1709 / Interview 70
1710 / Interviews 5, 14, 43, Information Response 357, 14, 95, & 99
1711 / Interviews 5, 14, 43, 68
1712 / Interviews 5, 14, 43, 68
1713 / Interview 13, Information Response 368, and Consultant Analysis
1714 / Information Response 368 and Consultant Analysis
1715 / Information Response 368 and Consultant Analysis
1716 / Information Response 368 and Consultant Analysis
1717 / Information Response 368 and Consultant Analysis
1718 / Interview 11, Information Response 368, and Consultant Analysis
1719 / Interview 11 and Information Response 89
1720 / Information Response 275 and <https://amwater.com/corp/partners-suppliers/suppliers>
1721 / Information Response 593
1722 / NJBPU Docket AO16030196
1723 / Interviews 6 & 82
1724 / Interviews 6 & 82
1725 / Interviews 6 & 82
1726 / Interviews 6 & 82
1727 / Interviews 6 & 82
1728 / Interviews 6 & 82
1729 / Interviews 6 & 82
1730 / Interviews 6 & 82
1731 / Interviews 6 & 82