VOLUME 8

PENNSYLVANIA-AMERICAN WATER COMPANY

2017 GENERAL BASE RATE CASE

R-2017-2595853

DIRECT TESTIMONY

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DIRECT TESTIMONY
OF
ROD P. NEVIRAUSKAS

WITH REGARD TO
PENNSYLVANIA-AMERICAN WATER COMPANY'S MANAGEMENT PHILOSOPHY, NEED FOR RATE RELIEF, REVENUE DEFICIENCY SUMMARY, APPLICATION OF SECTION 1311(c) TO COMBINE WATER AND WASTEWATER REVENUE REQUIREMENTS, INTRODUCTION OF OTHER WITNESSES, SCRANTON WASTEWATER ACQUISITION ADJUSTMENT, DECLINING RESIDENTIAL CONSUMPTION, AND SECTION 523 PERFORMANCE FACTORS

DOCKET NO. R-2017-2595853

DATE: April 28, 2017

PENNSYLVANIA-AMERICAN WATER COMPANY

DIRECT TESTIMONY OF ROD P. NEVIRAUSKAS

Q. Please state your name and business address.

A. My name is Rod P. Nevirauskas and my business address is 800 West Hersheypark Drive, Hershey, Pennsylvania 17033.

Q. By whom are you employed and in what capacity?

A. I am employed by American Water Works Service Company ("Service Company") as Senior Director of Rates and Regulations for Pennsylvania-American Water Company ("PAWC" or the "Company").

Q. Please describe your educational background and business experience.

A. I received a Bachelor's Degree in Economics from the University of Massachusetts. Since beginning my employment with a subsidiary of the American Water Works Company ("AWW" or "American Water") in 1980, I have held various positions of increasing responsibilities in rates and finance. In October 2004, I was named Manager of Rates and Regulations for the American Water Works Shared Services Center ("SSC"), a financial services organization providing national support to AWW's subsidiary operating companies. In 2005, I was promoted to the position of Director of Financial Services at the SSC. In that capacity, I led the SSC Rates and Regulations group in supporting rate case filings for all of AWW's regulated operating subsidiaries. On January 1, 2009, I assumed the position of Director of Rates and Regulations for the states of Pennsylvania, Virginia and Maryland. In late 2011, American Water re-organized its divisional structure, and responsibility for rate and regulatory matters in West Virginia was transferred to the Mid-Atlantic Division of AWW, of which PAWC is a member. In 2016, I became the Senior Director of Rates and

Regulations. On March 1, 2017, AWW revised its divisional structure by creating a new Mid-Atlantic Division consisting of Pennsylvania and West Virginia.

Q. Have you previously testified before regulatory agencies?

A. Yes, I have testified on numerous occasions on behalf of utility subsidiaries of AWW in support of rate filings, acquisitions, and financings in the States of Connecticut, Rhode Island, New Jersey, New Hampshire, Maryland, New York, Ohio, Virginia and West Virginia and the Commonwealths of Massachusetts and Pennsylvania.

Purpose Of Testimony

Q. What is the purpose of your testimony?

A. The purpose of my testimony consists of four principal parts:

First, I will provide some general information about the Company and this rate filing. Specifically, I will explain the Company's overall management philosophy, summarize the principal reasons that PAWC is seeking rate relief at this time, provide a high-level quantitative summary of the factors responsible for PAWC's revenue deficiency, explain the sources of the accounting data that were the starting point for the Company's rate case presentation and identify the test years the Company is employing in this case. In addition, I will highlight the provisions added to the Pennsylvania Public Utility Code by Act 11 of 2012 ("Act 11") that the Company has incorporated into its rate case presentation.

Second, I will identify the other witnesses who are providing testimony on behalf of the Company and summarize the topics they address.

Third, I will discuss and support three of the Company's specific claims in this case, namely: (1) an acquisition adjustment to be included in rate base to reflect PAWC's purchase of the wastewater system of The Sewer Authority of the City of Scranton

("Scranton Authority"); (2) an adjustment to the Company's pro forma revenue claim related to declining per-customer residential consumption; and (3) performance factors that support a rate of return on equity at the upper end of the range determined by PAWC's rate of return witness.

Fourth, I will address Act 40 of 2016 ("Act 40") and, in particular, Section 1301.1(b), which Act 40 added to the Pennsylvania Public Utility Code.

PAWC's Management Philosophy

Q. What is the Company's management philosophy?

A. It is a fundamental principle of Company management to strive to balance the interests of its customers, its employees, and its investors in all the functions the Company performs:

- The Company believes that customers are entitled to safe, reliable, high-quality water and wastewater service that is provided at a reasonable price.
- The Company believes – and market forces demand – that it provide its employees safe working conditions, opportunities for career development, and competitive compensation packages – including appropriately designed incentives to improve performance and promote efficiency.
- The Company believes that its investors are entitled to earn a fair return on their investment because PAWC is competing with other companies and industries in the marketplace for capital and is competing with its peers within the AWW system for discretionary allocations of AWW's investment and financing capacity.

The Company's commitment to reliable service is reflected in the capital investments that it has made and continues to make in developing and maintaining adequate sources of supply, treatment, pumping, transmission, distribution and collection facilities, as well as the

investments it has made and continues to make to comply with the stringent requirements of the Safe Drinking Water Act, the Clean Water Act, and other applicable federal and state environmental laws and regulations.

Another of the Company's fundamental management principles is transparency with regulators and other stakeholders. This is a personal commitment on the part of senior management, and one that has been embraced by the Company at all levels of our organization. Our vision is to be our water customers' trusted water resource company and our wastewater customers' safe and reliable collection and treatment company that is dedicated to delivering innovative, high-quality solutions at a fair and reasonable cost.

The Company firmly believes that human capital is central to accomplishing its mission and, therefore, employee training and development is an essential contributor to the Company's success. Company employees who work directly with customers are trained to respond efficiently, effectively and courteously to customers' inquiries and requests. Company management personnel receive formal training in Company procedures and effective customer service and also participate in relevant industry meetings and seminar presentations about specific water and wastewater utility issues. In fact, every non-union employee has a mandatory minimum training requirement of twenty hours per year. These and other practices aid the Company in meeting its obligations as a public utility and furnishing its customers the high quality service they have come to expect.

PAWC's Need For Rate Relief And The Factors Responsible For Its Revenue Deficiency

Q. Please summarize the rate increase sought by PAWC in this proceeding.

A. The Company seeks an increase in the rates of its water operations and its wastewater operations (exclusive of the recently acquired Scranton Authority system) that will produce

additional annual operating revenues of $107.9 million, or approximately 16.4%, over its annualized total-Company test year revenues at present rates including Distribution System Improvement Charge ("DSIC") revenue. The key elements of the Company's rate request are summarized on Schedule RPN-1 to this statement. Schedule RPN-2 to this statement is a more-detailed summary that provides an overview of revenue requirements and revenues at existing and proposed rates on a total-Company basis.

Q. Why is PAWC requesting a rate increase at this time?

A. PAWC has made, and must continue to make, substantial investments in new and replacement facilities in order to replace aging infrastructure, comply with mandates imposed by the Safe Drinking Water Act, the Clean Water Act and the Clean Streams Law and their associated regulations, and meet customers' demands for water and wastewater service. From the end of the fully projected future test year in the Company's last base rate case through the end of the fully projected future test year in this case, the Company will have invested over $1.26 billion, and the overwhelming majority of this investment is in source of supply, treatment, distribution and collection assets. Part of this investment is also being used to improve service to small, troubled water and wastewater systems that PAWC has acquired. As evidenced by PAWC's prior and continuing pattern of acquisitions, which are discussed by Mr. Grundusky in PAWC Statement No. 8, PAWC has been an industry leader in helping the Commission meet the significant challenges posed by the many small, troubled systems that still exist across the state. To address all of these diverse capital needs, PAWC must raise substantial amounts of debt and equity capital and, in the process, must demonstrate its ability to provide a reasonable return in order to convince investors to commit their funds for its use.

As shown in Schedule RPN-2 and explained in the Statement of Specific Reasons for Proposed Increase in Rates that accompanies the Company's filing, absent rate relief, the Company's overall rate of return on an original cost basis as of December 31, 2018 will be only 6.29%. More significantly, the indicated return on common equity is anticipated to be 7.20%, which is clearly far less than is required.

Q. What are the principal factors that have contributed to the decline in PAWC's equity return?

A. In broad terms, PAWC's rate request is driven primarily by (1) its investment in new and replacement plant, including acquired water and wastewater systems; and (2) declining residential water consumption. These factors, as well as additional factors of lesser magnitude, are discussed in greater detail by other witnesses submitting statements on behalf of the Company. I will introduce each of these witnesses later in my testimony.

Q. Has the Company taken steps to control the growth of its operating expenses?

A. Yes, the claim for its water operations' operating and maintenance expenses, excluding depreciation, in this case is approximately $2.4 million less than the amount requested in the Company's last case even though the Company's current rates have been in effect since January 2014 and the Company has expanded its water service footprint by acquiring a number of water systems since its last base rate case.[1] The reduction is attributable to the Company's prudent management of operating expenses.

Source Of Accounting Data And The Test Years Employed By The Company

Q. What is PAWC's principal accounting exhibit in this case?

[1] A similar comparison for the Company's wastewater operations would not be meaningful. In fact, it would be an "apples to oranges" comparison because of the larger number and size of the wastewater systems PAWC has absorbed since its last base rate case.

A. PAWC Exhibit 3-A is PAWC's principal accounting exhibit in this case. Exhibit 3-A includes sections corresponding to the Company's water operations, wastewater operations excluding its Scranton wastewater system and Scranton wastewater operations. In addition, a Summary page at the beginning of Exhibit 3-A shows the Company's rate request on a consolidated (i.e., total Company) basis. Applicable workpapers and supporting documentation for Exhibit 3-A are set forth in PAWC Exhibits 3-B and 3-C. I am responsible for portions of each of these exhibits. Other witnesses are responsible for other portions of these exhibits as explained in their respective statements.

Q. What is the source of the accounting data used in Exhibit 3-A?

A. Exhibit 3-A includes detailed revenue requirement studies for the Company's water operations, wastewater operations excluding the Scranton wastewater system and the Scranton wastewater operations. The starting point for each of the revenue requirement studies is the accounting information recorded in the Company's books and records for the twelve months ended December 31, 2016. The Company's books and records are maintained in conformity with the Uniform System of Accounts for Water Companies and generally accepted accounting principles. Because the purpose of ratemaking is to establish rates to be applied in the future, per-book data had to be adjusted on a pro forma basis, as appropriate, to reflect known and measurable changes in operating conditions that are not fully reflected in the book data. Additionally, adjustments were made to reflect the Company's use of a future and a fully projected future test year.

Q. Briefly explain what is set forth in Exhibit No. 3-A.

A. Exhibit 3-A presents PAWC's rate base, revenues, expenses and tax information on the basis of a historical test year ended December 31, 2016, a future test year ending December 31,

2017 and a fully projected future test year ending December 31, 2018. The support for the Company's requested revenue increase is based principally upon fully projected future test year data. In Exhibit No. 3-A, historic test year data are generally identified by the title or heading "Present Rates at December 31, 2016" and future test year and fully projected future test year data are generally identified by the title or heading "Present Rates at December 31, 2017" and "Present Rates at December 31, 2018," respectively.

Q. Please describe the provisions of Act 11 upon which the Company has relied in developing its rate filing.

A. On February 14, 2012, Governor Corbett signed Act 11, which amended Chapters 3, 13, and 33 of Title 66 of the Pennsylvania Consolidated Statutes ("Code"). Of particular relevance to this case, Act 11 amended Chapters 3 and 13 to allow jurisdictional utilities to employ data for a fully projected future test year to support their claims in base rate proceedings and to allow utilities that furnish water and wastewater service to allocate a portion of their wastewater revenue requirement to the combined wastewater and water customer base.

In this case, as previously mentioned, PAWC is presenting supporting data for a fully projected future test year consisting of the twelve months ended December 31, 2018 in addition to supporting data for historic and future test years. The Company's claims for capital additions, revenues and operating expenses have been projected through the end of the fully projected future test year.

Development Of Combined Water And Wastewater Revenue Requirements And The Application Of Section 1311(c) Of The Code

Q. Has the Company relied upon other provisions of Act 11 in developing this case?

A. Yes, it has. As authorized by Section 1311(c) of the Code, PAWC is also proposing to determine its revenue requirement on a combined water and wastewater basis and to allocate approximately $13.8 million of its wastewater cost of service to its water operations.

Act 11 is also being used to mitigate the increases that wastewater customers in certain service areas would experience, if their rates were established on a stand-alone basis, while moving the rates of various wastewater operations toward a single consolidated wastewater rate design for all of the Company's wastewater operations. In so doing, the Company has established a reasonable, prospective target, namely, to move volumetric charges for all (i.e., water and wastewater) customers to a level equal to the volumetric charges established for water service for its water Rate Zone 1.

The following table shows, in summary form, the effect on each wastewater operation of combining water and wastewater revenue requirements and developing rates in the manner discussed above:

Wastewater Operations	Revenue Requirement Allocated to Total Water and Wastewater Customer Base	Increase/(Decrease) in Revenues Under Proposed Rates Relative to Present Rate Revenue
Wastewater Operations (Excluding Scranton Wastewater Operations)	$3,429,475	17.0%
Scranton Wastewater Operations	$10,375,712	No increase or decrease
Total	$13,805,187	

Q. What is the impact on the Company's proposed revenue requirement for water customers of allocating a portion of wastewater revenue requirement to water operations, as shown above?

A. The allocation of $13.8 million to water operations increases the revenue requirement to be recovered from water customers by 1.97%. Based on the Company's cost of service and proposed customer class revenue allocation in this case, the allocation would increase the monthly water bill of a residential water customer by approximately $1.27 per month.

Q. Please explain why, as shown in the table set forth above, the Company is not proposing to increase the rates of its Scranton wastewater operations.

A. The Company acquired the wastewater assets of the Scranton Authority on December 29, 2016 pursuant to an Asset Purchase Agreement between the Company and the Scranton Authority entered into on March 29, 2016 (as amended and restated by agreement dated October 28, 2016). Section 7.07(c) of the Asset Purchase Agreement provides as follows:

> In the first base rate case filed by the Buyer after the Effective Date of this Agreement, subject to PaPUC approval and applicable law, Buyer shall not propose or request any rate increase to the base rates or change in rate design to be applicable to wastewater customers in the Service Area. However, the Parties acknowledge that Buyer shall have the reasonable discretion to address and agree to base rate increases and changes in rate design for wastewater customers in the Service Area in the context of settlement of the base rate case, subject to PaPUC approval and applicable law.[2]

By its final Order entered on October 19, 2016 (the "Acquisition Order"),[3] the Commission found that the acquisition of the Scranton Authority's wastewater assets by

[2] Under the Asset Purchase Agreement, "Service Area" is defined as the City of Scranton and the Borough of Dunmore.

[3] *Joint Application of Pennsylvania-American Water Company and the Sewer Authority of the City of Scranton for Approval of (1) the Transfer, by Sale, of Substantially All of the Sewer Authority of the City of Scranton's Sewer System and Sewage Treatment Works Assets, Properties and Rights Related to its Wastewater Collection and Treatment System to Pennsylvania-American Water Company, and (2) the Rights of Pennsylvania-American Water Company to Begin to*

PAWC "will affirmatively promote the service, accommodation, convenience, or safety of the public in a substantial way" (Acquisition Order, p. 50). Based on that finding, the Commission approved the issuance of certificates of public convenience[4] authorizing PAWC to acquire the Scranton Authority's wastewater assets and to "begin to offer or furnish wastewater service, which includes combined storm/wastewater service, to the public in the City of Scranton and the Borough of Dunmore" (Acquisition Order, pp. 93-94). In addition, the Commission determined that: (1) it has jurisdiction over the service provided by a "combined" wastewater system that collects, treats and disposes of storm water commingled with sewage and other wastewater streams; and (2) that the addition of storm water to such a commingled flow "does not change the character of the lines, mains, and other facilities used for public sewage collection, treatment, or disposal" (Acquisition Order, p. 27).

In the Acquisition Order (p. 28), the Commission also determined that issues pertaining to the allocation of revenue requirement and the design of rates for wastewater service in the City of Scranton and Borough of Dunmore should be addressed in a future base rate proceeding. This is PAWC's first base rate case since its acquisition of the Scranton Authority's wastewater assets. Consequently, PAWC is proposing rates for wastewater service in its Scranton wastewater service area that comply with the terms of the Asset Purchase Agreement. In addition to satisfying its contractual commitment, the Company's proposed wastewater rates for the Scranton wastewater service area are

Offer or Furnish Wastewater Service to the Public in the City of Scranton and the Borough of Dunmore, Lackawanna County, Pennsylvania, Docket No. A-2016-2537209 (Final Order entered Oct. 19, 2016).

[4] The issuance of certificates of public convenience was conditioned upon PAWC and the Scranton Authority's filing of an Amended & Restated Asset Purchase Agreement consistent with the form submitted in their Replies to Exceptions. The condition was fully satisfied, and the certificates of public convenience were issued with an effective date of November 23, 2016.

consistent with the policy underlying Section 1311(c) of the Code to moderate the impact of rate increases on the bills of wastewater customers by distributing a portion of wastewater revenue requirement across the combined water and wastewater customer base.

Q. Was the use of Section 1311(c) of the Code to mitigate future increases in wastewater rates in the Scranton wastewater service area addressed in the Acquisition Order?

A. In its Application for approval to acquire the wastewater assets of the Scranton Authority, PAWC asked the Commission to make an affirmative determination that, in a subsequent base rate case, the authority granted by Section 1311(c) could be used to allocate a portion of the revenue requirement of the Scranton wastewater service area to the total customer base of PAWC. In so doing, however, PAWC did not ask the Commission to determine any specific level of wastewater revenue requirement to be allocated to water customers (Acquisition Order, pp. 75-76). The Commission declined to make the affirmative finding that PAWC requested. Although the Commission had previously determined that "wastewater" includes storm water in a "combined" wastewater system, it deferred to a future base rate case the question – as framed by the Office of Consumer Advocate ("OCA") – whether PAWC could "recover storm water costs from its combined water and sewer customer base in the future pursuant to Act 11" (Acquisition Order, p. 77).

Q. Has there been any new development since the Acquisition Order was entered affirming that Section 1311(c) confers the authority to allocate to water customers a portion of the revenue requirement of a "combined" wastewater system?

A. Yes, there has been a significant development. Effective November 4, 2016, Act 154 of 2016 became law, which amended Section 102 of the Code to include a new definition of "wastewater." This amendment eliminates any distinction between a wastewater system that

collects, treats and disposes of "sewage" and a wastewater system that also collects, treats and disposes of commingled "storm water." Under the amended definition, "wastewater" consists of "any used water or water-carried solids collected or conveyed by a sewer," and specifically includes "storm water which is or will become mixed with . . . sewage," as well as "industrial waste" (as defined in Act 154), "infiltration or inflow into sewers" and "other water containing solids or pollutants." By the enactment of Act 154, the legislature has resolved the issue that the Commission deferred from the acquisition proceeding by eliminating the artificial distinction that the OCA tried to make between "wastewater" and "storm water." Thus, Act 154 also establishes that the term "wastewater" used in Section 1311(c) encompasses the entire flow collected, treated and disposed of by a "combined" system like the wastewater system PAWC owns and operates in its Scranton service area.

Q. Is the definition of wastewater added to the Code by Act 154 relevant to other aspects of the Acquisition Order?

A. Yes, it is. As I explained previously, the Commission, even before Act 154 was enacted, had determined in the Acquisition Order that a "combined" system provides "wastewater" service that is subject to the Commission's jurisdiction. Nonetheless, the Commission, at the urging of the OCA and the Bureau of Investigation and Enforcement ("I&E"), saw a purported difference between "wastewater" and "storm water" that it believed should be considered in a subsequent base rate case. To that end, the Commission directed PAWC to submit, as part of its next base rate case, two additional cost of service studies. One of those studies is described as "a cost of service study that fully separates the costs of providing storm water service in the SSA [Scranton Sewer Authority] service area." In addition, the Commission stated that PAWC should "address the pros and cons of designing storm water

rates on this separated basis" (Acquisition Order, p. 86). The second study is described as "a cost of service study that removes all costs and revenues associated with SSA operations (both wastewater and storm water)" and develops rates that "exclude the impact of the SSA acquisition included in the base rate filing" (Acquisition Order, p. 87). The Commission made it clear, however, that PAWC was free to propose the revenue allocation and rate design it believes is appropriate (Acquisition Order, p. 87). PAWC has complied fully with the Commission's directives, as more fully explained by Mr. Paul Herbert, who prepared the cost of service studies the Commission requested. However, the enactment of Act 154 has erased the distinction between "wastewater" and "storm water" that formed the purported basis for the Commission's directives to submit the two additional cost of service studies described above. In short, Act 154 makes it clear that there is not a valid basis for separately assigning or allocating costs between "wastewater" service and "storm water" service or for establishing separate rates to reflect alleged cost differences between those two constituents of a combined system's flows. Act 154 provides that there is only one form of service, namely, wastewater service, which encompasses all of the various commingled flows identified in the definition of "wastewater" under amended Section 102 of the Code. PAWC has proposed rates that are consistent with the definition of "wastewater" affirmed by Act 154. Accordingly, PAWC's proposed rates do not reflect any difference between "wastewater" and "storm water."

Q. What is your understanding of the phrase "in the public interest" in Section 1311(c) of the Code?

A. The phrase is not specifically defined in Section 1311(c); however, I note that the Commission recently provided guidance on the meaning of "in the public interest" in

Acquisition Order approving PAWC's acquisition of the assets of the Scranton Authority – a case in which I was directly involved as a witness for PAWC. In finding that the acquisition was in the public interest, the Commission explained that its public interest determination was "based on our consideration of the impact of the acquisition on all affected parties." (Acquisition Order, p. 45). I generally agree with the Commission's broad interpretation of "in the public interest." The Commission's analysis of the public interest should include -- but not be limited to – consideration of the impact on customers, company shareholders, and participants in the proceeding. Other factors, including the impact on Pennsylvania communities and the promotion of positive public policies, should also be considered. In determining the public interest, consideration should be given to what is in the best interest of the overall "public" in the Commonwealth – not what is in the best interest of any one particular group.

Q. Please provide an example of a circumstance in which the promotion of a positive public policy is "in the public interest" under Section 1311(c).

A. I believe that, if the use of Section 1311(c) helps to make the acquisition of a troubled wastewater system economically feasible and the impact upon water customers is not unreasonable, the public interest is served. Such is the case with PAWC's acquisition of the wastewater system assets of the Scranton Authority. As explained in the direct testimony of PAWC witnesses Connelly and Barrett, the Authority's future was in jeopardy because of the deteriorating financial condition of the City of Scranton and the affordability of projected rate increases under Authority ownership in order to comply with a Consent Decree. These conditions presented a serious problem for a Pennsylvania community with higher-than-average levels of poverty. The use of Section 1311(c) presents one tool to help

to address this difficult public challenge. I nonetheless recognize that the circumstances of every acquired system are different and the use of Section 1311(c) must be evaluated on a case-by-case basis.

Q. Is the public interest served by distributing a portion of the revenue requirement of the Company's wastewater operations, including the Scranton Wastewater Operations, across PAWC's approximately 655,000 water customers?

A. Yes, it is. Distributing a portion of the revenue requirement of the Company's wastewater operations, including the Scranton Wastewater Operations, across all of the Company's approximately 655,000 water customers is consistent with the important policy considerations underlying Section 1311(c), including ameliorating rate impacts on wastewater customers while imposing only a very modest increase on the water bills of the much larger base of water customers. Indeed, the amendment to Section 1311(c) made by Act 11 has extended to combined water and wastewater utilities a policy similar in significant respects to the concept of "single tariff pricing," which this Commission has approved and embraced for water utilities for approximately thirty-five years. Like single tariff pricing, allocating a portion of wastewater revenue requirement to the entire customer base recognizes that: (1) PAWC is an integrated company; (2) a multitude of functions needed to provide water and wastewater service are performed on a consolidated basis by PAWC employees and by the Service Company; (3) providing both water and wastewater service creates opportunities, over time, to capture economies of scale and scope; (4) the need for capital additions in different parts of the Company's water and wastewater systems will exhibit peaks and valleys in the short-run, but will revert to the mean over time; (5) "averaging" water and wastewater costs, which occurs to some extent when a portion of

wastewater revenue requirement is allocated to all customers, is very much like the cost averaging that single tariff pricing is explicitly designed to accomplish; and (6) cost averaging, whether effected by single tariff pricing or by the consolidation of water and wastewater revenue requirements, stabilizes rates and mitigates rate impacts for all customers over the long run because customers receiving an implicit subsidy today may (in fact, probably will) help provide a subsidy to other customers in the future.

In sum, while revenue requirement may vary by form of service and by location when a "snap shot" is taken in a single base rate case, time is the variable that eventually evens out those differences. And, even in the short-run, distributing some revenue requirement from one form of service or one group of customers to another has the effect of substantially mitigating the rate impact on customers from whom the revenue requirement is shifted, while having only a marginal effect on the much larger customer base that picks up the difference.

The rate stabilizing effect of the Company's proposal is particularly relevant for the Scranton area given the financial distress the City of Scranton and its residents – who are also wastewater customers – are trying to emerge from. These issues are discussed in the testimony of Messrs. Connelly and Barrett, as I will explain when I introduce other witnesses, below. In that regard, customers of the Scranton Authority received an approximately 47% increase in their wastewater rates in 2012 and have also experienced significant tax increases over recent years. The infusion of funds to the City from PAWC's acquisition of the Scranton Authority's wastewater assets is expected to address, and hopefully continue to improve, the City's financial conditions and, in that way, raise the economic prospects of the City and its residents. However, challenges remain, and the

Company's proposal to distribute a portion of the Scranton wastewater operations' revenue requirement to Water Operations will give City residents a period of time to absorb the impact of the prior rate and tax increases and allow the expected revitalization to take root and grow. The economic and demographic revitalization of the City will not only help the City and its residents, it will create important benefits for the Company's Scranton wastewater operations over the intermediate and longer term if the customer base can grow and improved economic activity drives revenue expansion from existing customers.

Introduction Of Other Witnesses

Q. Please identify the other witnesses who are providing direct testimony on behalf of PAWC in this proceeding.

A. In addition to me, the following witnesses will be responsible for presenting PAWC's case-in-chief:

James F. Sheridan is the Vice President of Operations for PAWC. Mr. Sheridan's testimony, which is PAWC Statement No. 2, discusses the general operations of the Company; initiatives taken to increase efficiency, improve service and control costs; employee safety and employee training and development; support for employee levels; and efforts to control non-revenue water.

David R. Kaufman is the Vice President of Engineering for PAWC. Mr. Kaufman's testimony, which is PAWC Statement No. 3, discusses the Company's claim for plant additions to be placed in service during the future and fully projected future test years, PAWC's fulfillment of main extension commitments from its 2013 base rate case, PAWC's acquisition of the Scranton Authority's wastewater assets, and operational and regulatory risks associated with the provision of public water and wastewater service.

John R. Cox is Director of Rates and Regulations for PAWC. Mr. Cox's testimony, which is PAWC Statement No. 4, discusses the Company's claimed rate base elements, depreciation expense, taxes other than income taxes, certain specific expense items not covered by other witnesses, and proposed tariff changes.

Jo Anne Lontz is a Senior Financial Analyst for PAWC. Her testimony is set forth in PAWC Statement No. 5 and addresses the Company's revenue claim, and the Company's rate structure and rate design proposal.

Jamie D. Hawn is a Senior Manager for Regulatory Services for AWWSC. Her testimony is PAWC Statement No. 6 and addresses the Company's claim for labor and labor-related expenses and Service Company expenses.

Daniel P. Hunnell is a Principal Financial Analyst for PAWC. His testimony is PAWC Statement No. 7 and addresses the Company's claim for inflation, purchased power, purchased water, chemicals, change in production costs due to changes in number of customers, leased vehicles, insurance other than group and postage.

Bernard J. Grundusky, Jr. is Director of Business Development for PAWC. His testimony, which is PAWC Statement No. 8, describes PAWC's various acquisitions made, or pending, since the Company's last base rate case.

Gregory P. Roach is Senior Director of American Water Engineering. His testimony, which is PAWC Statement No. 9, supports the Company's claim for a revenue adjustment to reflect declining residential consumption.

John R. Wilde is Senior Director-Tax of AWWSC. His testimony, which is PAWC Statement No. 10, supports the Company's claim for Federal income taxes.

John J. Spanos is Vice President of the Valuation and Rate Division of Gannett Fleming, Inc. His testimony, which is PAWC Statement No. 11, explains the development of the depreciated original cost of the Company's utility plant in service and its claim for annual depreciation expense.

Paul R. Herbert is President of the Valuation and Rate Division of Gannet Fleming, Inc. Mr. Herbert's testimony is PAWC Statement No. 12 and discusses the allocation of the cost of service to customer classifications and the design of tariff rates.

Ann E. Bulkley is a Senior Vice President of Concentric Energy Advisors, Inc. Her testimony, which is PAWC Statement No. 13, presents her recommendation regarding the rate of return that the Company should be afforded an opportunity to earn on its rate base and assesses the reasonableness of PAWC's proposed capital structure.

David D. Connelly is a Director of Fairmont Capital Advisors, Inc. His testimony, which is PAWC Statement No. 14, explains the relationship between the City of Scranton and the Scranton Authority and why the City's distressed status directly implicated the viability of the Scranton Authority.

Eugene P. Barrett is a Manager of Business Development for the Company. Mr. Barrett's testimony (PAWC Statement No. 15) discusses the City of Scranton and the Scranton Authority and factors related to the decision of the Scranton Authority to sell the Scranton wastewater system.

Scranton Wastewater Acquisition Adjustment

Q. Did PAWC record a Utility Plant Acquisition Adjustment when it acquired the wastewater assets of the Scranton Authority?

A. Yes. The Company recorded an acquisition adjustment together with applicable acquisition costs of $25.6 million ("Scranton Acquisition Adjustment"), which was calculated in the manner shown in Exhibit No. 3-C (Scranton Wastewater) at page 9.

Q. How did the Company reflect the Scranton Acquisition Adjustment for ratemaking purposes in this case?

A. The Company in this case is proposing to recover a return on, and a return of, its invested capital represented by the Scranton Acquisition Adjustment. The Company proposes to amortize the Scranton Acquisition Adjustment over a period of 40 years, which approximates the composite average service life of the Scranton wastewater operation's utility plant in service. Employing the pretax overall rate of return that the Company is proposing for its wastewater operations in this case, the annual revenue requirement attributable to the Scranton Acquisition Adjustment is $3,335,772. (Of course, this annual amount will decrease as the Scranton Acquisition Adjustment is amortized because the return rate is applied only to the unamortized balance.) The annual revenue requirement that would be incurred in the first year that rates established in this case are to be in effect represents approximately 41 cents per month across PAWC's total customer accounts excluding Scranton wastewater customers.

Q. What is the basis for the Company's claim to include the Scranton Acquisition Adjustment in its rate base in this case?

A. Section 1327(a) of the Code provides that a utility that acquires water or wastewater plant in service from another utility or a municipal corporation at a purchase price that is "in excess of the original cost of the property when first devoted to public service less the applicable accrued depreciation," is entitled to a "rebuttal presumption" that the amount paid above

depreciated original cost "is reasonable" and that "the excess shall be included in the rate base of the acquiring public utility" if the eight criteria set forth in Sections 1327(a)(1)-(8) are satisfied. PAWC is presenting evidence establishing that the criteria for maintaining the statutory "presumption" entitling the Company to include the Scranton Acquisition Adjustment in its rate base have been satisfied.

Q. What are the eight criteria delineated in Section 1327(a)?

A. The eight criteria set forth in Section 1327(a) are as follows:

> (1) the property [acquired] is used and useful in providing water or sewer service;
>
> (2) the public utility acquired the property from another public utility, a municipal corporation or a person which had 3,300 or fewer customer connections or which was nonviable in the absence of the acquisition;
>
> (3) the public utility, municipal corporation or person from which the property was acquired was not, at the time of acquisition, furnishing and maintaining adequate, efficient, safe and reasonable service and facilities, evidence of which shall include, but not be limited to, any one or more of the following:
>
> (i) violation of statutory or regulatory requirements of the Department of Environmental Resources or the commission concerning the safety, adequacy, efficiency or reasonableness of service and facilities;
>
> (ii) a finding by the commission of inadequate financial, managerial or technical ability of the small water or sewer utility;
>
> (iii) a finding by the commission that there is a present deficiency concerning the availability of water, the palatability of water or the provision of water at adequate volume and pressure;
>
> (iv) a finding by the commission that the small water or sewer utility, because of necessary improvements to its plant or distribution system, cannot reasonably be expected to furnish and maintain adequate service to its customers in

the future at rates equal to or less than those of the acquiring public utility; or

(v) any other facts, as the commission may determine, that evidence the inability of the small water or sewer utility to furnish or maintain adequate, efficient, safe and reasonable service and facilities;

(4) reasonable and prudent investments will be made to assure that the customers served by the property will receive adequate, efficient, safe and reasonable service;

(5) the public utility, municipal corporation or person whose property is being acquired is in agreement with the acquisition and the negotiations which led to the acquisition were conducted at arm's length;

(6) the actual purchase price is reasonable;

(7) neither the acquiring nor the selling public utility, municipal corporation or person is an affiliated interest of the other;

(8) the rates charged by the acquiring public utility to its pre-acquisition customers will not increase unreasonably because of the acquisition; . . .

Q. Please identify the witnesses who will address each of the Section 1327(a) criteria.

A. Mr. Connelly explains that PAWC's acquisition of the Scranton Authority's wastewater assets satisfies Section 1327(a)(2) of the Code. Mr. Kaufman addresses Section 1327(a)(3) and explains that, among other factors, this criterion is satisfied by the complaints filed in United States District Court by the United States Environmental Protection Agency ("EPA") and the Pennsylvania Department of Environmental Protection ("DEP") averring that the Scranton Authority had violated, and was continuing to violate, the federal Clean Water Act, the Pennsylvania Clean Streams Law and the terms and conditions of its discharge permit. The Scranton Authority acquiesced to a Consent Decree requiring operational changes and significant plant additions to address the averments of the EPA and DEP complaints. Mr. Kaufman will also address Section 1327(a)(4) by explaining the plant additions that the

Company will make to assure that the terms of the Consent Decree will not be violated. I will address Sections 1327(a)(1) and (5)-(8).

Q. Please address Section 1327(a)(1).

A. The property acquired from the Scranton Authority is used and useful in providing wastewater service[5] as the Commission found and determined in the Acquisition Order (p. 27), where it held that the addition of storm water to sewage and other constituent flows "does not change the character of the lines, mains, and other facilities used for public sewage collection, treatment, or disposal." In addition, the Company completed -- and submitted to the Commission -- a comprehensive original cost study of the property acquired from the Scranton Authority, which inventoried the acquired plant in service and compared it to the amounts recorded on the audited books of account of the Scranton Authority.[6] Accordingly, Section 1327(a)(1) is satisfied.

Q. Please address Section 1327(a)(5).

A. The Scranton Authority and the City of Scranton, which was the entity that had political appointment power over the board of the Scranton Authority, were in full agreement with the sale of the Scranton wastewater assets to PAWC. As Mr. Connelly explains, monetizing the value of the Scranton wastewater system was a recommendation of the 2015 Recovery Plan developed by the Recovery Plan Coordinator that was appointed because the City was declared to be a "distressed city" under Pennsylvania Act 47. The Scranton Authority conducted a competitive request for proposals ("RFP") process to identify the final bidder

[5] The Commission has previously determined that the term "sewer" is synonymous with "wastewater" (Acquisition Order, pp. 12, 15 and 27), and any distinction between "sewer" service and "wastewater" service was conclusively eliminated by the definition of "wastewater" added to the Code by Act 154, as I previously explained.

[6] The original cost study was filed with the Commission and served on the public advocates on February 3, 2017.

with which the Authority freely negotiated the final terms of the Asset Purchase Agreement at arms' length. The Asset Purchase Agreement was filed with the Commission as part of the proceeding that culminated in the Acquisition Order. The history of both the RFP process and the arms' length negotiations between PAWC and the Scranton Authority were described in detail in testimony submitted on behalf of the Scranton Authority in the acquisition proceeding. Accordingly, Section 1327(a)(5) is satisfied.

Q. Please address Section 1327(a)(6).

A. The reasonableness of the purchase price is established by the robustness of the RFP process and of the arms' length negotiations by which the terms of the Asset Purchase Agreement, including the purchase price, were established. Simply stated, a willing buyer and a willing seller, both of whom were managed and advised by decision-makers with the knowledge, experience and expertise to make sound and reasonable assessments of the value of a wastewater system, reached an arms' length agreement after a competitive RFP process had delineated a range of reasonable values. In addition, I have reviewed studies undertaken in connection with a recent acquisition of another wastewater system to assess the fair market value of the acquired system. The results of those studies are a further confirmation of the reasonableness of the purchase price paid by PAWC for the Scranton wastewater system.

Q. Please describe the studies you reviewed and the results of those studies that you used to benchmark the reasonableness of PAWC's purchase price.

A. Two valuation studies were prepared by utility valuation experts on behalf of Aqua Pennsylvania Wastewater Inc. ("Aqua Wastewater") for its acquisition of the New Garden Township (Chester County) ("New Garden") sewer system. The studies are public documents. Aqua Wastewater's studies were prepared to support its Application to invoke

the provisions of Act 12 of 2016. Act 12 added Section 1329 to the Code to establish the process for determining the fair market value of acquired water and wastewater systems to be included in the acquiring utility's rate base. The Aqua Wastewater studies employed the same basic methodologies. The value of the acquired system was calculated using a cost approach, a market approach and an income approach,[7] and the fair market value was determined based on a weighted average of each approach. The results of those studies are summarized on Schedule RPN-3.

Q. What does Schedule RPN-3 show?

A. Schedule RPN-3 shows the depreciated original cost of the acquired system and the value calculated under each of the approaches the studies employed. For each valuation approach, the ratio of the valuation to depreciated original cost of the acquired system is also shown. Based on the weighting of each valuation approach used in each study, the fair market value of the acquired system is shown, as well as the ratio of its fair market value to its depreciated original cost ("FMV to DOC ratio"). The FMV to DOC ratios are 1.65 and 1.81 and average 1.73.

Q. How do the FMV to DOC ratios shown in Schedule RPN-3 compare to the ratio of the purchase price to the depreciated original cost of utility property acquired from the Scranton Authority?

A. As also shown on Schedule RPN-3, the depreciated original cost of the plant in service acquired from the Scranton Authority less contributions in aid of construction ("CIAC"), is $100,963,647. Multiplying that figure by the average FMV to DOC ratio derived from the Aqua Wastewater studies, the fair market value of the Scranton wastewater system is

[7] Aqua Wastewater's valuation studies are accessible on the PUC's website as follows: http://www.puc.state.pa.us/pcdocs/1496050.pdf and http://www.puc.state.pa.us/pcdocs/1496053.pdf.

$174,667,109. That figure needs to be increased for: (1) current assets net of liabilities acquired by PAWC; (2) $12 million for easements that the Scranton Authority is transferring post-closing; and (3) $16.7 million of construction work in progress that PAWC also acquired from the Scranton Authority, which brings the total fair market value of the acquired assets to $206,933,305. PAWC's final adjusted purchase price for the Scranton wastewater assets is $155,811,011. These data show that the purchase price is materially less than the fair market value of the Scranton wastewater assets PAWC acquired benchmarked by the Aqua Wastewater valuation ratios. Schedule RPN-3 also shows that the final adjusted purchase price is 1.17x the depreciated original cost of plant (less CIAC) and cost basis of other assets PAWC acquired. Accordingly, the data in Schedule RPN-3 supports the conclusion that the competitive, arms' length process PAWC and the Scranton Authority engaged in to arrive at the terms of the Asset Purchase Agreement produced a fair and reasonable purchase price for the Scranton wastewater assets, and, therefore, the requirement of Section 1327(a)(6) has been satisfied.

Q. Please address Section 1327(a)(7).

A. PAWC is a subsidiary of American Water. American Water is a corporation, and its stock, which is listed on the New York Stock Exchange, is widely held by individual and institutional shareholders. The Scranton Authority is a municipal authority formed by the City of Scranton and subsequently joined by the Borough of Dunmore, with the City and Borough authorized to appoint four members and one member of the Authority's board, respectively. The City of Scranton, which controlled the Authority through its power to appoint the majority of its board, is a City of the Second Class. PAWC is not an affiliated interest of either the Scranton Authority or the City of Scranton, and neither the Scranton

Authority or the City of Scranton is an affiliated interest of PAWC. Accordingly, Section 1329(a)(7) is satisfied.

Q. Please address Section 1329(a)(8).

A. I previously explained that, if the Scranton Acquisition Adjustment is included in the Company's rate base in this case, is amortized over a period of 40 years and the pretax return on the unamortized balance is calculated at the Company's proposed overall rate of return for wastewater operations, it would add approximately 41 cents to the monthly bill of the Company's pre-acquisition customers. An increase of that amount is not unreasonable in my opinion and, therefore, Section 1327(a)(8) is satisfied.

Q. In addition to the Section 1327(a) criteria, is there any other aspect of PAWC's acquisition of the Scranton wastewater system that you believe is relevant to the Company's claim to include the Scranton Acquisition Adjustment in its rate base in this case?

A. Yes, there is. In the proceeding in which PAWC sought and obtained certificates of public convenience to acquire the Scranton wastewater system and to provide wastewater service in the Scranton Authority's service area, the parties addressed the future viability of the Scranton Authority if the acquisition were not approved and the affirmative public benefits that the acquisition would generate. In the Acquisition Order (pp. 48-49), the Commission expressly found that the "Joint Applicants raised a number of significant concerns regarding SSA's ability to maintain long-term financial viability." In addition, the Commission found and determined:

> [W]e are persuaded by the evidence presented by the Joint Applicants that PAWC is better positioned to own and operate the combined wastewater system and to implement the necessary capital improvements to the system in conformance with the Consent Decree.

Acquisition Order, p. 46.

The Commission's findings demonstrate that PAWC's purchase of the Scranton wastewater system is exactly the kind of acquisition that Section 1327(a) was designed to encourage and facilitate. In short, in addition to satisfying all of the specific criteria set forth in Section 1327(a)(1)-(8), PAWC's acquisition of the Scranton wastewater system is consistent with, and fulfills, the overarching purpose for which Section 1327(a) was enacted – namely, to assure that distressed and nonviable water and wastewater systems will be owned and operated by larger utilities with the operational expertise and financing capacity to undertake, and complete, plant additions in compliance with regulatory mandates and good utility practice; that safe and reliable service will be provided to the acquired systems' customers; and that the acquiring utility's pre-acquisition customers are asked to bear only a reasonable (indeed, in this case, a minimal) increase in costs.

Declining Residential Consumption

Q. Has the Company made an adjustment to test year revenue at present rates to reflect a continuing decline in per-customer residential consumption?

A. Yes, it has. This adjustment, which is shown on page 10 of Exhibit 3-A (Water), reflects the decline in residential per-customer consumption that was identified and quantified by Mr. Roach in PAWC Statement No. 9. Mr. Roach has calculated a continuing decline in residential consumption of 920 gallons, or 2.14%, per year. Averaged across PAWC's residential customer base, this equates to about 2.5 gallons less usage per day per account. Mr. Roach explains the statistical analysis he performed to quantify the ten-year trend of declining residential usage and discusses the reasons why he believes the decline will continue for the foreseeable future. In broad summary, the primary driver of this decline in

usage is water-efficient plumbing fixtures and water-efficient appliances, which are mandated by federal law. Other factors contributing to the decline include increased societal emphasis on conservation and the environment, Company and government programs encouraging efficient water use, and changes in consumer behavior in response to price signals provided by rising water and energy rates.

Q. How was the adjustment to the Company's test year revenue for declining residential consumption calculated?

A. The details of the calculation are set forth in the Company's response to Question No. FR II.2 of the Commission's Standard Filing Requirements. The Company's adjustment reflects the fact that actual historic test year residential usage incorporates, on average, approximately one-half of the decline in usage occurring from the beginning of 2016 to the end of 2016. Additionally, the decline in consumption will continue through 2017 and into the rate application period. Consequently, the Company calculated the impact of declining consumption from the mid-point of the historic test year to the mid-point of the first year of the rate application period (which, in this case, also coincides with the fully projected future test year), or an interval of 24 months. Over this period, the decline in residential usage per-customer, based on the annual decline in consumption calculated by Mr. Roach (920 gallons), is 1,840 gallons. This per-customer amount was multiplied by the estimated number of residential customers at December 31, 2017 and December 31, 2018. The product is the decline in consumption for the residential class of 11,145,874 hundred gallons. This change in usage was multiplied by the existing residential usage rate of $1.0141 per hundred gallons to derive the reduction to test year revenue at present rates shown on page 10 of Exhibit 3-A (Water).

Performance Factors – Section 523 Of The Code And 52 Pa. Code § 69.711

Q. Does the Code authorize the Commission to consider performance factors in arriving at a utility's allowable revenue requirement in a base rate case?

A. Yes. Section 523 of the Code provides that the Commission "shall consider" the "efficiency, effectiveness and adequacy of service" of a utility when determining just and reasonable rates. In addition, the Commission has adopted a Policy Statement on Small Nonviable Water and Wastewater Systems at 69 Pa. Code § 69.711 stating that it will consider regulatory incentives, including "rate of return premiums," to encourage and reward the continued acquisition of troubled water and wastewater systems by larger, viable utilities.

Q. What does Section 523 provide regarding performance factors to be considered by the Commission?

A. Section 523(a) directs the Commission to consider performance factors, while Section 523(b) identifies the kinds of factors that are relevant in assessing a utility's performance. Section 523(a) and the portions of 523(b) that are relevant to a water and wastewater utility are set forth below:

> (a) Considerations. – The Commission shall consider, in addition to all other relevant evidence of record, the efficiency, effectiveness and adequacy of service of each utility when determining just and reasonable rates under this title. On the basis of the commission's consideration of such evidence, it shall give effect to this section by making such adjustments to specific components of the utility's claimed cost of service as it may determine to be proper and appropriate. Any adjustment made under this section shall be made on the basis of the specific findings upon evidence of record, which findings shall be set forth explicitly, together with their underlying rationale, in the final order of the commission.

(b) Fixed Utilities. – As part of its duties pursuant to subsection (a), the commission shall set forth criteria by which it will evaluate future fixed utility performance and in assessing the performance of a fixed utility pursuant to subsection (a), the commission shall consider specifically the following:

(1) Management effectiveness and operating efficiency as measured by an audit pursuant to Section 516 (relating to audits of certain utilities) to the extent that the audit or portions of the audit have been properly introduced with applicable rules of evidence and procedure.

* * *

(5) Action or failure to act to encourage cost-effective conservation by customers of water utilities

* * *

(7) Any other relevant and material evidence of efficiency, effectiveness and adequacy of service.

Q. What does the Commission's Policy Statement at 52 Pa. Code § 69.711 provide regarding performance-based incentives?

A. Section 69.711 states in relevant part as follows:

(a) *Acquisition incentives.* In its efforts to foster acquisition of suitable water and wastewater systems by viable utilities when the acquisitions are in the public interest, the Commission seeks to assist these acquisitions by permitting the use of a number of regulatory incentives. Accordingly, the Commission will consider the following acquisition incentives:

(1) *Rate of return premiums*. Under 66 Pa.C.S. § 523 (relating to performance factor considerations), additional rate of return basis points may be awarded for certain acquisitions and for certain associated improvement costs, based on sufficient supporting data submitted by the acquiring utility within its rate case filing. The rate of return premium as an acquisition incentive may be the most straightforward and its use is encouraged.

Q. Is the Company proposing that performance factors relating to its "efficiency, effectiveness and adequacy" and its significant efforts to address the problem of small, troubled and nonviable water and waste water systems be considered by the Commission in this case?

A. Yes, it is. For the reasons I will discuss later my direct testimony, the Company strongly believes, and proposes, that the Commission should implement the terms of Section 523 and its Policy Statement in establishing the Company's allowable rate of return on equity in this case. Specifically, Ms. Bulkley has recommended a range of reasonable rates of return on equity from 10.0% to 10.8%. Both Ms. Bulkley and I recommend that the Commission adopt a rate of return on equity of 10.8% -- the upper end of Ms. Bulkley's range -- in recognition of PAWC's superior management performance based on the factors delineated in Section 523 of the Code and 52 Pa. Code § 69.711. In addition, and for the same reason, if the Commission were to approve a rate of return on equity that is lower than the upper end of Ms. Bulkley's recommended range, it should add no less than 25 basis points to its market-determined rate of return.[8] I would note that the addition of 25 basis points in recognition of exemplary management performance is consistent with the Commission's decision to add that increment to the market-determined rate of return on equity it approved in the 2007 base rate case of Aqua Pennsylvania at Docket No. R-00072711.

Q. Please summarize the evidence that PAWC is presenting in this case to demonstrate its exemplary management performance relative to the factors in Section 523 of the Code and the Commission's Policy Statement.

[8] Of course, if the Commission's market-determined rate of return on equity is greater than 10.55%, then the performance-based increment could be less than 25 basis points to achieve a final equity return rate of 10.8%.

A. The Company's performance is addressed at a later point in my direct testimony and in the direct testimony of three other PAWC witnesses. Mr. Sheridan discusses a number of relevant Company initiatives: (1) optimizing water treatment plant performance and water quality, and the recognition PAWC has received for both; (2) productivity gains and success in reducing operating and maintenance expenses; (3) a robust program to reduce non-revenue water; (4) improvements in energy efficiency and resulting reductions in energy costs; (5) improvements in operational efficiency including successful efforts to control waste disposal, purchased water and vehicle fleet expenses; (6) use of technology to improve field operations; (7) the deployment of advanced metering infrastructure to increase productivity and control meter reading costs; and (8) PAWC's excellent safety record and its commitments to employee safety and employee development.

Mr. Grundusky discusses in detail the Company's substantial efforts to implement the Commission's and DEP's long-standing policy to eliminate the problems of small, troubled and nonviable water and wastewater systems by acquiring those systems and making the improvements needed to assure safe and reliable service. Mr. Grundusky also explains the Company's efforts to extend its mains to help households that do not have a public water supply and whose wells produce water of inadequate quality or quantity.

Mr. Kaufman describes in detail the substantial improvements the Company has made during the historic test year and will make during the future and fully projected future test year to address the service, safety and environmental problems of the small, troubled and nonviable water and wastewater systems the Company has acquired in furtherance of the Commission's policy I described above.

Q. What aspects of PAWC's performance are you addressing?

A. I am addressing five areas: (1) PAWC's dedication to continuous improvement and cost containment; (2) PAWC's substantial efforts to augment revenues from sources other than customers' rates; (3) the Company's environmental record; (4) the Company's industry-leading programs to assist low-income and payment-troubled customers; and (5) the Company's community engagement and consumer education initiatives.

Q. Please discuss the first factor you identified above.

A. The Company is committed to continuous improvement in all aspects of its performance. As part of its commitment to continuous improvement, the Company works to contain and, if possible, reduce, its operating and maintenance expenses while assuring that customers continue to receive high-quality, safe and reliable water and wastewater service. As I previously explained, these efforts have proven to be successful, as the Company has been able to reduce the operating and maintenance expense of its water operations by approximately $2.4 million since its last case. This reduction in expenses has occurred without any deterioration in service and, in fact, with improved service metrics. The reduction of water operating and maintenance expenses served to reduce the level of increase that would otherwise be needed by the Company in this case. It is also noteworthy that it has been four years since PAWC last filed a request to increase its base rates, notwithstanding the substantial additions to non-DSIC plant and equipment it made during that period.

Q. How has the Company enhanced revenues from sources other than rates in order to benefit customers?

A. The Company has been working to mitigate customer rate impacts by trying to find sources of non-rate revenue to be recorded "above the line" for ratemaking purposes. The two most

significant examples are: (1) rentals of space on water tanks for antennae for cellular telephones and similar applications; and (2) permitting carefully-controlled and environmentally-sensitive timbering on Company property. Antennae rentals will produce $560,000 in annual non-rate revenue in the fully projected future test year. Timber sales produced $827,900 in annual non-rate revenue in 2016, which the Company projects will remain at that level through the end of the fully projected future test year. Consequently, the Company's revenue deficiency is lower by reason of reflecting those revenues "above the line" in this case.

Q. Does the Company's environmental record exhibit the results of excellent management performance?

A. Yes, it does. The Company has met and continues to meet all federal and state drinking water regulations. Additionally, the Company is the leading participant in the EPA's Partnership for Safe Water Treatment Program ("Partnership"), which means that it treats water to a standard that surpasses the requirements imposed by EPA and DEP. Mr. Sheridan discusses in more detail the recognition and awards PAWC has received from the Partnership.

Q. Please address PAWC's leadership in helping its customers who may have short-term or long-term difficulties in paying their water or wastewater bills.

A. PAWC initiated the very first water utility customer assistance program, which began in 1991. The program is multi-pronged, providing a 80% reduction in the customer service charge for those who qualify, grants of up to $500.00 per customer per program year for water/and or wastewater customers and conservation education through Dollar Energy Fund.

Q. Is the program unique?

A. Yes. There is one significant difference between PAWC's H2O (Help to Others) program and customer assistance programs of other water utilities. PAWC contributes $300,000 of shareholders' return to the H2O program to help customers in need. Some other water utility customer assistance programs help water customers with funds provided by other customers; their shareholders do not contribute to assisting low-income and payment-troubled-customers. PAWC's program is, therefore, unique, and the Company's leadership in this regard should be acknowledged.

Q. Have you enhanced the customer assistance program in any other way?

A. Yes. In its 2010 wastewater base rate case, PAWC expanded its H2O program to include wastewater customers. Under the wastewater program, eligible low-income customers qualify for a 15% reduction in their entire wastewater bill. The Company also contributes $10,000 to the H2O program to assist wastewater customers. As the Company acquired more wastewater systems, especially those that are troubled and require significant capital, it identified the need for this program to help its disadvantaged wastewater customers.

Q. Has PAWC taken a leadership role in community engagement and consumer education?

A. Yes. PAWC's public education program, especially its initiative to educate the youth of the Commonwealth, is unsurpassed in depth and breadth. Not only do we conduct water camps for elementary school children in the Commonwealth during the summer and teach classes on watershed protection, water treatment, the water cycle and water conservation in the classroom during the school year, we also conduct plant tours, programs for Girl Scouts and Boy Scouts, judge "envirothon" competitions and participate in Earth Day activities. Our

annual "Protect Our Watershed Art Contest" for 4th, 5th and 6th graders throughout the Commonwealth attracts more than 500 applications. Our "Stream of Learning" scholarships support outstanding students in our service area pursuing careers in the water and wastewater industries. Education of our youth produces both short and long term benefits for water quality and reliability. All of these efforts are part of PAWC's commitment to assure the wise and efficient use of water and to promote water conservation.

Q. Does PAWC have any other programs to promote water conservation?

A. Yes, it does. PAWC conducts water audits, provides water conservation kits and offers in-home repairs to water-using facilities to help eligible low-income customers reduce their water usage. PAWC also makes water conservation kits available at cost to other customers to help them conserve water.

Q. What should the Commission conclude from the totality of the evidence PAWC has presented on its performance factors?

A. The well-documented exemplary performance of the Company's management discussed above and in the testimony of Messrs. Sheridan, Grundusky and Kaufman fully justifies approving a rate of return at the upper end of Ms. Bulkley's recommended range – namely, 10.8% – and, in any event, an increment of at least 25 basis points to a lesser market-determined rate of return on equity approved by the Commission, up to 10.8%.

Investment Of The Additional Income To PAWC From 50% Of The Section 1301.1(b) "Differential"

Q. Have you reviewed Mr. Wilde's direct testimony regarding Section 1301.1(b)(1) of the Code and the Company's plan to invest 50% of the "differential" resulting from the implementation of Act 40?

A. Yes, I have. As Mr. Wilde noted, I will address that issue.

Q. How does the Company plan to invest 50% of the "differential" (approximately $2.2 million per year) that Mr. Wilde calculated?

A. The Company intends to meet with interested stakeholders, including the public advocates, to obtain their input and, hopefully, their agreement, on a plan to invest 50% of the "differential" in a manner consistent with the requirements of Section 1301.1(b)(1). The forms of investment may include projects to extend the Company's mains to address health and safety issues pursuant to Rule 27.1(F) of its tariff or for infrastructure enhancement projects that will improve the quality and reliability of service. The projects undertaken with 50% of the "differential" under Section 1301.1(b)(1) will be in addition to the projects already included in the plant additions the Company plans to construct in the future test year and fully projected future test year and in addition to the projects included in the Company Long Term Infrastructure Improvement Plan that is pending approval from the Commission.

Conclusion

Q. Does this conclude your direct testimony at this time?

A. Yes, it does.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
v.	:	**DOCKET NO. R-2017-2595853**
PENNSYLVANIA-AMERICAN WATER COMPANY	:	

VERIFICATION

I, **Rod P. Nevirauskas**, hereby state that the facts set forth in the pre-marked Statement No. 1 and accompanying exhibits, if any, are true and correct to the best of my knowledge information and belief. I understand that this verification is made subject to the provisions and penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: April 28, 2017

Rod P. Nevirauskas

Pennsylvania-American Water Company.
Rate Increase Request

Filing Date:	April 28, 2017
Historic Test Year:	12 Months Ended December 31, 2016
Future Test Year:	12 Months Ended December 31, 2017
Fully Projected Future Test Year	12 Months Ended December 31, 2018
Increase Requested	$107.9 Million
Percentage Increase:	16.4% in overall revenues
Effective Date:	January 27, 2018 (based on full suspension)
Rate of Return:	8.22% on rate base; 10.80% ROE

Type of Capital	Proportion of Total	Cost Rate	Weighted Cost
Debt	46.09%	5.22%	2.41%
Preferred Stock	.16%	8.66%	.01%
Common Stock	53.75%	10.80%	5.80%
Total	100.00%		8.22%

Elements of Increase	Required Revenue
Capital Projects (Rate Base)	$ 57.2 Million
Declining Residential Consumption	$ 23.8 Million (1)
Return on Equity	$ 16.5 Million
Scranton Sewer Acquisition	$ 10.4 Million
Total	$ 107.9 Million

Note 1 - Decline in residential consumption since December 31, 2014

PENNSYLVANIA AMERICAN WATER
RATE CASE FILING
Docket No. R-2017-2595853

Schedule RPN-2

		Total Company PROPOSED
1.	Revenues at Present Rates	$657,296,394
2.	Amount of Increase (Decrease)	107,925,808
3.	% Increase	16.4%
4.	Revenue	765,222,202
5.	O & M Expense	222,427,535
6.	Depreciation	131,956,844
7.	General taxes	14,688,811
8.	Income Taxes	133,146,019
9.	Sub-Total	502,219,209
10.	Utility Operating Income	263,002,993
11.	Interest on Long-Term Debt	73,767,750
12.	Other Interest	3,182,668
13.	Preferred Dividends	459,848
14.	Other Deductions	0
15.	Sub-Total	77,410,266
16.	Income to Common Stock (Fallout)	$185,592,727
17.	Original Cost of Rate Base	$3,199,393,006

Rate of Return and Return on Common Equity Absent Rate Relief

Utility Operating Income	$201,097,882
Income to Common Stock (Fallout)	123,739,408
Original Cost of Rate Base	3,199,393,006
Common Equity	1,719,684,247
Rate of Return	6.29%
Return on Common Equity	7.20%

Schedule RPN-3

Seller	Buyer	Consultant	DOC	Cost Approach		Market Approach		Income Approach		FMV
				Value	Weighting	Value	Weighting	Value	Weighting	
New Garden:										
Value to DOC Ratio	Aqua	AUS	$18,567,728	$30,615,410	100%	$29,500,000	0%	$30,090,662	0%	$30,615,410
				1.65		1.59		1.62		1.65
New Garden:										
Value to DOC Ratio	Aqua	Gannett Fleming	$18,590,089	$18,590,089	10%	$34,385,471	45%	$36,297,487	45%	$33,666,000
				1.00		1.85		1.95		1.81
Value to DOC Ratio										
Average				1.33		1.70		1.79		1.73
Low				1.00		1.59		1.62		1.65
High				1.65		1.85		1.95		1.81

Acquisition of Wastewater Assets of The City of Scranton Sewer Authority

Depreciated Original Cost (DOC)	$100,963,647
Value To DOC Ratio	1.73x
DOC x Value to DOC Ratio	174,667,109
Current Assets (Net of Liabilities) Acquired	3,564,625
Easements To Be Transferred Post-Closing	12,000,000
Construction Work In Progress	16,701,571
Fair Market Value	206,933,305
Final Adjusted Purchase Price	$155,811,011

DOC	$100,963,647
Current Assets (Net of Liabilities) Acquired	3,564,625
Easements To Be Transferred Post-Closing	12,000,000
Construction Work In Progress	16,701,571
Total (Assets Acquired)	$133,229,571
Final Adjusted Purchase Price	$155,811,011
Ratio - Final Adjusted Purchase Price to DOC/Cost Of Assets Acquired	1.17x

PAWC STATEMENT NO. 2

DIRECT TESTIMONY
OF
JAMES F. SHERIDAN

DESCRIBING
PENNSYLVANIA-AMERICAN WATER COMPANY'S OPERATIONS, OPERATING EFFICIENCIES, EMPLOYEE LEVELS AND COMPENSATION AND CORPORATE OFFICE RELOCATION

DOCKET NO. R-2017-2595853

DATE: April 28, 2017

PENNSYLVANIA-AMERICAN WATER COMPANY

DIRECT TESTIMONY OF JAMES F. SHERIDAN

Q. Please state your name and business address for the record.

A. James Sheridan, 800 West Hersheypark Drive, Hershey, PA 17033.

Q. By whom are you employed and in what capacity?

A. I am employed by Pennsylvania-American Water Company ("PAWC" or "Company") as the Vice President – Operations.

Q. What are your responsibilities as PAWC's Vice President - Operations?

A. I am responsible for all of the Company's water and wastewater operations across the Commonwealth, managing a team of approximately 995 professionals in 37 districts, serving 2.3 million Pennsylvanians.

Q. Please describe your professional education and experience.

A. I attended Queens University in Belfast, Northern Ireland, earning a bachelor's degree in Civil Engineering. I am also a Chartered Engineer, and a professional member of the Institution of Civil Engineers and the American Water Works Association.

I have more than 25 years of operational, engineering and business experience in the water and wastewater industry. I joined PAWC in November 2014. Before that, I was president of American Water's Military Services Group, which supports the U.S. Department of Defense's utilities privatization program. In this role I led a team of professionals dedicated to the provision of drinking water, wastewater and other related services to our military servicemen and women on 11 Department of Defense installations in ten states. I was responsible for the transition of these operations from Federal to private ownership as well as the ongoing operational, business and compliance demands. Prior to joining American

Water in 2000, I held positions in New Jersey with a joint venture between American Water and Anglian Water, a private water company based in the UK, to pursue market based opportunities in the United States. My career in the water industry started as a civil engineer, designing water and wastewater facilities. Career progression included project management, business development and business leadership. I have worked in the water industry in New Zealand, Australia, England and Ireland, and, for the last 18 years, the United States.

Q. Have you previously testified before the Pennsylvania Public Utility Commission?

A. Yes. I provided testimony in support of the Company's acquisition of the Sewer Scranton Authority ("SSA") in Docket No. A-2016-2537209.

Q. What is the purpose of your direct testimony in this proceeding?

A. The purpose of my direct testimony is fourfold. First, I describe the Company's water and wastewater operations and facilities throughout Pennsylvania. Next, I describe some of the programs that contribute to PAWC's decreasing overall Operating and Maintenance ("O&M") expense in this case, and that enhance water and operating efficiencies and benefit PAWC's customers. Third, I will support the Company's employee levels and explain PAWC's employee compensation philosophy. Finally, I will discuss PAWC's decision to relocate its corporate offices from Hershey to Mechanicsburg.

Operations, Facilities & Commitment to Water Quality

Q. Please describe PAWC's operations.

A. PAWC owns, operates, and maintains potable water production, treatment, storage, transmission and distribution systems, and wastewater collection, pumping, and/or treatment systems, for furnishing water and wastewater services to approximately 710,000

residential, commercial, industrial, and governmental customers in communities located in 36 of the 67 counties across Pennsylvania.

The Company has established two geographically-defined operating areas that collectively serve an estimated population of more than 2.3 million people. The western Pennsylvania operating area serves an estimated population of one million people located in fifteen counties. Some of the larger communities served include Butler, New Castle, Ellwood, Indiana, Punxsutawney, Warren, Kane, portions of the City of Pittsburgh and its southern suburbs, McMurray, Uniontown, Brownsville and Connellsville. Large customers include U.S. Steel, the Western Allegheny County Municipal Authority, AK Steel, Allegheny County Housing Authority, Koppel Steel, United Refining, Clarion University and Eastman Chemical Company.

The eastern Pennsylvania operating area serves an estimated population of 1.3 million people in 21 counties. Some of the larger communities served include Wilkes-Barre, Scranton, Camp Hill, Mechanicsburg, Hershey, Palmyra, Philipsburg, Milton, Norristown, Coatesville, Berwick, Milton, Yardley, and the suburbs of Reading. Several of the large customers served in eastern Pennsylvania are Fairchild Semiconductor, U.S. Penitentiary at Allenwood, Hershey Foods, Hershey Medical Center, Lion Brewery, Quaker Oats Company, Furman Foods, Norristown State Hospital, Montgomery County correctional facility, Mittal Steel, ConAgra Grocery Products and Glaxo SmithKline.

Q. Please describe the facilities and property that PAWC uses to provide water and wastewater service to customers.

A. PAWC's utility plant accounts include land and land rights, structures and improvements, wells, pumping equipment and associated facilities, purification plant and equipment,

sludge disposal facilities, transmission and distribution mains, collection pipes, distribution storage facilities, service lines, meters, hydrants and other facilities, including materials and supplies. All of this plant and property is used to provide safe, adequate, efficient, and reliable water and wastewater services to PAWC's customers. A more detailed description of the source of supply, treatment, storage and distribution facilities within each district is provided as Volume 2 of the Company's responses to the Commission's filing requirements, which is titled *Scope of Operations.*

Q. Please discuss PAWC's commitment to water quality.

A. PAWC has provided water service to customers for over 130 years. We are acutely aware that water is the only utility product intended for customers to ingest, and that our customers rely on PAWC to provide them with safe and reliable water services. Water quality is of paramount importance to the health and well-being of our customers. Beyond health and safety, we know that PAWC's customers are also interested in the aesthetic qualities of the water we treat and deliver to them. We proactively look for ways to optimize treatment capabilities to continue to improve the overall quality of drinking water delivered to our customers, and do so in a way that strives to create operational efficiencies that also inure to the benefit of our customers.

Q. Please discuss PAWC's efforts to improve water quality.

A. The Company's participation in The Partnership for Safe Water (the "Partnership") program is one demonstration of PAWC's commitment to the health and safety of our customers through the delivery of clean, safe, high quality drinking water. The Partnership is an alliance of six drinking water organizations, including the United States

Environmental Protection Agency ("EPA"),[1] with a mission to improve the quality of water delivered to customers by optimizing water system operations. Each year, the Partnership recognizes water treatment plants for their optimization and water quality.

Q Has PAWC been recognized for its optimization and water quality achievements?

A. Yes. PAWC is a participant in the Partnership's water treatment plant optimization program and has repeatedly been recognized for its optimization and water quality achievements. There are approximately 53,000 water treatment plants in the U.S., with about 400 of those participating in the Partnership program. As of 2016, only 33 plants received the program's highest honor, the Phase IV Presidents Award.[2] In 2016, PAWC received six Phase IV Presidents Award recognitions and now has nine of the 33 surface water treatment plants that have received the Phase IV Presidents Award. In 2016, PAWC also received Phase III Directors Awards for its Rock Run Water Treatment Plant; Stony Garden Water Treatment Plant (Blue Mountain System) was recognized for maintaining the Phase III Directors Award status for five years; and nine additional plants were recognized for maintaining the Phase III Directors Award status for 15 years.

Q. Please discuss some of the Company's other efforts to improve water treatment effectiveness.

A. The Company continually evaluates new treatment chemicals for improved treatment effectiveness, cost efficiencies and safety. In the last several years, we have converted six plants from dry potassium permanganate to liquid sodium permanganate (Brownsville,

[1] Other Partnership organizations include the American Water Works Association ("AWWA"), Association of State Drinking Water Administrators ("ASDWA"), Association of Metropolitan Water Agencies ("AMWA"), National Association of Water Companies ("NAWC") and the Water Research Foundation ("WRF").

[2] Phase IV goals are the highest possible level of performance that can be achieved in the four-phase program. The President's Award recognizes achieving Phase IV's very stringent individual filter performance goals for turbidity.

Hays Mine, Hershey, Rock Run, Silver Spring, and West Shore). Although this change is cost-neutral on an effective dose basis, sodium permanganate has proven to be much more effective at controlling the creation of disinfection by-products at the plants. In 2011, following a public health recommendation from the U.S. Centers for Disease Control and Prevention ("CDC") on fluoride concentrations in drinking water, we worked with the Pennsylvania Department of Environmental Protection ("DEP") to modify our water supply permits to reflect the lower recommended concentration. All of our plants have converted from a dose of approximately 1.0 mg/L to a dose of 0.7 mg/L. In addition to implementing the CDC's recommendation, this change reduced fluoride chemical costs by 30%. Finally, the Company is converting treatment plants from use of gaseous chlorine for disinfection to on-site generated or bulk purchase of liquid sodium hypochlorite. Although this change does not currently produce appreciable cost savings, eliminating gas chlorine at these plants significantly reduces the risk of toxic exposures for our employees working at these plants and the communities surrounding them. Three large plants have converted to on-site generation (Aldrich, Hays Mine, Rock Run), and six additional plants have capital projects underway to convert to bulk purchase products (Ellwood City, Indiana, Lake Scranton, Milton, Watres, White Deer).

Q. Please describe other ways the Company is demonstrating its commitment to water quality.

A. The Company has enhanced its source water protection program by taking an integrated approach to monitoring its source water quality and evaluating risks to that source using innovative technologies, both of which support the Company's ability to make more informed decisions regarding treatment and when responding to potential source water

contamination events. The integrated approach includes source water quality monitoring panels and a map-based information gathering tool called WaterSuite.

Q. Please describe PAWC's source water quality monitoring panels.

A. The Company installed an online, multi-panel source water quality monitoring device at each of its surface water treatment plants as an effective tool for optimizing treatment decisions and aiding in the detection of potential source water contamination. The sensors in each panel monitor parameters in the source water that include turbidity, pH, oxygen reduction potential ("ORP"), temperature, conductivity, dissolved oxygen, dissolved organic carbon ("DOC"), oil and total organic carbon ("TOC"). This equipment will establish baseline water quality data for each parameter and alert water plant operators to certain changes in water characteristics. The Company can use this information to better understand the characteristics of its source water and better optimize chemical usage. In addition, a change in the baseline characteristics may indicate an issue that warrants additional investigation.

Q. Please describe WaterSuite.

A. WaterSuite is a map-based tool that collects information about potential sources of contamination from various sources[3] and pulls it into a database for a defined area of concern. The database is updated on a regular basis to include the latest available information and has search and reporting capabilities, which provides a significant advantage over standard static contaminant assessments. This gives the Company a dynamic tool it can continue to use over time rather than a paper based equivalent that captures only the circumstances present at a point in time. The database provides a larger

[3] Data sources may include publically available regulatory databases, aerial imagery analyses, and local knowledge.

set of data that is automatically updated on a periodic basis without requiring manual work by PAWC. As a result, PAWC can access more information more efficiently than in the past.

The Company can use the monitoring panels and WaterSuite together to better inform its treatment decisions and its response to a potential contamination event. Having more information is better than less when addressing any water quality concerns.

Operating and Maintenance Expense

Q. What is PAWC's forecasted O&M expense for the fully projected future test year (2018)?

A. PAWC's total O&M expense for the fully projected future test year is approximately $204 million for its water operations, $7.2 million for its wastewater operations excluding Scranton wastewater operations and $11.2 million for its Scranton wastewater operations.

Q. How does the Company's O&M expense claim for water operations in this case compare to PAWC's last rate case at Docket No. R-2013-2355276?

A. It is $2.4 million lower than the O&M expense claim in the Company's 2013 rate case and follows a $12 million reduction in O&M expenditures between PAWC's 2011 rate case (Docket No. R-2011-2232243) and its last rate case. In other words, if the Company had simply held expenses flat, its rate request would have been higher by $2.4 million. If PAWC's O&M expense had simply risen by inflation, it would have been higher still. This means that our employees have been able to "do more with less" by working smarter. These are very significant accomplishments, and we are justifiably proud of the fact that we have contained and reduced cost.

Q. How has PAWC been able to achieve such significant productivity?

A. PAWC has accomplished the O&M reductions described above through several means, including safety initiatives, employee development, business process improvements, and technology utilization and deployment. Our efforts to slow and mitigate cost increases, and even contain and reverse costs, have been very successful. We have been able to do so, in part, by prudent investments and an intense focus on improving efficiency, thereby increasing the Company's overall productivity.

Improving Water Efficiency

Q What is water efficiency?

A. In simple terms, water efficiency means using improved practices and technologies to deliver water service more efficiently. PAWC's efforts to improve water efficiency cover a wide range, and include supply-side practices, such as improved pump efficiency, more accurate meter reading and leak detection, main replacement and repair programs, as well as demand-side strategies, such as customer efficiency and public education programs to support water and energy efficiency. From an operations perspective, improving water efficiency requires achieving a cost-effective mix of prudent investments and improved operations and maintenance management capabilities targeting safety, customer satisfaction, sustainability, and system efficiency. Improving water efficiency results in a win-win-win situation. Customers, utilities, businesses, and the environment can all benefit from more efficient, higher quality service, reduced costs and sustainable use of natural resources.

Q. Please discuss PAWC's efforts to improve water efficiency.

A. The Company's ongoing investment in technology enables a better end-to-end view of its water and wastewater business. Improved water usage monitoring and leak detection,

water quality monitoring, and consumer-communications technology are just some of the benefits that result from the deployment of intelligent infrastructure, advanced communications, sensor networks and other technologies.

For instance, improved metering results in more accurate usage information and may increase employee efficiency. Leak detection programs can reduce the amount of water, pressure and energy required to deliver the same amount of water to consumers' taps. PAWC has a comprehensive program to manage unaccounted for water ("UFW") and proactively promotes wise water use to customers, which can reduce customer demand. Annually, our teams take part in a variety of community events, environmental grant programs, and firefighter grant programs. These events allow our employees an opportunity to meet with our customers and talk about water conservation, leak detection in our customers' homes, and other ways that customers can improve their water efficiency. And PAWC has implemented a successful Wise Water Use program that educates and encourages residential customers on how they can lower their water bills by putting some simple practices in place around the home and fixing water leaks in a timely manner.

Striving for increased water efficiency is evident in our infrastructure investments, which include main and service replacements to provide a better, more reliable system.

Prudent investment in technology enables us to leverage the size and scale of American Water to reduce manual tasks and increase automation. And our water efficiency efforts are demonstrated by investments in new metering and innovative data collection technologies, and by improved business processes that help us work smarter and more efficiently and, by extension, contribute to our cost control efforts.

Q. How is the concept of improving water efficiency relevant to this case?

A. Improving water efficiency not only reduces a significant amount of operations expense, but also is a more environmentally friendly way of conducting business. When water is used efficiently, it reduces capital and operating costs related to the provision of water and wastewater services, while also helping to protect and preserve our natural resources. Improving water efficiency saves customers money in the long run, protects the environment, supports integrated resource planning, and enhances the economy. Our ability to reduce O&M expenses from the level approved in our 2011 and 2013 rate cases proves the effectiveness of these efforts, and the consequent cost benefit to our customers.

Q. What is the Company's ultimate goal?

A. Our goal is to provide quality water and wastewater services as efficiently as possible, and by doing so, to increase the value of our services. Below I provide more detail on how the Company's investments and efficiency improvements aim to advance these goals.

Reducing Water Loss

Q. Please describe the Company's program to reduce water loss.

A. Reducing water loss is a very complex issue with many contributing factors. To reduce water loss as effectively as possible, we stress the need to gather standard data from our operating centers so that we can efficiently and effectively communicate what's working, what's not and how we're progressing on mitigating UFW around the state. UFW can be defined in a variety of ways across the water industry.[4] Non-revenue water ("NRW"), however, is consistently calculated by subtracting the number of gallons of water sold from the number of gallons of water treated. To avoid any ambiguity, American Water, based

[4] The AWWA had begun to discourage the use of the term Unaccounted for Water (UFW) since 2012 because its definition is inconsistent from organization to organization. There are several opportunities for inconsistency. For example, some organizations may deduct the number of gallons lost during a known main break while other exclude gallons lost as a result of main breaks all together.

in part on guidance from AWWA, measures its reduction in water loss in terms of NRW rather than UFW.

The Company rigorously applies water loss reduction practices as part of its normal course of business. These include regular monthly NRW meetings in both our east and west regions that provide target NRW reductions and goals by independent NRW report cards of activities; routine maintenance and promptly pursuing and repairing leaks that are identified. In addition, the Company has a number of NRW control measures embedded in its on-going business practice, which consist principally of:

- monitoring night flows within the different district metering areas across its systems (unexpected usage during off-peak periods can indicate leakage);
- metering water usage within various parts of a water district as another indicator of possible leakage;
- using a NRW-trained crew to find and report leaks daily, which are then promptly repaired;
- periodically using a NRW crew in a "SWAT" type approach to sweep larger areas of a particular system for leaks;
- using the Company's enterprise software to capture all work done by our crews, including main break repairs so that patterns can be analyzed geographically;
- using a data base for more accurate monthly reporting and monitoring of all non-revenue water use; and
- training our meter readers and other field personnel to identify and report possible theft-of-service situations (such as evidence of occupancy or other activity in premises with no registered consumption) and raising public awareness and understanding of the

operational and financial consequences of NRW, while working with local municipalities to develop theft-of-service ordinances and to enlist citizens and law enforcement to help address this problem.

In addition to these operations activities, PAWC has an aggressive capital expenditure program to reduce the number of small diameter mains, which also helps to reduce water loss from the system. The Company's capital expenditures for main replacement and rehabilitation are described in more detail by Mr. David Kaufman (PAWC Statement No. 3).

Q. Please describe some of the Company's efforts to reduce water loss since its last case.

A. Since our last case we also implemented two new components into our water loss reduction program – the Water Loss Reduction Charter and implementation of new leak detection equipment.

Q. **Please explain the Water Loss Reduction Charter.**

A. Each year, our operating centers create a Water Loss Reduction Charter setting forth commitments regarding the actions their operating center will take to specifically control and reduce lost water and the time frame within they intend to complete the specified actions. These commitments become part of each operating center leader's annual performance goals. The activities pursued by each operating center may vary but they are representative of the following types of best practices:

1) Leak Detection System Monitoring, to make sure our field installed instruments are being used to their capacity to detect non-surfacing leaks;

2) Manual leak detection where field installed instruments are not practical;

3) Repair of detected leaks in a timely fashion;

4) Ensuring leak detection equipment is functional and each team is routinely trained in optimizing it;

5) Large customer meter testing;

6) System Delivery meter testing;

7) Standardizing estimates for unbilled but authorized use - construction activities, firefighting, etc.;

8) Monitoring and following up on unmetered leak repairs on the customer side and potential theft of service; and/or

9) Completing capital improvements that will support water loss reductions.

The achieved action levels are tracked monthly against commitments and each leader meets with the support team on a monthly basis during a formal and pre-planned meeting specific to this topic.

Q. Please describe the new leak detection technology implemented by the Company to control NRW.

A. Starting in 2016 PAWC began installing leak detection sensors in the distribution system. These are different than the older versions in that they are cellular based and are able to transmit their findings to us on a daily basis. This transmittal eliminates the need to deploy resources to patrol the areas to collect the data, which allows for more timely analysis of the collected data. This technology also allows us to better identify those areas that need the most attention, resulting in more efficient deployment of repair crews.

By the end of 2017 we expect to have at least 5,000 of these deployed throughout the state. As of the end of 2016, with just 2,000 installed we already detected and corrected

over 150 previously unknown, non-surfacing leaks with a very conservative estimated savings of over 5 million gallons per day ("MGD"). While we don't know when these leaks formed or if they would surface in a week (upon catastrophic pipe failure), a month or never – we do know the technology found these for us soon enough that we could avoid catastrophic failures, reducing the cost of repair, cost of restoration, potential damage to other facilities or property and of course NRW. We also know that because these instruments transmit their findings to us daily, we avoid the labor associated with having to patrol the areas to collect the data, which would delay analyzing the collected data back at the office, and then deploying repair crews perhaps weeks after the leak may have started, between patrols.

Q. Are the Company's efforts producing favorable results?

A. Yes. For example, the areas where the leak detection sensors have been installed and we are using the charters as intended saw some benefits during the latter part of 2016. For instance, our New Castle/Ellwood and Mechanicsburg areas adopted these approaches and technologies earlier in 2016 and have seen early benefits as demonstrated in the chart below. These programs are being rolled out to all districts.

District	2015 NRW Gallons	2016 NRW Gallons	Reduction
Total Company	23.4 BG	23.2 BG	1%
New Castle/Ellwood	0.94 BG	0.84 BG	11%
Mechanicsburg	1.04 BG	0.97 BG	6.5%

Improving Energy Efficiency

Q. Please describe the importance of electricity to the water and wastewater business.

A. It takes a significant amount of energy to extract, treat, and deliver clean water to our customers and to collect, treat, and dispose of wastewater.[5] A large portion of a typical water utility's total energy consumption is used to pump water. As pumps age, they wear and become less efficient. As a result, more power is required to pump the same volume of water.

Q. Please describe the Company's efforts to improve energy efficiency and control costs.

A. PAWC is using various strategies to improve energy efficiency and reduce energy costs that include five principal components: (1) competitive energy procurement; (2) upgrading energy efficiency of treatment and pumping facilities; (3) lighting upgrades; (4) energy-use monitoring; and (5) obtaining rebates made available under electric utility programs implementing Pennsylvania Act 129.

Q. Please describe some of PAWC's energy cost mitigation strategies.

A. *Competitive Energy Procurement*. For several years PAWC has actively procured electricity supplies across its operations. The Company has used competitive bidding, including reverse auction platforms, to procure electricity supplies in the West Penn Power, Duquesne Light, Met Ed, PECO, Penelec, Penn Power and PPL service territories. The supply contracts that resulted from the bidding process are based on "shaped" fixed-pricing for a short-term period, typically two years. Aggregate annual electricity supply covered

[5] The electric and water sectors are closely aligned: the treatment and delivery of water and wastewater services requires a significant amount of energy, while energy extraction and production require a significant amount of water.

by the contracts is approximately 204 million kWh, or about 99.9% of the Company's annual electricity consumption. By aggressively bidding electricity supply, the Company has taken full advantage of the deregulated electricity supply market. In 2015 and early 2016 the Company recognized the historically low prices available in the energy market and negotiated extensions of the supply agreements through the end of 2019 to lock in the low energy prices.

*Energy Efficiency Upgrades***.** In 2011, the Company embarked on a comprehensive program to reduce electricity consumption at its water pumping facilities, which account for over 75 percent of its overall energy consumption. The objectives of the program are to reduce energy costs and greenhouse gas emissions that are associated with inefficient power consumption. The Company has performed "water-to-wire" efficiency testing (i.e., the efficiency of a pump and motor together) of its largest pumping facilities to identify opportunities to improve the efficiency of motors and pumps. From 2011 through 2016, the Company has refurbished and/or replaced pumps or motors at 26 of its pumping stations. These stations include all of the top-20 highest energy-consuming facilities in the Company's operations.

		Electricity reduction		
Facility	Year(s)	kWh	%	Annual savings
Becks Run PS	2012	3,435,882	16	$309,150
Aldrich WTP	2011-13	2,438,607	14	$160,948
Shire Oaks PS	2011-13	2,399,889	19	$172,792
Hays Mine WTP	2012	1,976,964	20	$177,927
Yellow Breeches PS	2015	550,000	14	$42,350
Hershey WTP	2014	510,048	10	$38,254
West Shore WTP	2015	375,180	14	$29,639
Milton WTP	2011	275,000	7	$24,750
Silver Spring WTP	2014	257,547	9	$19,831
Kane WTP	2012	155,832	22	$10,900
Lake Scranton WTP	2014	118,625	3	$8,660
Ellwood City WTP	2015	111,416	5	$7,131
Indiana WTP	2015	106,809	6	$6,836
Butler WTP	2015	92,083	19	$6,077
Total		**12,803,882**		**$1,015,244**

The Company will continue to identify other stations with less-than-optimum pumping efficiencies and will plan capital projects to improve their efficiencies.

In addition, PAWC was the first water utility in the country to use Smart Grid technology of ENBALA Power Networks to manage the way treatment plants and pumps use electrical power. Instead of adjusting electrical generation to match changes in electrical demand, the network adjusts demand, enabling electrical equipment to consume more energy when demand is low and less when it is high. This provides grid balance to electricity system operators.

Lighting Upgrades. Since 2009, the Company has upgraded the lighting and switches at 20 water treatment plants and eight office buildings/operations centers. These projects consisted of replacing existing metal halide and T12 fluorescent fixtures with new, high-efficiency T8 fluorescent fixtures; installing high-efficiency lamps; installing new high-efficiency outdoor LED lighting; and/or installing new switches with occupancy-

sensor controls. The projects have payback periods on the order of 2 years and provide energy savings and improved lighting for workspaces well into the future.

Energy Use and Monitoring. PAWC uses an American Water enterprise-wide application to monitor energy accounts across the state. This monitoring tool provides "before and after" benchmarking capabilities to help the Company assess the success of various efficiency initiatives. The Company has also installed real-time electricity meters and dashboards at 19 of its largest pumping facilities. The dashboard provides our operators real-time visibility of their electricity consumption and wire-to-water efficiency, and provides our engineers with discrete energy efficiency data on these large units to monitor and plan for future efficiency upgrades.

Act 129 Rebates. PAWC has been working with its electric suppliers since the inception of the programs for energy efficiency and conservation ("EEC") they instituted to comply with Pennsylvania Act 129. When electric utilities were developing their EEC programs, the Company participated in stakeholder meetings with their service providers to give them input from the water and wastewater industry. As the EEC programs were introduced by the electric utilities, PAWC reviewed its capital projects for eligibility under the rebate programs and applied for, and received, several rebates. So far, the Company has received 35 rebates for a total of $771,000.

Q. What are the benefits of PAWC's efforts to improve energy efficiency?

A. The benefits of PAWC's efforts to improve energy efficiency are three-fold; they provide more efficient, higher quality service; they reduce operating costs, through reduced energy consumption; and at the same time, they reduce carbon and other emissions. Through the comprehensive energy efficiency program outlined above, the Company has been able to

keep its fuel and power expense line flat to declining even as the Company has significantly expanded its operations over these years through organic growth and acquisitions.

Improving Operational Efficiency

Q. Please describe some of the Company's other efforts to improve operational efficiency that the Company has undertaken?

A. The Company continually strives to find more efficient and cost effective ways to operate and maintain its business. As part of that effort, we strive to manage our cost structure as efficiently as possible. We use various operational and efficiency reviews to further focus on improving customer service and efficiency of production and field operations. Through the size and breadth of American Water, the Company has continued to increase its purchasing power and obtain significant discounts on the necessary equipment needed to manage and maintain our system—including pipes, fittings, and water treatment chemicals—that we otherwise would be unable to obtain were we a smaller and more local enterprise. Cost reductions also have resulted from process improvements and technology deployment. They have achieved efficiencies in a variety of areas, including waste disposal, purchased water and fleet. In addition, PAWC is using technology to support efficiencies in the field and improve communications with its customers.

Q. Please describe what the Company has done to control waste disposal expenses.

A. The Company has a long history of exploring and implementing cost-effective beneficial uses for its treatment residuals, rather than relying on costly landfill disposal. The Company has been able to implement beneficial use practices at 31 of the Company's 37 water treatment plants and its largest wastewater treatment plant. On a dry weight basis, approximately 95% of the Company's water treatment residuals are beneficially used

across the state, at a cost far lower than conventional disposal at a landfill. Recently the Company has implemented capital improvement projects at several plants (Norristown water treatment plant, and the Blue Mountain Lakes, Marcel Lakes, and Saw Creek wastewater treatment plants) to improve the residuals dewatering process. This process lowers the overall weight of product to be transported and disposed and thus, the associated costs as well. In Norristown, since June 2016, we have been running a new centrifuge operation at the plant, resulting in approximately $129,000 in savings in our third party waste disposal expenses in the first year and similar levels of avoided cost going forward. On the wastewater side, a new press at the Saw Creek wastewater treatment plant has been used since January 2016 to dewater biosolids from that plant, as well as the liquid biosolids from the Blue Mountain Lakes and Marcel Lakes wastewater treatment plants. Now, rather than taking the residuals to a third party regional wastewater treatment plant, the Company hauls the dewatered solids to a local landfill for disposal, resulting in approximately $94,000 in savings in the first year and similar levels of avoided cost going forward.

Q. Please describe what the Company has done to control purchased water expenses.

A. The Company has implemented changes at two districts to control purchased water expenses. These two districts, Connellsville-Uniontown and Glen Alsace, have historically had the highest purchased water expenses of all of the Company's districts. In Connellsville-Uniontown, the Company negotiated a long-term purchased water agreement with a new supplier that provides long-term cost savings and certainty on future rate increases. This agreement went into effect in February 2017 and is currently saving $31,000 per month over the prior agreement. In 2016 in Glen Alsace, the Company began to shift more of the purchased water consumption load from a higher-cost provider to an

alternative lower-cost provider, resulting in $87,000 savings for the year. The Company is continually investigating potential capital upgrades to be able to shift even more load to the lower-cost provider in the longer term.

Q. How has the Company improved its fleet management?

A. The Company has established a fleet program to manage its fleet and its associated costs efficiently and cost effectively. In early 2016 we created two positions dedicated to ensuring our fleet is working optimally. These employees work hand in hand with our senior operations managers as well as the end users to optimize both initial cost and lifetime costs for every vehicle in the PAWC fleet. Additionally, they are the liaison with the American Water Works Service Company ("Service Company" or "AWWSC") fleet team who ensures overall competitive pricing and leveraging of national buying and negotiating power for both new vehicles and repair services. Our fleet personnel are held accountable to reduce expenses when possible without negatively affecting our ability to serve our customers.

As part of the capital planning process, we identify vehicles that are nearing the end of their depreciable life for replacement, generally targeting smaller replacement vehicles with better fuel consumption and lower initial and lifecycle costs. In 2016, we achieved a net reduction of our fleet by 35 vehicles, excluding the addition of 68 vehicles associated with two large system acquisitions. In 2017, we will continue to target 1 for 1 replacement whenever feasible and seek further reductions provided they will not impact service to our customers.

In addition, our consulting fleet management company, Element Inc., provides us with data each month that allows us to look for trends around vehicle repair costs and fuel consumption.

We also have a policy of strategically sharing vehicles across districts in order to balance the needs of the business, especially when a vehicle is near the end of its depreciable life and in need of repair before its permanent replacement is available.

Q. Does PAWC gain efficiencies from its affiliation with American Water?

A. As a subsidiary of American Water, PAWC has available to it the resources of the Service Company, which provides access to highly trained professionals who possess expertise in various specialized areas and who work exclusively for American Water's operating subsidiaries. Not only does the Company benefit from getting these services and expertise at cost, through the size and breadth of American Water, the Company has continued to increase its purchasing power and obtain significant discounts on the necessary equipment needed to manage and maintain our system—including pipes, fittings, and water treatment chemicals—that we otherwise would be unable to obtain were we a separately owned water system.

Q. How is the Company using technology to improve efficiencies in the field?

A. Accurate electronic maps ensure that the institutional knowledge currently held by some of our employees is captured for use by current and future employees. To that end, we have loaded our facilities into a geographic information system ("GIS") so that maps of PAWC's water and wastewater systems are accessible online. GIS includes the location and a short description of the facilities, giving us an electronic spatial view of our entire system. GIS also helps us to locate customers that might be impacted by related service

issues and allow us to more effectively communicate the impact directly with our customers. In addition, PAWC is implementing Map Call, an application that provides a more intuitive spatial interface among the Company'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. For example, a supervisor can create a work order to flush a dozen hydrants in a particular area. Using Map Call, the field worker can report progress as flushing is performed and both the supervisor and others in the field can visually see the progress made toward completing the identified work in real-time, through the MapCall interface. The same can be done to schedule and monitor other routine work as well as emergency work, such main break repairs. As MapCall is rolled out and the system matures, field workers will be able to access pressure and flow sensor data while in the field and see the impact of their activities, if any, allowing them to address potential issues that may arise in a more timely manner and minimize the impact on service to our customers.

In addition, Map Call will allow those in the field to more efficiently communicate water quality and other events (e.g., sewer overflows, etc.) through pre-loaded notifications via electronic mail to both internal and external stakeholders (including regulators), allowing them to quickly shift back to focusing on the task at hand and providing quality water and wastewater service to customers.

Q. How will employees working out in the field access this information?

A. Smart phones will allow us to utilize a variety of applications while in the field, including access to our maps. Our employees will be able to access Map Call on their phone and see the location of facilities near them.

Q. What are some other benefits of field workers having smart phones?

A. Smart phones allow employees to work with technologies that are more intuitive, user friendly and familiar.

Providing smart-phone access to various applications also supports more efficient operations, improves communication and further bolsters our safety program. In addition to accessing system maps as discussed above, employees will be able to communicate more efficiently through a messaging platform that is currently used across the business by employees with computer and smartphone access.

In addition, our safety program will be further enhanced by employees being able to report near misses as they are identified in the field and having access to Lone Worker. Lone Worker is an application that employees can use to set alerts or make emergency calls to management and Service Company's Integrated Operations Center ("IOC") while working alone and/or in potentially hazardous conditions. Lone Worker can be triggered by a passive or active alert. The passive alert is triggered after a defined period of inactivity. The active alert can be triggered by the employee immediately if they are in a potentially dangerous or hazardous situation or set to go off after a pre-identified period of time if it is not turned off by the employee within that timeframe.

Q. How is the Company using technology to improve its communications with customers?

A. Customer value is an integral component of our technology and innovation considerations. In addition to the technology-based improvements in water quality monitoring and treatment, water usage monitoring, leak detection and energy efficiency, among others, the Company has also made improvements to its customer communication technology. For example, the Company has implemented Code Red, a customer-facing cloud-based platform, which allows the Company to directly communicate with customers and issue timely notifications in the event of a water quality issue (boil water advisories, hydrant flushing, do not use orders, etc.). This improved communication technology coupled with water quality monitoring improves our capability to detect water quality concerns and more effectively communicate these concerns with customers. In addition, by implementing Map Call, PAWC will be able to better identify customers impacted by a particular water quality issue more precisely. With this enhanced technology, the Company will also be able to use Code Red to provide customers with notifications of other service-related activities in their area. For example, customers can be notified in advance of work that is expected to be performed in the area so they can proactively plan for the potential impact to their water service or reach out to the Company with any questions.

Advanced Metering Infrastructure

Q. Where is the Company implementing advanced metering infrastructure ("AMI")?

A. The Company is approximately 30% through implementing AMI for the entire Scranton district. Between 2015 and 2019, the Company will install approximately 140,000 AMI meters throughout that district.

Q. Why is PAWC focusing its AMI installation in Scranton?

A. Approximately 20 years ago, PAWC acquired the water system serving the City of Scranton. At that time, the Company replaced the meters within the district over a three-year period. Because meters have a maximum 20-year length of service (as set forth in the Commission's rules), the Company is in the unique situation of having to replace a large number of meters in the same area over a condensed period of time - 2015 through 2019. Also, after this replacement cycle, it will likely be another 20 years before the meters in the Scranton district are replaced again. Thus, now is the time to take advantage of the latest metering technology available to the Company. PAWC does not want to have to wait another 20 years before it can take advantage of AMI technology in this manner.

Q. What are some of the benefits of AMI technology?

A. AMI provides a variety of benefits stemming from PAWC's ability to collect consumption and interval data from the meter and transmit it to a computer network at any given time. They include improving safety, operations and customer service.

Q. How does AMI improve safety and operations?

A. With AMI, it will no longer be necessary for employees to walk or drive by meter routes in order to gather consumption data. This alone has the potential to:

- Increase efficiencies by reducing time spent reading meters;
- Reduce work place safety hazard exposures associated with meter reading activities for our employees;
- Reduce environmental impacts associated with having to make monthly trips to obtain meter readings; and
- Align our workforce to move positions from meter reading to other positions to better serve our customers.

In addition, PAWC can also use AMI data to uncover irregularities that may signal a leak, meter tampering or water theft. With the implementation of a meter data management system, the Company will be able to more efficiently collect, organize and analyze large quantities of meter data to support its water loss reduction efforts and improved customer billing.

Q. How will AMI improve the overall customer experience?

A. The use of AMI increases billing accuracy and reduces the likelihood of estimated bills by automatically providing timely accurate reads through the network. In addition, re-reads will be reduced due to the human factor being removed from obtaining the actual read. AMI also has the potential to provide customers with a view to their personal consumption more frequently than monthly, allowing them to monitor their usage – be it for conservation purposes or to identify and address unusually high usage. AMI also includes functionality that eases the turn on and turn off process for customers. For select locations, the AMI meter can have its own valve that can be remotely opened or closed in order to turn-on and turn-off service in a timely manner without having to send someone out to do it manually.

Q. Are there other benefits associated with the remote turn-on and turn-off functionality?

A. Yes. Not only does this capability ease customer service requests, it also eliminates potential safety hazards associated with opening meter tiles or having to enter customer's homes. This technology also eliminates challenges associated with shared service lines. Currently, customers on shared service lines cannot request cessation of their service and the Company cannot terminate service for any reason without also turning off service to other customers. PAWC has approximately 20,000 shared service lines in its Scranton

district. Not being able to turn off service to individual customers on such service lines (1) prevents customers from having their service turned off for any reason; (2) prohibits the Company from lawfully terminating service to delinquent customers, potentially leading to large uncollectible amounts; and (3) can result in water waste due to leaks on customer owned facilities if not timely addressed by the customer. Consequently, a variety of issues can arise for a fairly large subset of the Company's customers in the Scranton district, each of which can be mitigated by the use of the individual valves available on AMI meters.

Improving Safety

Q. Please describe PAWC's overall commitment to safety.

A. Ensuring the health and safety of our employees and protecting our product is a high priority for our Company, and is critical to our success. Our colleagues' and customers' safety is the most important thing we focus on every day, and my commitment is to ensure that every PAWC employee chooses safety in every job, every day. Employee health and safety is the responsibility of every PAWC employee, and to that end, every employee strives for safety. A safe workplace increases employee morale, increases our commitment to one another, and in the long run, makes for a more engaged and productive workforce.

Q. **Is safety an important part of PAWC's operational performance?**

A. Yes. Safety is both a "Value" and a "Strategy" for PAWC. We ask our employees to place safety first in everything they do. We have a strong commitment to our employees (and their families) to keep them safe.

Q. How do you know the commitment is working?

A. We are building a strong safety culture at PAWC, which is illustrated by our year-over-year safety performance. The Company's OSHA Recordable Incident Rate ("ORIR") was 4.34 in 2015; 2.49 in 2016; and is currently running at 1.70 in 2017 as of April 2017.

Q. What other safety programs does PAWC use?

A. In addition to establishing ORIR targets, in 2015 the Company launched a Near Miss Reporting Program. Near Miss reporting involves employees identifying a situation that almost, or could have, resulted in an injury or accident. For example, if a piece of equipment becomes worn outside of a regular maintenance cycle, an employee reports this as a "near miss" so PAWC can replace the worn part and avoid a potential injury from an equipment malfunction.

Q. How did PAWC perform in the Near Miss Reporting Program?

A. PAWC saw significant progress since the program's inception in 2015. In the first year our team reported 135 near misses. As the program evolved, we reported 539 in the second year, 2016, an improvement of almost 400%. In addition to the number of Near Miss reports, one important part of the program's evolution, is that very few reports are now anonymous, which was not the case at the beginning. This demonstrates how employee engagement is improving and employees are willing to do the right thing when it comes to safety. Also, now the majority of Near Miss reports are corrected by the individual identifying the issue in the first place by resolving the issue when observed or working with the appropriate people to obtain resources where necessary. In total, over 90% of all issues are corrected within 30 days of the report.

Q. How has this benefited PAWC's customers?

A. A strong safety culture is a cornerstone for any high performing organization. A strong safety culture also improves employee morale, as our employees know that we care for them and their families. In turn, PAWC's safety culture illustrates that our employees are thoughtful in their work, which directly benefits our customers, as safety is one part of our high performing culture. Lastly, strong safety performance reduces safety-related incidents and the attendant costs, which also benefits customers.

Employee Development

Q. How do the Company's employees contribute to PAWC's improved efficiency?

A. PAWC emphasizes continuing employee development, which benefits our customers. The American Water Yellow Belt program, for example, bolsters PAWC's continuous improvement. The American Water Yellow Belt is a program where employees learn to apply Lean Six Sigma methodology and tools in the way we work every day. The goal of Lean Six Sigma is to make the workplace simpler, more productive, and more satisfying through Process Excellence—that is, to encourage employees to work more efficiently. Employees earn a yellow belt by going through project certification training, where they learn lean principles and processes. As part of that training, employees select a cost savings project to work on and qualify as their yellow belt project. Upon completion of training and documented cost savings for their project, employees are awarded a yellow belt certification. To date, 33 different PAWC employees have received 38 yellow belts across the state.

Q. How does the Yellow Belt program benefit PAWC's customers?

A. These programs have generated cost savings that contribute to PAWC's decreasing O&M expense since our last rate case. In addition, they have enabled our employees to leverage

their individual success to benefit our customers by discovering more efficient and improved ways to serve our customers.

Q. Please give an example of a yellow belt project that enhanced operations and yielded cost savings.

A. One of our yellow belt projects reviewed treatment alternatives for seasonal algal blooms. These blooms can cause filters to clog, requiring more frequent backwashing of filters. They can also cause turbidity and taste and odor complaints. This yellow belt project improved treatment of algal blooms and is anticipated to reduce treatment costs by $30,000 to $50,000 per year at one location.

Q. Does PAWC encourage its employees to participate in these programs?

A. Yes. PAWC has tied the yellow belt program and continuous improvement performance to our performance compensation. This ensures that our employees are incented to focus on continuous improvement and placing our customers at the center of everything we do, and are rewarded when their efforts are realized.

Employee Levels and Compensation

Q. Please discuss how PAWC staffs its business operations.

A. The Company continually strives to find more efficient and cost effective ways to operate and maintain its business. As part of that effort, we strive to manage our cost structure as efficiently as possible, including employee costs. We recognize our duty to staff our business in a manner consistent with the provision of safe, reliable and affordable utility service. This requires a constant evaluation of the right mix of internal and contract labor, straight time versus overtime, training programs, and replacing labor with technology. In this vein, we continue to evaluate costs and expenses going forward, always looking for

the best solution for the unique and changing challenges we face. A large portion of our cost structure is for labor, and as a position becomes vacant in our organization, we look to the value of that position. We review the overall need for that position and consider, among other things, whether it should be transferred to another area, modified, or even eliminated. Cost control and improved business performance are the goals of these efforts. We continue to evaluate the new roles that will be created as new regulatory requirements are promulgated, and the appropriate positions that PAWC will need to optimize new technology and most effectively serve our customers.

Q. Please explain PAWC's efforts to improve its organizational structure since its last rate case.

A. PAWC has taken many steps to streamline our organization and strategically move labor costs to where they are most needed and can be used efficiently. In 2016, the Company reorganized the structure of its operations team to a more integrated model to continue to promote a culture of safety, improve communications, and enhance the quality of service provided to customers. For example, the new organizational structure gives supervisors a greater opportunity to spend more time in the field to support frontline employees, who are our interface with our customers. This time can be spent visiting work sites to ensure work is being performed safely, efficiently and in a reasonably timely manner based on the existing circumstances. Doing so reinforces the Company's and each supervisor's commitment to safety and to providing quality service to our customers (e.g., not having customers out of water for longer than necessary). It also gives them more hands on knowledge of what is happening in the field so supervisors can work with their teams to develop and/or support the implementation of operational efficiencies.

In addition, PAWC has enhanced and improved communications to ensure all team members are on the same page. For example, every month an operations metrics booklet is created and shared with the team to increase awareness around operational efficiencies. This booklet provides information and metrics relating to safety and water quality, service to customers, customer satisfaction, labor, non-revenue water, asset management, including preventive maintenance, and continuous improvement projects. Other examples include the NRW meetings previously discussed and bi-weekly meetings to remind field service representatives ("FSR") of certain programs and protocols (e.g., reporting suspicious activities relating to theft of service, leaving door tags when customers are not home, verifying and coding heat types when visiting properties, winter moratorium requirements, following process for tenant/landlord disconnect for non-pay, etc.) and to discuss potential operational improvements.

Q. What is PAWC's forecasted staffing level in this case?

A. We have identified 1,116 full time equivalent ("FTE") employees as the appropriate staffing level for the Company's water and wastewater operations for the 2018 test year. The number of employees is based upon each department's and each functional area's need to furnish safe, adequate, reasonable and reliable service to the Company's customers. Service needs and related resource requirements are consistent with meeting regulatory requirements, tariff requirements, industry standards, service requests, customer needs, and providing support to the business operations. The direct testimony of Jamie D. Hawn (PAWC Statement No. 6 and Exhibits 3-A and 3-B) explains how the Company's labor and labor-related costs were determined.

Q. Please describe PAWC's approach to employee compensation.

A. PAWC aims to offer compensation that is on par with that offered by the companies that PAWC competes with for employees. Therefore, PAWC targets its total direct compensation (base and variable compensation) for each role at the Company near the market median (50th percentile) for that role.

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

A. There are three classifications of employees at PAWC: union hourly employees, non-union hourly employees, and exempt employees. Union hourly employees receive base pay, overtime pay and possibly shift pay. Non-union hourly employees receive base pay, overtime pay, and are eligible for performance pay. Exempt employees receive base pay and are eligible for performance pay. Each classification of employees' total direct compensation, therefore, includes fixed pay (base pay) and some form(s) of variable pay (e.g., overtime, shift pay, or performance pay).

Q. How is variable compensation provided to exempt and non-union hourly employees?

A. Variable compensation is provided to exempt employees through the Company's Annual Performance Plan ("APP") and Long-Term Performance Plan ("LTPP"). In 2016, the APP was expanded to include non-union hourly employees as well.

Q. Please generally describe the purpose of the APP and the LTPP.

A. The plans are designed to provide compensation for operational and financial performance, and to focus plan participants on delivering safe and reliable water and wastewater services. Copies of the plans, which are marked as confidential and proprietary, are provided as

Filing Requirement III.22 (Volume 6b) of the Company's responses to the Commission's filing requirements.

Q. Does the Company's compensation plan benefit customers?

A. Yes. As I mentioned, the plan is designed to provide compensation for performance and to focus plan participants on delivering safe, reliable and affordable water and wastewater service. The compensation plan includes components of financial, operational, and individual measures. The operational components measure performance that can most directly influence customer satisfaction, health and safety, environmental performance, and operational efficiency. Customers derive a direct benefit from our focus on these key measures in the plan. Further, well-grounded financial measures keep the organization focused on improved performance at all levels of the organization, particularly in increasing efficiency, decreasing waste, and boosting overall productivity.

All of these aspects of overall performance benefit customers by rewarding superior performance in every function. This superior performance supporting our improved O&M efficiency is the result of having a workforce that is incented to find smarter, more efficient ways to deliver water and wastewater services.

Finally, a financially healthy utility focused on efficiency and customer satisfaction is able to attract the capital investments necessary to provide safe and reliable service and to maintain the technological expertise necessary to operate the company and comply with increasing water quality standards. A financially healthy utility is very much in the interest of PAWC's customers, as it helps ensure PAWC the ability to provide safe and reliable service at the lowest reasonable cost. Our performance compensation plan is not an

addition to reasonable compensation; our performance compensation plan makes our compensation reasonable.

Q. Are there other benefits of variable pay?

A. Yes, there are many. Importantly, variable pay provides PAWC not only a means of focusing its employees on the organization's goals, but also a means of measuring attainment of those goals. Aligning employees with the Company's goals supports a healthy and positive corporate culture that in turn creates a happy and productive workforce. As the Commission's Bureau of Audits recognized in its *Focused Management and Operations Audit of Pennsylvania-American Water Company* dated February 2016 (Docket No. D-2014-2430603):

> A corporate culture should reinforce the strategic goals of the company by aligning what the company does with how those functions are executed. Healthy cultures should impart a sense of purpose to employees, leading to an increase in productivity and a greater understanding of corporate goals. . . . It is important to note that improving corporate culture will require open communication, corporate commitment on strategy/direction, investments in employees, time, etc.[6]

Variable pay that is aligned with the Company's strategic goals, such as APP and LTPP, imparts that sense of purpose to employees that serves as the base for providing high quality service to customers.

Office Relocation

Q. Is PAWC relocating its corporate offices?

A. Yes. PAWC is moving its corporate office from Hershey, Pennsylvania to Mechanicsburg, Pennsylvania and expects to make the transition by the end of 2018.

[6] Audit, pp. 20-21.

Q. Does the Company currently have offices in Mechanicsburg?

A. Yes, it does. Part of the decision to move from Hershey to Mechanicsburg is the fact that the Company already has an operations center in Mechanicsburg. Bringing the employees based in Mechanicsburg and Hershey into one office will bring a larger number of the Pennsylvania team members together, giving everyone a greater opportunity to work collaboratively.

Q. Please discuss why the move to Mechanicsburg makes sense for PAWC and its customers.

A. The corporate office in Hershey has served PAWC well, but the building is aging and has an antiquated lay out that no longer fits our business; it is compartmentalized and does not lend itself to an open and free flowing work environment. Bringing together a large number of employees at one location in conjunction with constructing an improved workspace to facilitate both focused individual work and collaborative efforts, will promote efficiency through collaboration and knowledge sharing opportunities and allow for easy interaction between colleagues to improve communication, facilitate teamwork and the cross-pollination of ideas. PAWC expects that an improved work environment, along with the other programs it has in place to support and develop its people, will positively impact the Company's corporate culture and further strengthen the PAWC team and its ability to continue to provide high quality service to its customers.

Also, as the Hershey office building continues to age, it requires more and more repairs, many of which can be costly. For example, if PAWC were to stay in Hershey it would have to completely replace the building's HVAC system. This would be in addition to the various other repairs we would need to continue to make to the building (e.g.,

domestic water piping, roof, etc.). Rather than spend the money to continue to repair an aging building that no longer fits our business, we believe it makes more sense to take this opportunity to bring more employees together for all the reasons discussed above. The new location is also more accessible to a large population of PAWC employees. Being closer to the Pennsylvania Turnpike, significantly reduces travel time to and from the western districts.

Q. Does this conclude your testimony?

A. Yes, it does.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
	:	
v.	:	**DOCKET NO. R-2017-2595853**
	:	
PENNSYLVANIA-AMERICAN WATER COMPANY	:	

VERIFICATION

I, **James F. Sheridan**, hereby state that the facts set forth in the pre-marked Statement No. 2 and accompanying exhibits, if any, are true and correct to the best of my knowledge information and belief. I understand that this verification is made subject to the provisions and penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: April 28, 2017

James F. Sheridan

PAWC STATEMENT NO. 3

DIRECT TESTIMONY

OF

DAVID R. KAUFMAN

WITH REGARD TO

PENNSYLVANIA-AMERICAN WATER COMPANY'S FUTURE TEST YEAR AND FULLY PROJECTED FUTURE TEST YEAR PLANT ADDITIONS; MAIN EXTENSION COMMITMENTS FROM THE COMPANY'S 2013 RATE CASE; ACQUISITION OF THE SCRANTON WASTEWATER SYSTEM; RISKS ASSOCIATED WITH WATER QUALITY / QUANTITY AND ENVIRONMENTAL REGULATIONS

DOCKET NO. R-2017-2355276

DATE: April 28, 2017

PENNSYLVANIA-AMERICAN WATER COMPANY

DIRECT TESTIMONY OF DAVID R. KAUFMAN

Q. What is your name and business address?

A. My name is David R. Kaufman, and my business address is 800 West Hersheypark Drive, Hershey, Pennsylvania 17033.

Q. By whom are you employed and in what capacity?

A. I am employed by Pennsylvania-American Water Company ("PAWC" or the "Company") as Vice President of Engineering.

Q. Please describe your educational background and business experience.

A. In 1975, following graduation from Pennsylvania State University with a Bachelor of Science degree in civil engineering, I accepted an engineering position with Pennsylvania Gas and Water Company ("PG&W") in Wilkes-Barre, Pennsylvania. I remained in that position until 1989, when I was promoted to Manager of Water Engineering for PG&W. In August 1991, I was promoted to Vice President of Water Resources for PG&W. In that position, I was responsible for PG&W's water operations relating to water supply, water quality and treatment, water engineering and planning. When the water assets of PG&W were acquired by PAWC in February 1996, I accepted an Operations Manager position with the Company in its Northeast Region. I remained in that position until February 2001, when I was promoted to Manager of Northeast Operations. In 2004, I accepted the position of Director of Engineering – Southeast Region with American Water Works Service Company and remained in that position until I accepted the

position of Vice President of Engineering for PAWC. I am a registered Professional Engineer in Pennsylvania and hold a Class A1 water treatment plant operator's license.

Q. Do you belong to any professional or industry associations?

A. Yes, I am a member of the American Water Works Association, the American Society of Civil Engineers and the Water Environmental Federation, and serve as the Chairperson of the Pennsylvania Chapter of the National Association of Water Companies.

Q. What are your duties and responsibilities in your current position?

A. As Vice President of Engineering for PAWC, I am responsible for the administration of engineering services, including the planning, design and construction of water and wastewater capital investment projects, for all of PAWC's systems and facilities.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is five-fold. First, I will explain the Company's capital investment planning process. Second, I will describe, and support, the additions to the Company's water and wastewater utility plant and equipment that will be placed in service during the future test year and fully projected future test year. Third, I will explain that PAWC has satisfied the commitments it made in the settlement of its 2013 base rate case to extend its mains to serve homeowners in Washington County with wells that were deficient in water quality and quantity. Fourth, I will explain that the Company's acquisition of the wastewater assets of the Sewer Authority of the City of Scranton ("Scranton Authority") satisfies Sections 1327(a)(3) and 1327(a)(4) of the Pennsylvania Public Utility Code ("Code") for including an acquisition adjustment in a utility's rate base. Fifth, I will describe the risks associated with: (1) maintaining safe and adequate water quantity and water quality and complying with applicable drinking

water and environmental regulations associated with owning and operating facilities for supplying water to the public; (2) complying with all of the environmental regulations that apply to owning and operating facilities for furnishing wastewater service to the public; and (3) the challenges climate change could create for water and wastewater utilities. Ms. Buckley, in PAWC Statement No. 13, discusses why investors' perceptions of such risks should be considered in establishing a reasonable rate of return on equity for the Company in this case.

The Company's Capital Investment Planning Process

Q. Please explain the Company's capital investment planning and governance process.

A. The Company uses a standardized Capital Investment Management ("CIM") process to manage all of its capital investments. PAWC conducts planning studies that forecast necessary improvement projects and prioritize those projects within the study area. All capital investment programs and projects are then prioritized within an overall strategic planning process, utilizing drivers associated with various asset investment strategies (such as regulatory compliance, capacity, customer satisfaction, etc.), to formulate a three-year Strategic Capital Expenditure Plan ("SCEP"). More detailed design engineering is conducted, and implementation plans are developed for those projects that are contained in the SCEP. The Company's annual capital construction plan is based upon projects and programs contained in the SCEP. On an annual basis, main replacement projects are prioritized on a state-wide basis. Numerous factors are considered when determining funding allocations for infrastructure investment, such as current and future service needs, assessments of the physical condition of existing plant, economic and risk factors, performance characteristics, regulatory compliance, and the

potential to coordinate with municipalities and other utilities in joint improvement projects. The CIM governance process provides for formal approvals and consistent controls that optimize the effectiveness of asset investment and ensures that capital investment meets the Company's strategic goals.

Q. How does the Company's construction planning process impact its claim for plant additions?

A. The Company's claim for plant additions consists of the projects planned for completion during the 2017 future test year and the projects that are currently scheduled for completion in the 2018 fully projected future test year. The overwhelming majority of the Company's claimed projects will be constructed and completed as planned. However, as the year progresses, some projects may be substituted for others initially included in the budget due to unanticipated events requiring an immediate capital addition, such as plant or equipment that has experienced failure and needs to be replaced. In general, the overall cost of plant construction will remain stable. If a major investment project was to encounter a delay and could not be completed during the test year, the Company would eliminate that project from its claim for plant additions and may not necessarily make a substitution. If the delay did not extend materially beyond the future test year and the project otherwise satisfied the applicable criteria, the Company would consider including it as a claim for construction work in progress.

Description of Claimed Plant Additions

Q. Please describe the Company's claimed plant additions.

A. The Company has undertaken gross plant additions (including projects funded by customer advances and contributions) to be completed by December 31, 2017 that are

estimated to total $278,781,931 and has undertaken, or will undertake, gross plant additions (including projects funded by customer advances and contributions) to be completed by December 31, 2018 that are estimated to total $464,250,660. When projected retirements of $51,598,890 are taken into account for both years, the combined net increase in plant additions for 2017 and 2018 is estimated to be $691,433,701.

Q. In general terms, what types of projects are included in the Company's claim of approximately $691 million?

A. The projects that comprise the Company's claim for plant additions in the future test year and the fully projected future test year are set forth by applicable property account and PAWC Project Number in the portion of PAWC Exhibit 3-C that I am sponsoring, along with the estimated completion date and associated retirements for each project. As shown in Exhibit 3-C, the Company's claimed plant additions vary from what may be characterized as small, routine projects, such as the installation of individual distribution mains, to substantially larger projects, such as the rehabilitation of three dams in the Company's Wilkes Barre/Scranton district; construction of a new Ellwood Water Treatment Plant ("WTP") and upgrades to the existing Montrose and Indiana WTPs; safety and reliability upgrades at water production facilities which include chlorine gas elimination, emergency power generation equipment, and pipeline reinforcements; water storage tank projects; system acquisition improvements including wastewater projects for Clean Treatment (Marcel Lakes), Fairview Township, New Cumberland, Shippenville, and Scranton; and operations building projects in Pittsburgh and Mechanicsburg, which I discuss, along with other larger projects, below.

Q. Are there any particular projects that, because of their size or importance, you would like to discuss further?

A. Yes. While there are literally hundreds of individual plant additions detailed in Exhibit 3-C, the larger individual components of the Company's claim for plant additions are described below.

1. Elmhurst Dam Rehabilitation (I24-910009)

The Elmhurst Dam impounds 1.22 billion gallons of water and provides a raw water source to the Company's 33 million gallon per day ("MGD") Scranton Area WTP. The Elmhurst Dam is a 64-foot high masonry/earthen embankment structure built in 1889. It is classified as a medium sized high hazard (Class B-1) dam under current Pennsylvania Department of Environmental Protection ("PaDEP") dam safety regulations, which require the structure to safely convey flood flows equal to the Probable Maximum Flood ("PMF") for the associated watershed. Although the dam was originally designed to satisfy the safety standards at the time of its construction, the dam's spillway capacity is now considered inadequate because it can pass only 24% of the PMF before water would overtop the dam. Overtopping could cause the structure to fail and result in the loss of life and extensive economic impacts. The Elmhurst Dam must be modified to ensure safe and reliable operation and to comply with current PaDEP regulations.

This project will create additional spillway capacity by raising the abutment dike walls and constructing a new concrete labyrinth spillway at the right abutment. In addition, rock anchors will be installed in the masonry section of the dam to improve the stability of the structure. Properly graded drains will be installed to safely collect and

convey seepage from the earthen portion of the dam. These improvements will be completed and placed in service by October 2017 at an estimated cost of $23.0 million.

2. Pikes Creek Dam Rehabilitation (I24-910012)

The Pikes Creek Dam impounds 2.94 billion gallons of water and provides a raw water source to the Company's 16 MGD Ceasetown WTP. The Pikes Creek Dam is a 65-foot high earthen embankment structure built in 1912. It is classified as a medium sized high hazard (Class B-1) dam under current PaDEP dam safety regulations, which, as noted previously, require the structure to safely convey flood flows equal to the PMF for the associated watershed. Although the dam was originally designed to satisfy the safety standards at the time of its construction, the dam's spillway capacity is now considered inadequate because it can pass only 23% of the PMF before water would overtop the dam. Overtopping could cause the structure to fail and result in the loss of life and extensive economic impacts. The Pikes Creek Dam must be modified to ensure safe and reliable operation and to comply with current PaDEP regulations.

This project will create additional spillway capacity by installing Hydroplus fusegates within the existing auxiliary spillway footprint. In addition, the downstream face of the dam will be flattened to improve the stability of the structure and knife gate valves will be added to the inlet piping to meet current PaDEP regulations regarding upstream closure. Properly graded drains will be installed to safely collect and convey seepage from the earthen portion of the dam. These improvements will be completed and placed in service by June 2018 at an estimated cost of $19.5 million.

3. Lake Scranton Dam Rehabilitation (I24-910013)

The Lake Scranton Dam impounds 2.49 billion gallons of water and provides a raw water source to the Company's 33 MGD Scranton Area WTP. The Lake Scranton Dam is a 60-foot high masonry/earthen embankment built in 1898. Like the Elmhurst and Pikes Creek Dams, it is classified as a medium sized high hazard (Class B-1) dam under current PaDEP dam safety regulations. Although the dam was originally designed to satisfy applicable safety standards at the time of its construction, the dam's spillway capacity is now considered inadequate because it can pass only 39% of the PMF before water would overtop the dam. Overtopping could cause the structure to fail and result in the loss of life and extensive economic impacts. The Lake Scranton Dam must be modified to ensure safe and reliable operation and to comply with current PaDEP regulations.

This project will create additional spillway capacity by constructing a new labyrinth spillway within the existing spillway footprint. In addition, the masonry section of the dam will be anchored to underlying rock to improve its stability. Properly graded drains will be installed to safely collect and convey seepage from the earthen portion of the dam. These improvements will be completed and placed in service by December 2018 at an estimated cost of $10.1 million.

4. Ellwood Water Treatment Plant (I24-310004) and High Service Mains (I24-310015)

A new 8 MGD WTP is being constructed in New Beaver Borough, near the confluence of the Beaver River and Connoquenessing Creek, to replace the Company's existing Ellwood WTP which has numerous structural, mechanical, electrical, and process deficiencies which present regulatory, safety and reliability concerns. The original Ellwood WTP, which was constructed in 1909 and expanded to its present capacity in

1918, has reached the end of its useful life. The existing plant structures exhibit structural defects and do not meet current building code requirements. Electrical systems are obsolete and process equipment is in poor condition, lacking process redundancy, chemical containment, and appropriate safety systems. Spare parts are no longer available for much of the equipment. Hydraulic deficiencies result in poor pump performance and process short-circuiting. The existing clearwell is 90 years old, unbaffled and cannot be taken out of service for maintenance needs. Access into the clearwell is extremely limited and presents a significant safety risk. The residuals lagoons are unlined and difficult to operate during the winter, which pose a risk for National Pollutant Discharge Elimination System ("NPDES") discharge compliance. The plant has inadequate space for basic operator functions and is not compliant with the Americans with Disabilities Act. Because of its age and condition, numerous deficiencies, and inability to meet current maximum daily demands of the system, a replacement WTP will be constructed near the confluence of two supply sources which have adequate stream flow characteristics to support the new plant.

The replacement facility will meet the current and projected Ellwood demands, including the current PaDEP permitted 2 MGD maximum transfer capacity to the Company's Butler System. The plant will have the capability to be expanded to 16 MGD in the future to accommodate future growth and/or regionalization. The project includes the construction of two new raw water intakes (one on the Beaver River and one on the Connoquenessing Creek) to provide redundant supplies for source reliability. Raw water pumping equipment will be incorporated into the new plant facility. The plant will include conventional clarification and filtration processes to remove suspended and

colloidal particles. Chemical treatment will be provided for oxidation of soluble iron and manganese, taste and odor control, pH adjustment, coagulation, corrosion control, and disinfection. The buildings required to provide this treatment process include a structure that will house chemical feed systems, rapid mix/flocculation/sedimentation basins, filters, clearwells, high service pumps, ultraviolet ("UV") disinfection, electrical facilities, and administrative areas. Two waste clarifiers, one thickener, and a dewatering building containing two centrifuges, together with an emergency generator, waste pump station, and switchgear building, will also be constructed. The existing Ellwood WTP will be retired and demolished after the new WTP is complete and fully operational. This project also includes the installation of 16" and 24" finished water mains which will interconnect the new Ellwood WTP to the existing Ellwood City distribution system.

This project is currently underway and expected to be in service by December 2018. The Company estimates the cost of the replacement WTP to be approximately $79.0 million and the high service mains to be approximately $9.1 million.

5. Montrose WTP Improvements (I24-540008)

The Montrose WTP, located in Bridgewater Township, Susquehanna County, provides water for the Company's distribution system serving Montrose Borough and Bridgewater Township. The WTP has a design capacity of 0.65 MGD and services approximately 1,900 people. The WTP is supplied by surface water from Lake Montrose and consists of one spiral-flow flocculation and sedimentation basin, two dual media filters, and one finished water clearwell.

The sedimentation basin and clearwell have reached the end of their useful service lives. The spiral basin will be removed from service and a pre-fabricated flocculation

and clarification basin will be installed and equipped with plate settlers. Solids from the sedimentation basin will be pumped to a new solids holding tank which will improve process wastewater handling. A new clearwell will be installed and sized to provide finished water storage for filter backwash supply and pump equalization storage.

The plant currently has minimal automated controls. A new supervisory control and data acquisition ("SCADA") system will be incorporated as part of this project. The plant SCADA will allow for various automated controls such as regulating the plant raw water flow, flow pacing of chemical feeds, continuous monitoring and recording of water quality instruments, filter backwashing, and high service pump control of system flows. The raw water pumps will be replaced and equipped with an automated priming system so that the pumps will start automatically from SCADA.

Safety concerns exist with the current use of chlorine gas. The existing chlorine gas equipment will be removed from the WTP and sodium hypochlorite will be used for disinfection. A new chemical building will house the chemicals used by the WTP including powdered activated carbon, caustic soda, sodium hypochlorite, aluminum sulfate, and a coagulant aid polymer. The project also includes the installation of a back-up generator to provide continuous water supply to customers during power outages. The Company estimates that the project will cost approximately $5.4 million and expects to place these facilities in service by July 2018.

6. Indiana Water Treatment Plant Improvements (I24-410002)

The Company operates a 6.0 MGD WTP serving the Borough of Indiana and portions of surrounding White Township. The plant obtains raw water from a low weir intake on Two Lick Creek and incorporates treatment with coagulation, flocculation, solids contact

clarification and filtration in three Aldrich units. The combined filter effluent is treated with chlorine for disinfection, fluoride, and caustic soda for pH adjustment prior to flowing through two baffled clearwells and pumped into the distribution system. The plant provides water to about 23,900 consumers through 7,200 metered service connections.

The main objectives of this project are to address safety concerns and improve treatment reliability. The project will replace the existing supply intake and improve the safety and reliability of the chemical handling process, specifically replacement of the gaseous chlorine and handling of caustic soda chemical drums. The project will also include the addition of a bulk chemical delivery containment area and the construction of a chemical building addition to house the new equipment.

The existing intake structure on Two Lick Creek includes a manual bar screen that is prone to clogging in the fall months. A new passive intake sized for full plant capacity will be installed, consisting of two (2) half screens with an airburst system for cleaning of the screens. The equipment for the airburst system will be located within the new chemical building addition.

The WTP utilizes pebble lime for pre-filtration and caustic soda for post-filtration pH adjustments. This project will include the installation of bulk liquid lime and caustic soda systems. The two systems will be independent of each other. The operator will have the flexibility of selecting any combination of chemicals for both pre and post-filtration treatment. Both systems will be housed in the new chemical building addition. The pre-filtration feed location will remain within the existing chemical feed vault.

The plant also utilizes gaseous chlorine fed from ton cylinders for disinfection. Chlorine

is fed both pre and post-filtration. This project will replace the gaseous chlorine with a bulk sodium hypochlorite system located within the new chemical feed building.

A new bulk chemical feed containment system will also be included as part of the project. The containment system will consist of a spill containment vault located to the north of the existing chemical feed building. The containment system will be connected to the wastewater lagoons by a gravity drain line. An automated valve will be installed on the drain line that will automatically close prior to a chemical delivery.

The estimated cost of the project is $3.1 million and the project is projected to be in service by June 2018.

7. Saw Creek Wells 6 & 7 Improvements (I24-680016)

Saw Creek wells 6 & 7 are existing wells located in the Saw Creek Estates system, which is part of the Lehman Pike South service area. These wells have not been used by the Company since it acquired this system due to higher levels of naturally occurring iron and manganese which would require treatment to meet drinking water quality standards. The Saw Creek system consists of a number of lower capacity wells, which have seen decreased production in recent years. To improve the reliability of the water supply for this system, the Company plans to activate these wells and add a new treatment facility to reduce the iron and manganese levels. The treatment facility will also provide adequate disinfection capacities to meet the Groundwater Rule 4-log inactivation requirements for both wells. The Company estimates the overall project will cost approximately $2.8 million and expects to place these facilities in service by December 2018.

8. Scranton Service Area Reliability Improvement Projects

The Scranton Area WTP provides potable water to approximately 50,000 customers in and around the City of Scranton. The Scranton Area WTP has a rated capacity of 33 MGD and includes 5 million gallons ("MG") of on-site finished water storage that feeds into the Scranton service area. Finished water is conveyed from the storage tanks to the system via approximately 4,400' of 48" cast iron pipe (circa 1909) located within a tunnel which ties into the Scranton distribution system. Any problem with either the piping or the tunnel that would require a shut-down of the main which would have a substantial impact on water service to the Scranton area.

The 48" finished water main transitions to a 36" main that continues in a westerly direction delivering supply to Scranton's west side. This 36" cast iron pipeline (circa 1909), which feeds the southern and western sections of Scranton, has some valves which do not operate. A shut-down of the entire 36" main would impact a large number of customers in South Scranton and into the northern end of Moosic Borough. Two improvement projects named the Lake Scranton Finished Water Tunnel (I24-910018) project and the Moltke & Birch Main Improvement project (I24-910038) are being performed concurrently to improve the reliability of these mains supplying water to the Scranton distribution system.

The Lake Scranton Finished Water Tunnel project includes the installation of a second finished water main from the Scranton Area WTP to the distribution system that will provide an alternate, reliable means of supplying the Scranton service area. The project includes the installation of approximately 5,000 feet of new 42" transmission main installed via horizontal direction drilling near the existing tunnel and transmission

main. Once in service, this new main will allow the existing 48" cast iron pipeline to be taken out of service so that select reliability improvements can be made to the main and tunnel.

The Moltke & Birch Main Improvement project includes the installation of approximately 8,750 feet of 24" water main and valves beginning at the end of the new 42" finished water transmission main, and connect with the existing 24" water mains crossing the Roaring Brook. Once in service, this new main will improve the reliability of supply to the southern and western areas of Scranton, and allow the existing 36" cast iron pipeline to be taken out of service so that needed improvements can be performed in the future.

The Company estimates the Lake Scranton Finished Water Tunnel project will cost approximately $16.6 million and the Moltke & Birch Main Improvement project will cost approximately $3.7 million for a total cost of approximately $20.3 million. Both projects are expected to be placed in service by December 2018.

9. Lake Scranton Generator (I24-910040)

The Scranton Area WTP is served by two utility feed lines that cross over a steep tree lined mountain ridge. The feed lines originate at a common utility substation. In the event of an ice storm or high wind, the plant could lose both utility feeds for an extended period of time. The existing electrical switchgear was not designed for dual feed; manual switchover by the power company is required for continuity of plant operation. Additionally, the existing 12.47 kilovolt ("kV") switchgear and 480V switchboard in the WTP are in need of replacement. The 12.47 kV gear is no longer supported by the manufacturer and used spare parts are difficult to find.

The project consists of the installation of a standby (emergency) generator to power the WTP in the event of loss of utility power, replacement of the existing main 12.47 kV switchgear and building, and replacement of the 480 Volt ("v") switchboard in the WTP.

The project is estimated to cost $3.4 million and is expected to be in service by May 2017.

10. Scranton Area and Watres WTP Chlorine Safety (I24-910024)

The Scranton Area WTP and Watres WTP currently utilize one ton chlorine gas cylinders for disinfection. These sites have been identified by the Company as high priority sites to convert from gaseous chlorine to liquid sodium hypochlorite due to the risks associated with a potential chlorine gas release in close proximity to a large population area and medical facilities. The use of sodium hypochlorite is much safer for both the public and Company staff.

The scope of the projects consists of the installation of bulk sodium hypochlorite unloading, storage and feed systems at both WTPs. Space within the existing buildings will be converted for this use, but building expansions are required at both sites. Chemical unloading areas are also required at both locations. The existing gas chlorine systems will be retired after the new sodium hypochlorite systems are in operation. The project cost for both sites is estimated at $4.6 million and the plant additions are expected to be in service by June 2018.

11. Chlorine Gas Safety-Milton (I24-710006)

The Milton WTP also utilizes one ton chlorine gas cylinders for disinfection and the White Deer WTP utilizes 150 lb. chlorine gas cylinders for disinfection. These sites have

been identified by the Company as high priority sites to convert from gaseous chlorine to a liquid sodium hypochlorite due to their close proximity to large population areas, an interstate highway, and the frequent handling of cylinders at the White Deer facility. As noted previously, the use of sodium hypochlorite is much safer for both the public and the Company staff. The scope of this project consists of the installation of bulk sodium hypochlorite unloading, storage and feed systems at both WTPs. Space within the existing buildings will be converted for the storage and feed rooms. The existing chemical unloading areas at both the Milton and White Deer WTPs will be upgraded to current design standards. Neither location has a containment area to capture leaks or spills during chemical unloading. All eyewashes in the plants will be converted to utilize tempered water. The existing gas chlorine systems will be retired after the new sodium hypochlorite systems are in operation.

The project cost approximately $1.9 million and was placed in service in April 2017.

12. Water Storage Tank Projects

The Company is investing in various water storage tank projects across its service territory, as explained below.

Replacing Existing Water Storage Facilities. The Company is replacing various water storage facilities that are at the end of their useful lives, and whose physical condition has degraded such that replacement is the most feasible and economical alternative, and that no longer provide sufficient capacity for the areas they serve.

The Company is replacing one water storage tank in the Lehman Pike District. Saw Creek Tank No. 7 (I24-680020) will have a capacity of 226,000 gallons. The project has an estimated cost of approximately $0.52 million and is expected to be in

service by December 2017. The existing 203,000 gallon storage tank was built in 1991 and has a history of recurring seam leaks. The manufacturer of this original tank is no longer in business, making leak repair costly and ineffective. The new tank volume was slightly increased in order to utilize standard tank sizing that was closest to the existing size that maintained the current hydraulic grade line.

The Clairton Basin Project (I24-220005) is located in the Mon-Valley District's Main Service Gradient. The existing 0.9 MG Clairton basin is an underground storage facility with a flexible membrane liner and cover. The existing basin is fed from the high service pumps at the Aldrich Water Treatment Plant. Due to its location and condition, the existing basin will be retired and replaced with a new 1.0 MG storage tank with an overflow elevation of 1120 feet. These improvements, which will cost approximately $2.2 million, will be in service by December 2018.

Installation of New Storage Tanks Adjacent To Existing Tanks

Two investment projects involve the installation of new storage tanks adjacent to existing tanks. The additional tanks will enable the Company to remove the existing tanks from service for maintenance and repair.

In the Warren District, the Company is constructing a 420,000 gallon glass-lined bolted steel tank adjacent to the existing 300,000 gallon Tanner Hill tank, which currently cannot be taken out of service for recoating and repair. The new tank will provide more effective storage to meet equalization, fire-flow, and reliability needs. It will also allow for the existing Tanner Hilltank, which is in poor condition, to be taken out of service and rehabilitated. Once the existing tank is repaired and recoated, it will be returned to service and used in combination with the new tank. The estimated cost of

this project (I24-450003) is $0.75 million. The new Tanner Hill tank has an estimated in-service date of December 2017.

In its Indiana District, the Company is constructing a 0.7 MG steel storage tank adjacent to its existing standpipe. This new McHenry tank will provide additional storage capacity to meet customers' peak demands and to provide improved fire flows. The new McHenry tank (I24-410004) is estimated to cost $1.3 million and has an estimated in-service date of December 2018.

Tank Projects That Will Address Storage Deficits, Improve Pressures And Storage Volumes Available For Fire Flows, And Enhance System Reliability.

The Company is undertaking three storage tank projects to address storage deficits in the service areas where the tanks will be located, provide improved pressures and storage volumes for fire flow capability, and enhance general system reliability.

In the Pittsburgh Region, the Company is constructing the Fisher Heights Storage Tank (I24-220002), a 0.5 MG water storage tank in the Mon-Valley District's Eldora Gradient with an overflow elevation of 1,360 feet ("ft"). Currently this area is serviced by the Fisher Heights booster station and the existing 0.5 MG Eldora tank that has an overflow of 1320 ft. The Eldora Gradient has a storage deficiency of .46 MG. The existing tank is to remain in service. A new pressure-reducing valve station will be needed to supply the existing Eldora tank. This project has an estimated cost of $2.4 million and will be in service by the end of December 2018.

In its Scranton District, the Company is installing the 100,000 gallon Mt. Margaret storage tank and 2730 ft of interconnecting main at an estimated cost of $0.83 million (I24-910026). The Mt. Margaret gradient is served by the Tiffany Drive booster pump station that consists of three pumps, two rated at 140 gallons per minute ("gpm") at

250 ft total discharge head ("TDH"), and one rated at 40 gpm at 250 ft TDH. No storage tank is present in this gradient. The new tank will provide storage to meet equalization, fire flow, and reliability needs. The project will be placed in service by the end of December 2018.

The new Nazareth Reservoir Improvement project (IP I24-560011) is in the Company's Blue Mountain District and includes the construction of a 303,700 gallon capacity bolted steel tank adjacent to an existing 1,300,000 gallon below grade covered reservoir. It also includes the replacement of a cover and liner on the existing reservoir after the new tank is placed in service. This project will address an existing 130,000 gallon storage deficit and also provide storage while the existing reservoir has the new cover and liner installed. The existing reservoir cover was installed in 1995 and has reached the end of its useful life. This entire project is expected to be completed by December 2017 at an estimated cost of $0.86 million.

13. System Acquisition Improvements and Service Extensions

Exhibit 3-C also includes various improvements to the water and wastewater systems the Company acquired from Clean Treatment, Fairview Township, New Cumberland Borough, Paint-Elk and Shippenvillle, and extensions to serve Castlewood/Shenago Township, Herman Road, and the Meadows at Watsontown. These additions are described below. (Improvements to the wastewater system acquired from the Scranton Sewer Authority are discussed in a subsequent section of my testimony that addresses Section 1327(a)(4) of the Code).

Clean Treatment (Marcel Lakes)

Clean Treatment is located in Delaware Township, Pike County and was considered a troubled system before it was acquired by the Company on August 21, 2013. The wastewater collection system consisted of 32,007 ft of gravity sewer main and 26,075 ft of low pressure/force main, and 9 lift stations. The wastewater treatment plant ("WWTP") has a rated capacity of 0.1MGD. The wastewater system is hydraulically overloaded with excessive inflow and infiltration ("I&I"). The existing collection system piping was poorly designed and installed with substandard piping materials, which resulted in excessive pipe deformities, numerous off-set and leaking pipe joints, shallow mains subject to freezing, and surcharging manholes. Over 73% of the collection system piping exhibited National Association of Sewer Service Companies ("NASSCO") Pipeline Assessment and Certification Program ("PACP") defect grades 4 and 5. After extensive analysis, design and permitting, the Company has redesigned and is replacing the entire gravity portion of the collection system with a new gravity collection system comprised of approximately 31,400 ft of sewer main, 3 sewage pump stations, and 2,500 ft of force main. The project (I24-690001) was undertaken pursuant to a PaDEP Consent Order and Agreement and a Pennsylvania Public Utility Commission ("PaPUC") Order. The Consent Order and Agreement with the PaDEP require the project to be completed no later than February 2, 2018. The Company estimates the overall project will cost approximately $7.6 million. A portion of the project was placed in service in 2016. The remaining $4.75 million of capital additions is expected to be placed in service by December 2017.

While undertaking the wastewater collection system improvement activity, the Company is also replacing the water distribution piping at the same time. This construction synergy will result in cost savings and minimize customer disruptions. The existing water distribution mains are comprised of thin-walled small diameter plastic piping and services which would not have remained intact during the sewer construction work. The existing water main piping was installed without proper alignment, depth, bedding or backfill material. The water system improvement project (I24-680019) involves the replacement of approximately 33,000 lineal feet ("LF") of water distribution piping and is estimated to cost approximately $4.1 million. A portion of the project was placed in service in 2016. The remaining $3.1 million of capital additions is expected to be placed in service by December 2017.

A project to address specific concerns at the WWTP is underway in order to reliably comply with NPDES permit requirements and to replace aging infrastructure within the plant. The existing UV disinfection system has been the most problematic portion of the process to achieve reliable permit compliance. Also, the sequencing batch reactor decanters and digester tankage are both in need of replacement. The final clarifier will be modified to provide additional operational control. A post-aeration system must also be installed to ensure permit compliance. The Company estimates the overall project (I24-690003) will cost approximately $2.0 million and expects it to be placed in service by December 2018.

Fairview Township

In December 2015, the Company purchased the Fairview Township Sewer System. As part of the acquisition, the Company agreed to implement Phase 2 of an Act 537 Sewer

System Expansion (I24-600001) that the township had initiated to address issues of failed on-lot septic systems. This project extends sanitary sewer service to approximately 250 residents of Fairview Township and involves the installation of approximately 12,300 feet of 8" polyvinyl chloride ("PVC") pipe, 760 feet of 12" PVC pipe, 730 feet of 2" high-density polyethlene ("HDPE") force main, 1315 feet of 4" PVC force main, 4,350 feet of 6" PVC force main, 1,480 feet of 8" force main, 1,130 feet of 10" HDPE force main, 131 manholes, and 4 pump stations. Final paving for the project will be provided by the township. The project is scheduled for completion by May 2017 at an estimated cost of $9.0 million.

The Fairview Township Water Main Extension project (I24-610003) will extend water service to approximately 320 residents and a 100 unit mobile home park in Fairview Township, PA. Fairview Township enacted a mandatory tap-in ordinance in conjunction with a large sewer project (a portion of which is described in I24-600001) so that residents would move from contaminated wells to public water. This project involves the installation of approximately 19,825 feet of 8" ductile iron cement lined ("DICL") pipe, 11,980 feet of 12" DICL pipe, 5,000 feet of 16" DICL pipe, 52 fire hydrants, and two pressure reducing valve stations. Final paving for the project will be provided by the township. The project is scheduled for completion by May 2017 at an estimated cost of $7.2 million. Pennsylvania Infrastructure Investment Authority funding was applied for and received for this project.

New Cumberland Wastewater (I24-870002)

The Company acquired the New Cumberland Wastewater System on October 31, 2016. The project is located in both Lower Allen Township and New Cumberland Borough,

Cumberland County. The anticipated improvements consist of upgrades to a lift station and force main installation. The pump station consists of two (2) pumps with a reliable pumping capacity of 260 gpm providing service to customers located in the northwestern part of the New Cumberland collection system. The station and force main were originally constructed in the 1950's. The Borough had completed the design and permitting for the project prior to the Company acquiring the system. Due to the timing of the acquisition and coordination with a Pennsylvania Department of Transportation ("PennDOT") highway resurfacing project, the construction of the project is being undertaken by the Company. The project includes the construction of redundant 6-inch lined ductile iron force mains, each approximately 1,850 feet in length. At the lift station, the improvements consist of discharge piping modifications including new valving and flow metering, as well as heating and ventilation improvements and lining of the wet well with a protective coating. The force main has been completed and is in use. The pump station is expected to be completed by May 2017. The estimated project cost is approximately $0.6 million.

Castlewood/Shenago Township Water Main Extension (I24-310006) and Storage Tank (I24-320012)

The Company has two related projects in the New Castle District. The Castlewood Project will extend service to approximately 750 new customers in Shenango Township, Lawrence County. Shenango Township desires the Company to install new water distribution lines in conjunction with the installation of new sewer lines by the township to facilitate the sharing of engineering and roadway restoration costs. Shenango Township has passed a mandatory tap-in ordinance for the Castlewood area to support the extension of water service. The extension of water service into the Castlewood area

of Shenango Township will provide a safe, potable water supply to an area that has poor well quality and quantity issues, and also improve public safety by providing adequate fire protection. The project will require the installation of 104,000 feet of new 12" and 8" water main. In addition, a new elevated storage tank will be constructed in conjunction with the Castlewood/Shenango Twp. water main extension project to provide storage for the new service area. A new booster station will be installed to deliver water to the new higher gradient served by the new Shenango Tank. The new Shenango Tank will improve fire flows along the Rt. 422 corridor as well as in the southwest portion of the New Castle high service gradient. The tank will also provide additional storage that could be utilized to overcome the existing storage deficit in the New Castle high service gradient. Both projects are scheduled for completion by December 2018 at an estimated combined cost of $13.3 million.

Herman Road Extension

PAWC will be extending water service to approximately 122 residential customers and two schools (Summit Township Elementary and The Summit Academy) in Summit Township, Butler County to resolve on-going water quality issues regarding lead contamination in the schools and provide a more reliable and higher quality source water to homes and businesses along the route of the extension. The installation will be undertaken in two phases. Phase 1 consists of installing approximately 14,100 ft of 12" DICL water main from the Company facilities on Hechberger Road to the Butler Elementary school by mid August 2017. The second phase will consist of installing a 120 gpm booster pump station in the vicinity of Foster Lane to boost water pressure to higher elevation customers along the route. This final phase is expected to be completed

by the end of 2017, after which the remaining new customers will be provided service. The PaPUC is in the process of approving the service territory expansion. The overall project cost of approximately $2 million will be funded within the Company's capital budget.

The Meadows at Watsontown Main Extension (I24-710013)

The Meadows at Watsontown system is located in Delaware Township, Northumberland County and consists of 31 single family homes located in the Spring Crest development and a mobile home park with 68 units. The system was a troubled system, installed around 1980 and owned and operated by the owners of the mobile home park. The system had reliability issues with frequent water outages due to main breaks within the Spring Crest development and very strong taste and odor issues.

PAWC extended water service to the Meadows at Watsontown by installing approximately 9,200 feet of 12-inch ductile iron pipe along Seagrave Drive, replacing the entire piping within the Spring Crest Development with 1,820 feet of 8-inch ductile iron pipe and 500 feet of 6-inch ductile iron pipe. The existing piping distribution system within the mobile home park is supplied through a master meter. The project was completed in August 2016 at an actual cost of $1,043,969.

Shippenville – Paint-Elk Wastewater Interconnect Project

The Shippenville WWTP has historically experienced discharge exceedances in violation of the Clean Streams Law and the Sewage Facilities Act. This resulted in a Consent Order which was originally entered into by the Borough of Shippenville ("Shippenville") and the PaDEP on November 4, 2010, and subsequently modified on March 6, 2013.

Shippenville completed Act 537 planning and initiated design and permitting to provide for an upgraded WWTP to address Consent Order requirements. Revised Act 537 planning was subsequently completed in concert with negotiations to transfer the Shippenville sewerage facilities from Shippenville to PAWC. The revised Act 537 planning was completed in the form of a sewage planning module component 3 and approved by PaDEP on June 23, 2015. This planning approval provided for the decommissioning of the Shippenville WWTP, construction of a 0.1 MGD pump station at the former WWTP site, and conveyance of the pump station flows to the Paint-Elk WWTP via a new force main and upgrades to several segments of receiving gravity sewer in the Paint-Elk system.

An updated Consent Order was entered into by PAWC and PaDEP upon PAWC's acquisition of the Shippenville wastewater system on August 4, 2015. This Consent Order stipulates construction of the improvements captured by the June 23, 2015 PaDEP planning approval.

The existing Shippenville WWTP consists of an oxidation ditch treatment process, clarifier, chlorine contact, aerobic sludge digester and sludge drying beds. The sludge drying beds are not presently in use. The WWTP is currently permitted for an annual average daily flow of 0.050 MGD via NPDES Permit PA0103276 and Water Quality Management ("WQM") Permit No. 1606404. Existing average annual daily flows are approximately 0.035 MGD per Chapter 94 Report data.

The existing Paint-Elk WWTP is comprised of four aerated lagoons. Disinfection is achieved with a chlorine feed system and chlorine contact tank. The headworks is comprised of a communitor, manual bar screens and two grit

chambers. The Paint-Elk WWTP is permitted for an annual average daily flow of 0.60 MGD via NPDES Permit PA0034924 and WQM Permit No. 1690402. Existing average annual daily flows are approximately 0.166 MGD per Chapter 94 Report data.

Most of the existing Shippenville WWTP will be decommissioned and replaced with a pumping station constructed at the current facility to convey wastewater flows to the Paint-Elk WWTP. The pump station will be designed for future average daily flows of 100,000 gallons. The pump station will be a 30' x 40' split face concrete blockbuilding to house the suction lift pumps, generator, and controls. Additionally, the oxidation ditch of the Shippenville WWTP will be converted to a 60,000 gallon wet weather storage tank. The wet well will be a precast concrete structure, located beneath the pump room in the building. The pumpstation will be designed with three suction lift pumps controlled with variable frequency drives. The capacity of one pump is 350 gpm at 241' TDH. The capacity with two pumps running is 600 gpm. The third pump is for redundancy. The transmission force main will consist of approximately 8200 feet of 8"DR 11 HDPE. Air release valves will be provided where necessary in precast concrete vaults. Approximately 1,200 LF of gravity interceptor sewer will need to be replaced within the Paint-Elk wastewater system to accommodate the flow from Shippenville. The existing 8" and 10" sewers will be replaced with 15" and 18" interceptor mains.

The project is estimated to cost $2.9 million and is projected to be in service by December 2017.

14. Mt. Oliver Operations Facility – (I24-110045)

In the Company's Pittsburgh District, there are two Operations Centers, at Mt. Oliver and Bethel Park. The Mt. Oliver operations building houses all of the meter reading functions for the district, and the Bethel Park operations building houses all of the distribution functions for the district. The existing Mt. Oliver operations building dates back to the early 1900's and has been renovated and expanded over the years. The building has numerous structural, mechanical, site and safety concerns. The existing building is overcrowded and has reached the end of its useful life, and the site is physically constrained by adjacent properties that prevent additional construction or expansion of the building. In addition, the location of the operations center is located in a high crime area and does not provide good access to the entire Pittsburgh District.

The replacement facility is an existing building in Green Tree Borough that will be renovated to meet the needs of the Mt. Oliver operations and provide room for a portion of the Bethel Park operations. The Bethel Park facility also has site constraints and is overcrowded. This combined operations building will improve customer service by reducing response time to the Company's customers. This facility will also provide room for training, and a safer working environment for the Company's employees. The project is scheduled for completion by December 2018 at an estimated cost of $21.9 million.

15. Capital Operations Facility – (I24-610015)

A new operations building addition is being constructed in Lower Allen Township at the site of the existing Mechanicsburg Operations Center to replace a portion of the existing operations building and provide space for the relocation of the Company's corporate

office from Hershey. The continued growth of several departments has resulted in groups being separated between Mechanicsburg and Hershey. Property adjacent to the Mechanicsburg office was purchased to allow for an expansion that will provide for improved working conditions, co-located departments, and expanded training facilities. The existing Hershey building has numerous mechanical, plumbing, and building concerns. This new addition will also provide better access to major roadways and improved customer service. The project is scheduled for completion by December 2018 at an estimated cost of $28.4 million.

Q. Please explain in general terms the other types of improvements that the Company will make in its water and wastewater systems during the future test year ending December 31, 2017.

A. The Company will install approximately 6,572 new water meters and replace or upgrade approximately 74,665 existing meters at various points throughout its water distribution system at an estimated cost of approximately $16.976 million, exclusive of meters associated with projects previously described. Meters are routinely replaced as they approach 20 years of age in the case of 5/8 inch meters and at various other ages for larger size meters. Meters are also replaced due to failures or malfunctions or to incorporate new meter technology.

The Company is also planning to replace approximately 6,075 old customer water service lines and 325 wastewater laterals and install approximately 1,695 new customer water service lines and 53 new wastewater laterals at an estimated cost of approximately $22.92 million, exclusive of services associated with projects previously described. Services are replaced for a variety of reasons including leakage discovered through the

Company's leak detection program or to maintain the quality of water service. Pressure and water quality problems can result from old service lines made from obsolete materials, such as galvanized iron. When municipal paving projects are being planned, the Company reviews its records and determines if there are any obsolete services along the street to be repaved that should be replaced. Service replacement costs are minimized by doing the service replacements before repaving occurs.

The Company also plans to replace approximately 79.6 miles of various diameter water pipes and 7.58 miles of sewer main at a cost of approximately $110.61 million, exclusive of the pipeline projects previously described. This construction is being done for a variety of reasons including improving flow capabilities, preventing water quality degradation, systematically replacing aging distribution system infrastructure, enhancing system reliability and minimizing service disruptions to customers caused by main breaks. The Company anticipates that additional developer projects of over $7 million in total will occur in 2017, which will be funded by developer advances.

The Company's distribution system improvement program currently encompasses the replacement or rehabilitation of small diameter mains (6-inch and under) that have reached or are nearing the end of their useful life and exhibit numerous performance related issues and of larger diameter mains (8-inch and over) that are experiencing performance related issues (e.g., high number of breaks). As part of this program, the Company systematically assesses its mains to target the quantity and location of the mains that it will replace each year.

Small diameter mains represent approximately 29% of the Company's overall distribution system, and approximately 55% of these small diameter mains are made of

older unlined cast-iron pipe. In addition to having much higher break frequencies, which lead to customer service disruptions and inconvenience to the public, these smaller diameter mains have low carrying capacity and can contribute to water quality problems. Because these smaller diameter mains lack both the structural integrity and the hydraulic capacity needed to accommodate future service, the Company typically replaces them with 8-inch diameter mains to resolve customer service and reliability issues and to restore hydraulic capacities within the distribution system.

For larger diameter mains, as in the case of smaller diameter mains, performance related issues are a key driver for either replacement or rehabilitation. Although the frequency of leaks/breaks on large diameter mains may be less than that of smaller diameter mains, when a break does occur on a large diameter main, customer service and reliability issues together with associated liability and remediation expenses are greater. Consequently, PAWC carefully assesses the performance of larger mains to determine the location and timing of replacements.

Q. Please describe in general terms the types of improvements that the Company will make in its water and wastewater systems during the fully projected future test year.

A. The following routine improvement activities planned for 2018 will be conducted for the same reasons these projects are undertaken in 2017.

The Company will install approximately 6,582 new meters and replace or upgrade approximately 70,596 existing meters at various points throughout its distribution system at an estimated cost of approximately $16.18 million, exclusive of meters associated with projects previously described.

The Company is also planning to replace approximately 6,561 old customer water service lines and 325 wastewater laterals and install approximately 1,695 new customer water service lines and 29 new wastewater laterals at an estimated cost of approximately $24.66 million, exclusive of services associated with projects previously described. The Company plans to replace approximately 88.3 miles of various diameter water pipes and approximately one mile of sewer main at a cost of approximately $110.52 million, exclusive of the pipeline projects previously described. The Company anticipates that additional developer projects totaling more than $7 million will occur in 2018, which will be funded by advances.

Main Extension Commitment From PAWC's 2013 Base Rate Case

Q. Please summarize the commitment PAWC made in the settlement of its 2013 base rate case to construct water main extensions in Washington County.

A. During the course of the Company's 2013 base rate case and, in particular, in the public input hearing held on July 23, 2013 in the City of Washington, a number of homeowners in Washington County requested help because their wells were deficient in water quality and quantity. The affected areas were identified and defined by the Office of Consumer Advocate's ("OCA") witness, Terry Fought, based on his review of homeowners' requests for water service. The Company analyzed the problem and determined that it would be feasible to construct extensions from its existing mains to the affected areas. The Company also determined that the main extensions could be constructed pursuant to Rule 27.1(F) of its water tariff, which authorizes main extensions to be installed without customer contributions, subject to PaPUC approval, in order to address public health and safety concerns. Consequently, the Company committed to invest $10 million to

construct water main extensions in the areas delineated by Mr. Fought and also worked with the OCA to develop a list of fifteen projects that would address the concerns of homeowners with inadequate well-water supplies within those areas. The total estimated cost of the fifteen specifically-identified projects was $9.9 million. In addition, the Company agreed that if the designated projects were completed for less than $10 million, it would work collaboratively with the OCA to identify additional projects that might come to light where homeowners had inadequate well-water supplies, it was feasible to extend the Company's mains to address those problems, and the main extensions could be installed without customer contributions under Rule 27.1(F). The Company's commitment was set forth in Paragraph 8.1 of the Joint Petition for Settlement of Rate Investigation ("Joint Petition") in its 2013 base rate case. The specifically-identified projects within the scope of the Company's commitment were listed in Appendix F to the Joint Petition. The Joint Petition was approved by the PaPUC in its final order entered on December 19, 2013.

Q. Did the Company complete all of the specifically-designated projects by the stipulated deadline of June 30, 2015?

A. The Company completed all of the designated projects by the stipulated deadline except a portion of one. Area 8 (Project I) on Julien Road in Buffalo Township could not be done because the Company could not obtain right-of-way over a parcel of private property that is essential for this construction. The parcel is part of a decedent's estate, which has complicated the process of obtaining the needed right-of-way by agreement or by condemnation. This situation has been discussed with the OCA, and it is our

understanding that the OCA agrees that the delay in completing this project was caused by factors outside of the Company's control.

Q. After reserving the amount needed to complete the Area 8 (Project I), specifically the Julien Road portion, did the Company expend all of the $10 million it committed to invest to install the rest of the fifteen projects identified in Appendix F to the Joint Petition?

A. No, the Company was able to complete all of the designated projects and reserve the estimated cost for the Julien Road portion of Area 8 (Project I) for less than $10 million. Accordingly, the Company worked with the OCA to identify additional projects in Washington County that fit the Rule 27.1(F) criteria, and completed those projects as well.

Additional Washington County Main Extensions

List of Additional Projects	Footage	Number of Customers
Gretna Road	4,000	11
Washington Avenue	500	1
McConnells Mill Road	1,000	1
Cheslock Road (Linden Cr.)	750	2
Joe Cain Road	200	1
Total	**6,450**	**16**

Even after the additional projects were completed, the Company has a portion of the $10 million of committed funds remaining. The Company continues to work with the OCA to identify eligible projects. The OCA and the Company recently agreed to a project to extend an additional 1,800 of main from the end of the last extension on Gretna Road in order to address a Rule 27.1(F) situation. Additionally, the Company, with the agreement of the OCA, is contemplating asking for PaPUC approval to use the remainder of the $10

million for Rule 27.1(F) qualifying projects outside of Washington County that will serve 120 residential customers and two schools.

Acquisition Of The Scranton Authority Wastewater System And Sections 1327(a)(3) And 1328(a)(4) Of The Code

Q. In PAWC Statement No. 1, Mr. Nevirauskas discusses the acquisition adjustment associated with the Company's purchase of the wastewater assets of the Scranton Authority and explains that all of the criteria for including the Scranton acquisition adjustment in the Company's rate base have been satisfied in this case. Which of those criteria do you address?

A. As discussed by Mr. Nevirauskas, I will explain why Sections 1327(a)(3) and 1327(a)(4) of the Code are fully satisfied. As I previously noted, Sections 1327(a)(3) and 1327(a)(3) are two of eight criteria that must be met in order for the Company to include the Scranton acquisition adjustment in its rate base in this case.

Section 1327(a)(3)

Q. What does Section 1327(a)(3) require?

A. Section 1327(a)(3) requires a utility proposing to include an acquisition adjustment in its rate base to show that the seller "was not, at the time of the acquisition, furnishing and maintaining adequate, efficient, safe and reasonable service and facilities." In subsections (i)-(iv), Section 1327(a)(3) lists four examples of how an acquiring utility may satisfy this requirement and concludes with a "catch all" provision in subsection (v) that allows the Commission to consider "any other facts, as the commission may determine" that the acquired system was not furnishing or maintaining "adequate, efficient, safe and reasonable service and facilities." In addition to subsection (v), and of particular relevance to PAWC's acquisition of the wastewater assets of the Scranton

Authority, subsection (i) provides that Section 1327(a)(3) may be satisfied by evidence of "a violation of statutory or regulatory requirements of the Department of Environmental [Protection] or the commission concerning the safety, adequacy, efficiency or reasonableness of service and facilities."

Q. What evidence establishes that Section 1327(a)(3) is satisfied?

A. On September 29 and November 2, 2009, two complaints were filed in United States District Court against the Scranton Authority alleging prior, then-current and on-going violations of permit conditions and violations of laws and regulations of the United States and the Commonwealth of Pennsylvania that were enacted to protect the environment and public health by controlling pollution and preserving the quality and safety of the waters of the United States and the waters of the Commonwealth. One complaint was brought by the U.S. Department of Justice and the United States Attorney for the Middle District of Pennsylvania on behalf of the Environmental Protection Agency ("EPA") alleging that the Scranton Authority had violated, and was continuing to violate, various sections of the United States Clean Water Act and the terms and conditions of its NPDES permit relating to the Scranton Authority's WWTP and wastewater collection system. This complaint sought both an injunction to prevent further violations and civil penalties payable to the United States. A copy of the EPA Complaint is provided as PAWC Exhibit No. DRK-1.

A second "Complaint in Intervention" was brought by the PaDEP alleging that the Scranton Authority had violated, and was continuing to violate, various sections of the United States Clean Water Act, various sections of the Pennsylvania Clean Streams Law and the terms and conditions of its NPDES permit relating to its WWTP and wastewater

collection system. This complaint also sought an injunction to prevent further violations and additional civil penalties payable to the Commonwealth. A copy of the PaDEP Complaint is provided as PAWC Exhibit No. DRK-2.

Q. What happened in that case?

A. The Scranton Authority entered into a "Consent Decree" with the EPA and PaDEP, which was approved by the District Court on January 13, 2013 and became a "Final Judgment" on that date, as indicated on page 41 of the Consent Decree.[1] A copy of the Consent Decree is being provided as PAWC Exhibit No. DRK-3.

Q. Does the Consent Decree state why it was entered?

A. Paragraph No. 7, under the heading "Objectives," states as follows:

> The objectives of this Consent Decree are for the Defendant to take the steps necessary to achieve full compliance with the CWA [Clean Water Act], the regulations promulgated thereunder, including, but not limited to, 33 U.S.C. § 1342(q) and the regulations promulgated thereunder, and the Clean Streams Law and the regulations promulgated thereunder. All plans, reports, construction, remedial maintenance, and other obligations in this Consent Decree or resulting from the activities required by this Consent Decree shall have the objective of causing Defendant to come into and remain in full compliance with the terms and conditions of Defendant's NPDES Permit, the Clean Water Act, and the Clean Streams Law, as these terms are defined in Section IV (Definitions).

Additionally, the Consent Decree states that it "has been negotiated in good faith and will avoid prolonged and complicated litigation between the Parties" and that "the SSA [Scranton Sewer Authority] has demonstrated through disclosure of its financial records to Plaintiffs that it has, and will likely continue to have for the foreseeable future, limited

1 The Consent Decree was amended with the approval of the District Court to substitute PAWC as the successor to the Scranton Authority effective as of the date of closing on the Company's acquisition from the Scranton Authority.

ability to pay civil or stipulated penalties and simultaneously meet the compliance requirements of this Consent Decree" (Consent Decree, pp. 2-3).

Q. Does the Consent Decree incorporate "Compliance Measures" that the EPA and PaDEP required the Scranton Authority to undertake?

A. Yes, it does. The Compliance Measures are set forth in Paragraph Nos. 9-20 at pages 10-16 of the Consent Decree. The Compliance Measures consist of three parts: (1) the adoption and implementation of a Nine Minimum Controls Plan to address operational controls and protocols to reduce the impact of combined sewer overflows ("CSOs") on receiving waters (Paragraph Nos. 9-10); (2) the adoption and implementation of a Long-Term Control Plan ("LTCP") providing for a series of projects to be constructed in phases in compliance with specified milestone dates to reduce the potential for CSOs (Paragraph Nos. 11-14); and (3) general compliance measures that include prohibiting all dry weather overflows, complying with identified operating protocols, properly identifying outfalls to receiving streams and prohibiting discharges through any outfall other than those specifically identified and permitted, eliminating all sanitary sewer overflows, and various reporting requirements including reporting non-compliance with the Scranton Authority's NPDES permit (Paragraph Nos. 18-20).

Q. What is the time-frame for implementing the Compliance Measures?

A. The time frames differ based on the compliance measure. With specific reference to the LTCP, which involves the construction of a significant amount of new plant and equipment, there are specific milestone dates for each phase and specific interim deadlines, with all aspects of the LTCP to be completed over no more than twenty years

from now at a current estimated cost of $140 million not including any allowance for funds used during construction ("AFUDC").

Q. Does the Consent Decree impose penalties if its terms are not satisfied and the milestone dates and other deadlines are not met?

A. Yes, the "Stipulated Penalties" are set forth in Section X (Paragraph Nos. 36-52) and provide for daily penalties for noncompliance that increase based on the period of noncompliance.[2]

Q. How long will the District Court retain jurisdiction over the civil complaint case brought by the EPA and PaDEP?

A. The Consent Decree states that the Court "shall retain jurisdiction over this case until termination of this Consent Decree" for, among things, "effectuating or enforcing compliance with the terms of the Consent Decree" (Paragraph No. 87).

Q. Does the Consent Decree state when it will terminate?

A. Yes, Paragraph No. 90 provides that the Consent Decree will remain in effect and will not be terminated until "the Defendant has":

> (i) completed implementation of the requirements of Section V (Compliance Measures); (ii) certified that all construction required by the Long-Term Control Plan is complete and that the Long-Term Control Plan has been fully implemented; (iii) completed post construction monitoring as required by the Long-Term Control Plan; (iv) submitted a PCMP [post-construction monitoring plan] report to the EPA and the PADEP; (v) demonstrated in the PCMP report that any remaining CSOs [combined sewer overflows] will not cause the SSA [Scranton Sewer Authority] to violate the CSO Policy or its NPDES Permit; (vi) satisfactorily complied, as determined by the EPA, with its NPDES Permit for a period of 12 months; and (vii) paid the civil

2 While Section X specifies the penalties for failure to comply with the Consent Decree in the future, Paragraph Nos. 33 and 35 required the Scranton Authority to pay civil penalties totaling $340,000 consisting of a civil penalty of $170,000 payable to the EPA and a civil penalty of $170,000 payable to the PaDEP.

penalty and any accrued stipulated penalties as required by this Consent Decree.

Section 1327(a)(4)

Q. What does Section 1327(a)(4) require?

A. Section 1327(a)(4) requires a utility proposing to include an acquisition adjustment in its rate base to show that "reasonable and prudent investments will be made to assure that the customers served by the property will receive adequate, efficient, safe and reasonable service." I will explain the various improvements PAWC has constructed and will construct to address the various deficiencies in its wastewater system identified by the Consent Decree.

Q. Before discussing the additions PAWC has made and will make, please provide a description of the Company's Scranton wastewater operations.

A. The Company's Scranton wastewater operations comprise the wastewater system PAWC acquired from the Scranton Authority and currently serves a population of approximately 90,000 in the City of Scranton, the Borough of Dunmore, and small areas within the contiguous municipalities of Taylor, Dickson City and Moosic, located in Lackawanna County.

The Scranton wastewater operations is primarily a gravity-operated system that consists of collections sewers and large interceptors, CSO structures, numerous catch basins, pump stations and a WWTP. Parts of the collection system include "combined" sewer mains, which collect and convey a wastewater stream containing flows from homes and businesses, groundwater and sub-surface storm water that enters the system as I&I and storm water from surface sources. The remainder of the collection system consists of sanitary sewer mains that discharge wastewaters into the combined sewer

mains. The gravity-operated sanitary sewer mains convey a wastewater stream containing flows from homes and businesses as well as groundwater and sub-surface storm water that enters the system through I&I. Thus, the Scranton wastewater operations is an integrated wastewater system conveying flows from various sources including sanitary waste, industrial wastewater, ground water and sub-surface storm water introduced as I&I and surface-sourced storm water.

The storm water flowing into the collection system from surface sources is comingled with other wastewater streams and conveyed through a collection of interconnected piping either to the WWTP or to CSOs that are authorized for discharges to receiving streams by the NPDES. All of the wastewater conveyed by the system and the facilities used for that conveyance are subject to the applicable provisions of the Pennsylvania Clean Streams Law, the Pennsylvania Sewage Facilities Act and PaDEP regulations issued under those statutes. The entity that operates the system and holder of the NPDES permit (currently PAWC and, prior to the acquisition, the Scranton Authority) is responsible for managing all flows within, and all discharges from, the combined sewer system, including all constituents of the combined wastewater flow. The portion of the system that carries combined wastewater flows (i.e., including storm water derived from surface sources) also includes regulators that exist in conjunction with storage units that are used to divert and store, respectively, a portion of wastewater flows when flows are high. Diversion and storage minimizes overflows into receiving streams at various overflow points.

The regulators insure that all dry weather sewage flows are discharged to intercepting sewers and treatment facilities and limit the volume of wet weather flows

discharged to those facilities. Regulators typically consist of multi-chambered concrete structures. Storage in a combined system is provided by a number of on-line and off-line storage units.

The storage units consist of various-sized and concrete basins, which are often installed underground. On-line storage tanks are designed so that wastewater flows into and directly out of the tank, where flows equal to the storage capacity of the tank are retained until after a precipitation event has ended. Off-line storage requires pumping to redirect the excess wastewater back into the sewer following a precipitation event. All of these facilities are used to regulate the flow of untreated wastewater by storing and managing wastewater flows in order to minimize the amount of pollutants that may need to be discharged directly to receiving streams and, in that way, to protect those streams and the environment generally.

The Scranton WWTP discharges treated effluent to the Lackawanna River and its various tributaries under NPDES Permit No. PA0026492. The WWTP, as recently upgraded, has an annual average design hydraulic capacity of 20.0 MGD and an annual average design organic loading capacity of 44,550 lbs. five-day biochemical oxygen demand per day.

Q. Please explain the capital improvements and operational changes to the Scranton wastewater system that the Consent Decree (and now the Amended Consent Decree) require.

A. As I previously explained, the Consent Decree requires Compliance Measures to bring the Scranton system into compliance with the requirements of the Federal Clean Water Act, the Pennsylvania Clean Streams Law, the regulations issued under both of those

statutes, and the NPDES permit governing discharges from the Scranton system. To summarize, the Compliance Measures consist of: (1) adopting and implementing a Nine Minimum Controls Plan; (2) adopting and implementing an LTCP; and (3) various general compliance measures. The various elements of the Compliance Measures are designed to address CSOs and other operational issues in order to limit discharges of storm water comingled with other untreated wastewater flows to receiving streams. Under the Amended Consent Order, PAWC, as successor to the Scranton Authority, is required to implement the Compliance Measures.

Q. Did the Scranton Authority adopt an LTCP?

A. Yes, the Scranton Authority adopted an LTCP that was approved by the PaDEP and EPA. Under the Amended Consent Decree, PAWC is required to implement the approved LTCP. As I previously noted, the LTCP provides for the design, construction and operation of projects in five phases over the next twenty years with the goal of having the combined sewer system comply with the requirements of the EPA's Combined Sewer Overflow Control Policy ("CSO Control Policy") as defined in Paragraph No. 8.e. of the Consent Decree. As the Consent Decree sets forth, the objective of the LTCP, when completed, is to ensure no more than four overflows of untreated combined wastewater in a typical year to any non-channelized tributary of the Lackawanna River and no more than nine overflows of untreated combined wastewater in a typical year to the Lackawanna River and its channelized tributaries. Fully implementing the Compliance Measures needed to meet the requirements of the EPA's CSO Control Policy is expected to capture, on a system-wide basis, 90%, by volume, of the combined sewage collected by the combined sewer system and reduce CSOs by 571 million gallons. As I previously

explained, the estimated cost of the projects needed to achieve compliance with the EPA's CSO Control Policy is $140 million without AFUDC. The control projects are to be completed as soon as possible but not later than December 1, 2037.

Q. Please provide an overview of the major categories of CSO control measures that must be completed in order to implement the LTCP.

A. The major categories of CSO control measures that must be completed to implement the LTCP consist of the following:

(1) Upgrading and expanding the capacity of the WWTP;

(2) Adjustment to CSO regulators;

(3) Additional In-line and off-line storage units;

(4) Strategic separation of storm water only mains from CSO mains where a connection to an MS4 [Municipal Separate Storm Sewer] permitted storm system is possible.;

(5) Above-ground storage units;

(6) Interceptor rock traps;

(7) Source controls to reduce the quantity of wet-weather flow that enters the combined sewer system; and

(8) Operation and maintenance changes and improvements consistent with the Nine Minimum Controls Plan.

The plan to achieve the "baseline" for CSO control currently anticipates installing below-grade storage units at 45 CSO locations (32 off-line units and 13 on-line units). These storage units will temporarily store excess wet weather flow within the combined sewer system until there is sufficient capacity available in downstream facilities to convey the stored volume to the WWTP for treatment prior to discharge to a receiving stream. This baseline approach will be refined as more detailed modelling and analysis is performed.

Q. Has any part of the LTCP already been implemented?

A. Yes. In 2016, the WWTP was upgraded to provide biologic nutrient removal ("BNR") capability and to increase its hydraulic capacity to handle peak wet-weather flows of up to 60 MGD. The WWTP improvements included constructing a fifth primary clarifier; modifying the existing bioreactors; constructing a fifth bioreactor; constructing two additional final clarifiers; and installing new process blowers, return-activated sludge and waste-activated sludge pumps and chemical feed systems.

The WWTP improvements were made to comply with the requirements for total nitrogen and total phosphorus nutrient removal imposed by the Scranton wastewater system's NPDES permit which, in turn, were designed to meet requirements to reduce the nutrient load in the Chesapeake Bay. The NPDES permit imposes an annual cap on total nitrogen discharges of 365,292 lbs/year and an annual cap on total phosphorus discharges of 48,706 lbs/year.

The new BNR process and clarifier upgrades are intended to meet wet-weather flow requirements delineated in the approved LTCP in order to treat up to 46 MGD through the entire treatment process and to treat an additional 14 MGD through primary treatment and blending with the secondary treated effluent for disinfection and discharge – thus providing a total hydraulic flow of 60 MGD. However, after the WWTP improvements were constructed by the Scranton Authority, hydraulic and process deficiencies were discovered that kept the WWTP from achieving its rated treatment capacity. As a consequence, the treatment process of the upgraded WWTP can currently treat only 25 MGD through the BNR process. Therefore, further work on the BNR process must be undertaken by PAWC: (1) to quantify the process and hydraulic

deficiencies in the work done completed by the Scranton Authority by conducting field and bench testing and hydraulic modeling; (2) to develop recommended hydraulic and process improvements that are needed to meet the requirements of the LTCP and the conditions of the Scranton wastewater system's NPDES permit; and (3) to design, permit and construct the facilities needed to implement the recommended improvements.

Q. Please describe the projects within the scope of the LTCP that were, or will be, completed by PAWC and placed in service during the future test year and fully projected future test year.

A. There are nine major projects that PAWC has completed, or will complete, and place in service during the future test year and fully projected future test year, consisting of the following:

Outfall #011 - Von Storch (I24-920002). This project consists of the design and construction of a 120,000 gallon underground CSO storage tank at Outfall #11, which is located on Von Storch Avenue. The tank will include submersible pumps for dewatering and instrumentation for remote monitoring and control of the facility. The project is estimated to cost approximately $4.2 million and is expected to be in service by December 2017.

Outfall #012 - Grove St, #033 - W. Parker, #040 - W. Market, #073- Front St (I24-920003). The project consists of raising the weirs in existing regulators; replacing flap gates; adding floatable controls; constructing a new flow meter vault; and installing a station control panel to all outfalls. The project is estimated to cost approximately $1.1 million and is expected to be in service by December 2017.

Outfall #018 - Love Road (I24-920004). The project consists of the design and construction of a 170,000 gallon underground CSO storage tank at Outfall #18, which is located on Love Road. The tank will include submersible pumps for dewatering and instrumentation for remote monitoring and control of the facility. The project is estimated to cost approximately $2.1 million and is expected to be in service by December 2018.

Outfall #038 - Wurtz Avenue (I24-920012). The project consists of the design and construction of a 117,000 gallon offline storage facility to decrease CSO discharge frequency and volumes at Outfall #38 which is located on Wurtz Avenue. The project is estimated to cost approximately $2.2 million and is expected to be in service by December 2017.

Outfall #049 - River Street (I24-920013). In trying to locate a site for the 14,000 gallon CSO storage facility for this outfall, a utility conflict was encountered in the form of a 36-inch water main with a large concrete thrust block. In lieu of the proposed 14,000-gallon storage facility, a new 15-inch interceptor will be installed, which will reduce typical-year overflow events at Outfall #049 to two. An additional benefit is that the interceptor replacement is being coordinated with improvements to water front access as a public amenity. The project is estimated to cost approximately $1.5 million and is expected to be in service by June 2018.

Outfall #065 - Drinker Street (I24-920014). This project involves constructing of an off-line storage conduit downstream of the existing combined sewer system. The project includes approximately 115 feet of 84” diameter steel reinforced polyethylene pipe, precast concrete valve/meter vault and diversion box, sanitary manhole structures, piping, valve, meter assemblies, and associated electrical service, instrumentation and

controls. The project is estimated to cost approximately $0.65 million and is expected to be in service by June 2017.

Outfall #066 - Burke Street (I24-920015). The project will replace sewers between Burke Street and Cherry Street with an 18" pipe and add a diversion weir at Burke and Mill Streets to divert extreme flow from the #066 upstream drainage basin to the #066 outfall. This approach would reduce overflow events to only four in a typical year. It will also reduce surcharging between Burke and Cherry Streets. The final project cost estimate is approximately $1.4 million. It was placed in service in February 2017.

Outfall #072 - Leggetts Street (I24-920017). The LTCP concept for this outfall was an off-line storage facility. However, field investigations and examination of the CSO hydraulic model have indicated that much of the system tributary to Outfall #072 is already separated and that the most practical alternative for this outfall is to complete the sewer separation and to rehabilitate parts of the existing sewer system. Most of the sanitary sewage is conveyed to outfall #004 and most of the storm flow is conveyed towards outfall #072. The proposed sewer separation concept calls for removing most of the stormwater that discharges to the combined sewers at outfall #072 and constructing storm sewers that will complete the separation and discharge to the local waterways. The project is estimated to cost approximately $0.8 million and is expected to be in service by December 2017.

Outfall #079 – Myrtle Street (I24-920018). With the modifications proposed for Burke Street (Outfall #066), which will divert significant tributary flow to Myrtle Street, the required storage volume will be reduced to 138,000 gallons. Because the pumps need

to be replaced, increasing the pump station capacity to 4.4 MGD will provide a greater benefit by reducing the typical year CSO events from four to three and the annual overflow volume from 5.5 MG to 1.49MG. The project is estimated to cost approximately $2.3 million and is expected to be in service by December 2018.

Risks Associated With Furnishing Public Water And Wastewater Service

Public Water Supply Service

Q. Please provide an overview of the risks associated with furnishing safe and adequate water quantity and water quality and complying with drinking water and environmental regulations that apply to PAWC's water supply facilities and operations.

A. Water supply utilities are subject to a complex array of regulations at the federal, state and river basin commission levels with respect to water quantity, water quality and other environmental aspects of their facilities and operations.

With respect to water sources and the quantity of water that can be withdrawn, PAWC's surface water and groundwater sources are subject to a combination of common law riparian rights and groundwater rights coupled with regulatory regimes administered by the PaDEP, the Susquehanna River Basin Commission ("SRBC") and Delaware River Basin Commission ("DRBC"). PADEP administers the 1939 Water Rights Act,[3] which requires that public water supply agencies wishing to withdraw water from surface sources, or to acquire rights in surface sources, first obtain a permit. Water systems with sources developed prior to 1939 were accorded "orders of confirmation" confirming grandfathered withdrawals, but subsequent changes to those systems and/or increased

3 32 P.S. §§ 631-641.

withdrawals may trigger permitting requirements. Both SRBC and DRBC are empowered to review and approve projects having a substantial effect on basin water resources.[4] Pursuant to their project review authority, SRBC and DRBC review proposed surface and groundwater withdrawals that may have a "substantial effect" on basin waters (which are defined in both basins to include withdrawals of greater than 100,000 gallons per day from any source or combination of sources). Such project review is focused on determining consistency with Commission-adopted comprehensive plans and "the proper conservation, development, management or control of the water resources of the basin." In administering their permitting programs, PADEP, SRBC and DRBC apply varying policies imposing limitations on withdrawals or requirements for conservation releases from reservoirs to protect stream flows.

Drinking water quality is addressed by a combination of federal regulation established under the Safe Drinking Water Act of 1973 coupled with state regulation under the Pennsylvania Safe Drinking Water Act. The federal act established the EPA as the federal regulatory authority on drinking water. Under that authority, EPA has created standards for contaminant levels in drinking water[5] and a series of mandatory treatment method standards, coupled with monitoring and reporting requirements, and public notification mandates in the event of contaminant level or treatment method non-compliance.[6] In turn, Pennsylvania has adopted the federal regulatory standards, plus some even more stringent rules, as codified in 25 Pa. Code Ch. 109, which are administered by PADEP. In recent years there has been an increase in public concern

4 DRBC Compact § 3.8; SRBC Compact § 3.10(2).
5 See: https://www.epa.gov/sites/production/files/2016-06/documents/npwdr_complete_table.pdf.
6 See 40 C.F.R. Parts 141-143.

over water quality standards and regulation. This increase has led to growth and increased stringency in EPA and state drinking water research and regulation.

The following is a brief summary of some of the key risk issues associated with current and prospective regulation of water quantity, quality and other environmental aspects of water supply system operations:

1) In September, 2016, SRBC proposed changes to its project review regulations that would significant impact "grandfathered" surface and groundwater withdrawals of the type currently operated by PAWC.[7] The SRBC-proposed rules would require all existing withdrawals to be registered, with SRBC staff to determine, during the registration process, the quantity of water to be grandfathered based the amounts that were being used before a series of trigger dates in the 1970s and 1980s. If enacted, as anticipated, these rules threaten to impinge upon PAWC's ability to utilize its existing sources and facilities to their full potential (e.g., to the amounts recognized in PADEP orders of confirmation). A likely result of these regulations would be to require PAWC to apply for project approvals for increased withdrawal amounts to meet growing system demands, which in the process would likely trigger increased passby flow and conservation release requirements (as discussed below).

2) In December 2012, SRBC finalized a new Low Flow Protection Policy ("SRBC Low Flow Policy") and associated technical guidance document that will be used to establish passby flow and conservation release conditions in withdrawal approvals issued to public water systems and other users.[8] The SRBC Low Flow Policy

7 81 Fed. Reg. 64812 (September 21, 2016).
8 Available at: http://www.srbc.net/policies/lowflowpolicy.htm.

categorizes the Commonwealth's streams and rivers into six "Aquatic Resource Classes" based on drainage area (as an approximation of flow sensitivity) and calls for the imposition of more stringent passby flow conditions on withdrawals from smaller watersheds. The SRBC Low Flow Policy sets targets for stream flow that vary over the seasons (to mimic the variation in natural flows). The net impact of the SRBC Low Flow Policy will be to reduce the safe yield and dependability of existing sources, requiring investment in development and operation of additional ground and surface water sources – which often take years to site and develop.

3) As the result of conditions that arose in Flint, Michigan and other jurisdictions across the country, increasing scrutiny is being placed at all levels concerning lead concentrations in water systems and potential adoption of more stringent requirements under the federal "Lead and Copper Rule." The lead issue arises not from constituents in source water, but rather from the leaching of lead from older pipes and joints into the water as it passes through the distribution lines and household service lines. While controlling of the corrosivity of the water can, in many cases, avoid excessive lead concentrations, the fact is that the plumbing in many older communities (such as those throughout much of PAWC's service territory) contain the type of copper and galvanized pipes with solder joints where lead contamination is an increased risk.

4) In the wake of the Flint crisis, in October 2016, the EPA released a whitepaper containing proposed revisions to the federal Lead and Copper Rule. The EPA's Lead and Copper Rule Revisions White Paper contains a series of proposals, including mandates that water systems establish lead service line replacement programs (i.e.,

programs to replace customer lines from the utility's mains into the house), requiring efforts to proactively work with customers to "encourage them to share appropriately in fully removing [lead service lines] …." EPA acknowledges the "substantial economic, legal, technical, and environmental justice challenges" presented by this proposal. The white paper also examines options for more stringent corrosion control treatment requirements. The white paper's proposals, if adopted, could impose significant additional capital investment requirements and increased operating expenses on all water systems.

5) PADEP has proposed more intensive periodic "point of entry" monitoring for all public water systems sources, including those sources that are utilized only intermittently as backups in the event of emergencies. If implemented as proposed, the point of entry monitoring requirements would engender significantly increased monitoring requirements – forcing PAWC to place into service and monitor on a much more frequent basis a large number of backup sources.

6) EPA has continued to make its regulations concerning disinfection byproducts more stringent. Disinfection byproducts are produced by the interaction of disinfection agents (such as chlorine) with constituents (such as organic compounds) that naturally occur in source water. The Stage 2 Disinfectants and Disinfection Byproducts Rule ("Stage 2 DBPR") adopted in 2006, coupled with increasingly stringent disinfection regulations, requires a very careful balancing of treatment processes and source water monitoring to meet the twin goals of killing microbes (such as giardia and e-coli) while avoiding unacceptable concentrations of disinfection byproducts such as Chlorite, Bromate, Trihalomethanes, and Halogenic acetic acids.

Public Wastewater Service

Q. Provide an overview of the risks that environmental regulation pose for PAWC as the owner and operator of public wastewater systems.

A. Like the provision of public water supply service, the operation of wastewater collection and treatment systems entails a range of environmental regulatory risks.

Wastewater operations are also regulated at both the federal and state levels pursuant to a number of statutes and voluminous regulations. At the federal level, wastewater systems are regulated pursuant to the Clean Water Act and numerous regulations adopted by the EPA under that law. At the state level, the Pennsylvania Clean Streams Law, Sewage Facilities Act, Solid Waste Management Act, Storage Tank and Spill Prevention Act and other laws administered by the PaDEP, coupled with the regulations adopted under those statutes, set standards and requirements for virtually every aspect of wastewater system operations.

The significant risks associated with operating wastewater systems include the following:

1) Effluent limitations imposed on WWTP discharges are stringent and can become more stringent over time. The Clean Water Act requires wastewater systems to obtain and comply with NPDES permits, which, in Pennsylvania, are issued by PaDEP. NPDES permits establish stringent effluent limits based upon the stricter of: (1) technology-based effluent limits; and (2) water quality based effluent limits.

Technology-based limits are set by EPA (or, in the absence of EPA guidelines for effluent limits, by the permit writer's best professional judgment) at levels that reflect (depending on the parameter) best conventional control technology ("BCT"), best practicable control technology currently available ("BPT"), or best available

technology economically achievable ("BAT"). Determinations of BCT, BPT and BAT can change over time, becoming more stringent as technology evolves.

Water quality-based effluent limits ("WQBEL") are established to avoid discharges to water bodies that exceed instream water quality criteria, which are set to protect existing and designated uses, such as recreation and various categories of fisheries. WQBEL limits are usually based on the assimilative capacity of a stream to receive and dilute the discharge during extremely low flow – that is, when stream flow is at the 7-day, 10-year low flow ("Q7-10"). By definition, WQBELs may require treatment beyond technology-based values, even beyond what is considered best available technology. Moreover, as streams become cleaner, their classifications may be upgraded (for example, to high quality or exceptional value status under 25 Pa. Code Ch. 93) such that their protected uses are deemed to be more sensitive, which, in turn, leads to even more stringent WQBEL calculations.

As just one example, the NPDES permit issued in late 2016 for the recently-acquired Scranton system sets more stringent effluent limits for a series of parameters, including total residual chlorine, fecal coliform, ammonia-nitrogen, arsenic. dichlorobromomethane, bis(2-ethylhexyl)phthalate, some of which go into effect immediately, and some phased in over time. A notable risk in wastewater operations is that limits for some parameters may have conflicting impacts on treatment efforts. Such is the case with respect to fecal coliform standards on the one hand, and limits on treatment residuals (residual chlorine and dichlorobromomethane) on the other – where a delicate balancing is required to concurrently meet all applicable standards.

Thus, more stringent effluent limits may be imposed when technology evolves or stream conditions change, engendering requirements for significant capital improvements and/or increased operating costs for enhanced treatment performance. Every five years, NPDES permits are up for renewal, and in any such renewal more stringent limits may be triggered.

2) A number of Pennsylvania streams, including those where PAWC is operating wastewater systems, are parts of watersheds that are classified as "impaired" (meaning their instream quality does not meet state standards). Such impaired waters are subject to the development and imposition of Total Maximum Daily Loads ("TMDLs") for parameters that contribute to the instream conditions. A prime example is the Chesapeake Bay watershed, which includes the entire Susquehanna River Basin, where a TMDL has been established for sediments (total suspended solids) and nutrients (phosphorous and nitrogen). Where TMDL's are established by EPA or PaDEP, stringent waste load allocations are made to point-source discharges (such as WWTPs), and allocations are also made to non-point sources, such as agriculture and urban runoff. In the case of the Chesapeake Bay TMDL, for example, every WWTP in the Susquehanna Basin has been accorded an annual "cap load" for total nitrogen and total phosphorous – where any cap loading exceedance irrespective of the cause (such as increased flows and loadings from system customers or high stormwater flows entering the system) – can lead to stiff penalties and other enforcement actions.

3) Wastewater systems face significant regulatory and environmental liability risks. Non-compliance with wastewater system effluent limits and other permit conditions

can result in severe penalties. Regulatory violations open the operator to not only governmental agency enforcement actions, but also citizen suits in which both injunctive relief and civil penalties can be imposed. Currently, violation of effluent limit or other permit conditions may result in administrative penalties of up to $20,965 per day and court-imposed penalties of up to $52,414 per day.

Other potential liability risks from wastewater system operations arise from backups, overflows or releases that may occur from the collection system onto private property or into the environment. As an example, some wastewater system operators have been confronted with claims under the federal Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") for cleanup of contamination that occurred when wastewater containing "hazardous substances" leaked from sewer lines into soils or groundwater. While not as extreme, liabilities resulting from sewer backups into buildings or other unplanned discharges are an inherent part of wastewater system risks.

4) A substantial number of public sewer systems in the northeastern U.S. are combined sewers, meaning that both storm water and sanitary/industrial wastewaters are flowing in the same sewer lines. As previously explained, PAWC's Scranton wastewater operation is such a system. Combined sewer systems incur high flows during and after storms, which may exceed the system conveyance and/or treatment capacity, with excess untreated wastewaters discharged to receiving streams through CSO outfalls. In many cases, separation of combined sewer systems into separate sanitary and storm systems is logistically and economically infeasible.

EPA's CSO Control Policy[9], which applies to publicly owned treatment works ("POTWs") (i.e., those systems owned or operated by state or local governmental agencies), while recognizing that CSOs cannot be entirely eliminated, seeks to reduce them. Although the federal Clean Water Act generally requires that all wastewater be treated with at least secondary treatment prior to discharge, the CSO Control Policy provides an exception for POTWs. Currently, the CSO Control Policy, by its terms, does not provide similar exceptions for non-publicly owned sewage systems. However, some utilities (including PAWC) have obtained EPA's agreement to continue to apply the CSO Control Policy's exception to systems that were formerly POTWs and were acquired by non-public entities. EPA's recognition of such exceptions must be obtained by negotiation on a case-by-case base and typically entails entering into court-approved consent decrees or agency consent orders that impose stringent capital improvement and operating obligations on the non-public owner of the wastewater system.

Under the CSO Control Policy and applicable NPDES permits, operators of combined sewer systems must develop and implement LTCPs, consisting of collection system and treatment plant improvement projects designed to reduce CSOs to no more than four events per year and/or capture and treatment of 85-90% of annual storm water flows. These LTCP requirements often involve very substantial multi-year capital expenditure programs. The impact of LTCP mandates on customers' rates can also be significant and, in what are often economically

9 59 Fed. Reg. 18687 (April 19, 1994), available at: https://www.epa.gov/sites/production/files/2015-10/documents/owm0111.pdf.

depressed communities, may require rate increases that approach or exceed EPA's "affordability" criteria for water/wastewater system rates.

Combined sewer system operators must also adopt and implement a Nine Minimum Controls Plan,[10] consisting of a series of actions that address the management of storm water and constituents in storm water runoff, including regulation of storm water connections, regulation of land development/erosion and sedimentation activities, control of industrial and other dischargers, catch basin maintenance, street sweeping, etc.

5) Even where systems being acquired do not involve combined sewers, high rates of I&I[11] during wet weather can surcharge the system and exceed the hydraulic or treatment capacity of the WWTP. System upgrades to reduce I&I may require major capital expenditures. This was the case with the Clarion wastewater system, which PAWC acquired in 2008. PAWC was required to enter into a Consent Order with PaDEP to implement a series of collection system and WWTP improvements for the Clarion wastewater operations on a schedule that was enforced by stipulated penalties in the event of any unexcused delay.

Challenges Climate Change May Create

Q. Does climate change pose additional risks for water supply and wastewater system utilities such as PAWC?

10 U.S. Environmental Protection Agency, Combined Sewer Overflows Guidance for Nine Minimum Controls, EPA 832-B-95-003 (May 1995), available at: https://www3.epa.gov/npdes/pubs/owm0030.pdf.
11 I&I involves the infiltration of groundwater and stormwater into what is considered to be a sanitary only sewer line, such as through joints and other weaknesses in the pipelines.

A. Yes. Whatever the debate may be concerning the causes of climate change, water supply and wastewater utilities face the reality of changing climatic conditions and attendant stresses on water resources. Although climate models for the northeastern U.S. generally predict overall annual precipitation amounts to remain similar to average historic experience, increasingly intense storms and repeated, extended dry periods are anticipated.[12] That means we can expect more droughts of varying degrees of severity and more frequent and intense high-flow events and floods – which impact water and wastewater utilities.

Water supply systems are fundamentally resource-dependent and, therefore, the effects of climate change pose a significant on-going risk and create challenges with regard to maintaining a reliable water supply during the full range of potential future conditions, including even what might be assumed to be "normal" periods. The safe yields of water supply sources have historically been evaluated based on historical climatic patterns, data from so called "droughts of record" or dry period frequency analysis. However, changing climatic conditions suggest that historical hydrologic data (which in many cases only reflect 50-100 years of rainfall and stream flow measurement collection – a quite short period in geologic or climatic time) may not accurately predict future conditions. Thus, the calculated safe yield of streams, reservoirs and groundwater wells are put in question as the effects of climate change are experienced across the

12 R. Horton, G. Yohe, W. Easterling, R. Kates, M. Ruth, E. Sussman, A. Whelchel, D. Wolfe, and F. Lipschultz, 2014: Ch. 16: Northeast. Climate Change Impacts in the United States: The Third National Climate Assessment, (J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, Eds.), U.S. Global Change Research Program (2014); *see also*, J. Shortle, *et al*, Pennsylvania Climate Impacts Assessment Update (May 2015), available at http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-108470/2700-BK-DEP4494.pdf.

northeastern United States. Thus, in response to climate change, water supply systems must address the risks posed to the reliability and resilience of their sources.

While droughts are the major challenge for water supply systems, heavy precipitation and high-flow events are the concern of wastewater systems. As mentioned previously, wastewater systems of all types are impacted by storm water – directly in the case of combined sewer systems and indirectly (but nevertheless significantly) by I&I in "sanitary only" systems. The prediction of increased intensity of strong storms and high rainfall events in the northeastern United States portends challenges to wastewater systems which must in turn cope with and treat higher peak flows while avoiding exceedance of effluent limitations and reducing the potential for untreated overflows.

Q. Does this conclude your testimony?

A. Yes, it does.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
	:	
v.	:	**DOCKET NO. R-2017-2595853**
	:	
PENNSYLVANIA-AMERICAN WATER COMPANY	:	

VERIFICATION

I, **David R. Kaufman**, hereby state that the facts set forth in the pre-marked Statement No. 3 and accompanying exhibits, if any, are true and correct to the best of my knowledge information and belief. I understand that this verification is made subject to the provisions and penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: April 28, 2017

David R. Kaufman

PAWC EXHIBIT NO. DRK-1

Complaint of the United States of America on behalf of the Environmental Protection Agency
Against
The Sewer Authority of the City of Scranton
In the United States District Court for the Middle District of Pennsylvania
Civil Action No. 3:09-CV-1873

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA,

Plaintiff,

v.

SEWER AUTHORITY OF THE CITY OF SCRANTON,

Defendant.

Civ. No. _____

COMPLAINT

The United States of America, by authority of the Attorney General of the United States and through the undersigned attorneys on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), files this Complaint, and allege as follows:

NATURE OF ACTION

1. This is a civil action for injunctive relief and civil penalties brought against the Sewer Authority of the City of Scranton pursuant to Sections 309(b) and (d) of the Federal Clean Water Act ("CWA"), 33 U.S.C. §§ 1319(b) and (d), for permanent injunctive relief and assessment of civil penalties regarding the operation of a sewage treatment plant and collection system. The United States alleges that Defendant discharged, and continues to discharge, pollutants into waters of the United States in violation of Section 301(a) of the CWA, 33 U.S.C. § 1311(a), including discharges of raw sewage, storm water, and other wastewater (collectively, "combined sewage") from at least 80 constructed combined sewer outfalls, and for violations of conditions established in the National Pollutant Discharge Elimination System ("NPDES")

7. Defendant is located in Lackawanna County, Pennsylvania.

8. Defendant has the power to sue and be sued. 53 Pa. C.S.A. § 5607(d)(2).

9. Defendant is a "person" within the meaning of Section 502(5) of the CWA, 33 U.S.C. § 1362(5), and a "municipality" within the meaning of Section 502(4) of the CWA, 33 U.S.C. § 1362(4).

10. Defendant owns and operates a "treatment works" as that term is defined in Section 212(2) of the CWA, 33 U.S.C. § 1292, and a "publicly owned treatment works" ("POTW") as that term is defined in EPA regulations implementing the CWA, 40 C.F.R. § 122.2 (cross-referencing the definition at 40 C.F.R. § 403.3(q)).

LEGAL BACKGROUND

11. Section 301(a) of the CWA, 33 U.S.C. § 1311(a), prohibits the discharge of any pollutant by any person except as authorized by a National Pollutant Discharge Elimination System ("NPDES") permit issued by the EPA or an authorized State pursuant to Section 402 of the CWA, 33 U.S.C. § 1342.

12. Section 502(12) of the CWA, 33 U.S.C. § 1362(12), defines "discharge of a pollutant" to include "any addition of any pollutant to navigable waters from any point source."

13. Section 502(7), 33 U.S.C. § 1362(7), defines "navigable waters" to be the "waters of the United States, including the territorial seas."

14. Federal regulations promulgated pursuant to the CWA define the phrase "waters of the United States" to include, among other things, (i) all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (ii) all interstate waters; (iii) tributaries of waters of these waters; and (iv) wetlands adjacent to the foregoing. 40 C.F.R. § 122.2.

15. Section 502(6) of the CWA, 33 U.S.C. § 1362(6) includes "sewage" in the definition of "pollutant."

16. Section 502(14) of the CWA, 33 U.S.C. § 1362(14), defines "point source" as "any discernable, confined and discrete conveyance . . . from which pollutants are or may be discharged."

17. Under Section 402(a) of the CWA, 33 U.S.C. § 1342(a), the Administrator of the EPA may issue NPDES permits to authorize the discharge of pollutants into waters of the United States, subject to the conditions and limitations set forth in such permits.

18. Section 402(b) of the CWA, 33 U.S.C. § 1342(b), provides that a state may establish its own permit program, and after receiving the EPA's authorization of its program, may issue NPDES permits.

19. At all times relevant to this Complaint, the Commonwealth of Pennsylvania has been authorized by the EPA to administer an NPDES program for regulating the discharges of pollutants into navigable waters within the Commonwealth's jurisdiction. The EPA authorized the PaDEP to administer an NPDES program on July 1, 1978.

20. The EPA retains concurrent enforcement authority pursuant to Section 402(i) of the Act, 33 U.S.C. § 1342(i).

21. Section 402(q) of the Act, 33 U.S.C. § 1342(q), provides that each permit, order, or decree issued after December 21, 2000, for discharges from a municipal combined sewer system shall conform to the EPA's Combined Sewer Overflow Policy ("CSO Policy"), 59 Fed. Reg. 18688 (May 19, 1994).

22. Section 309(b) of the CWA, 33 U.S.C. § 1319(b), authorizes the Administrator of the EPA to commence a civil action to obtain appropriate relief, including a permanent or

temporary injunction, when any person: discharges without a permit in violation of Section 301 of the CWA, 33 U.S.C. § 1311; violates any permit condition or limitation in a permit issued under Section 402 of the CWA, 33 U.S.C. § 1342; or violates any order issued by the Administrator of the EPA.

23. Pursuant to Section 309(d) of the CWA, 33 U.S.C. § 1319(d), the court may impose civil penalties not to exceed $25,000 per day for each day in which such violation occurs on or before January 30, 1997, $27,500 per day for each day of violation after January 30, 1997 (Pub. L. 104-134, 61 Fed. Reg. 69360 (Dec. 31, 1996), $32,500 per day for each day in which such violation occurred after March 15, 2004, (69 Fed. Reg. 7121 (Feb. 13, 2004), and $37,500 for each day in which such violation occurred on or after January 12, 2009 (*see* 73 Fed. Reg. 75340, 75345 (Dec. 11, 2008).

GENERAL ALLEGATIONS

24. Defendant provides sewage collection and wastewater treatment services to residences and places of business covering a 16-square-mile area that includes parts of the City of Scranton and portions of the Boroughs of Dunmore, Taylor, Dickson City and Moosic.

25. At all relevant times, Defendant has owned and/or operated a wastewater treatment facility ("WWTP") and an associated collection system (collectively referred to hereafter as "publicly owned treatment works" or "POTW"), including sanitary sewage conveyances and combined sewage and storm water conveyances which receive and treat wastewater and storm water runoff from residential, commercial, industrial and combined sewage sources.

26. Defendant's collection system includes approximately 275 miles of sewers, approximately 172 miles of which consists of combined sewers that carry both sewage and storm water.

27. During certain rainfall events, the volume of waste water entering Defendant's combined sewer system exceeds the hydraulic capacity of the sewers and/or the treatment plant. In those circumstances, Defendant's collection system will discharge untreated waste water from certain designated outfalls, known as combined sewer outfalls.

28. When wastewater discharges from a combined sewer outfall, the event is known as a combined sewer overflow ("CSO").

29. Pursuant to Section 402 of the Act, 33 U.S.C. § 1342, the PaDEP issued NPDES permit no. PA-0026492 for Defendant's WWTP with an effective date of November 5, 1996 (the "1996 NPDES Permit").

30. The 1996 NPDES Permit identified, and authorized discharges from, one WWTP outfall and 69 combined sewer outfalls.

31. Pursuant to Section 309(a) of the Clean Water Act, 33 U.S.C. § 1319(a), the EPA issued an Order for Compliance to Defendant which became effective on December 4, 2002 (the "2002 Order"). The 2002 Order is attached hereto as Appendix B.

32. The PaDEP reissued NPDES permit no. PA-0026492 to Defendant with modified terms on July 1, 2003 (the "2003 NPDES Permit").

33. The 2003 NPDES Permit identified, and authorized discharges from, one WWTP outfall and 78 combined sewer outfalls.

34. The PaDEP reissued NPDES permit no. PA-0026492 to Defendant with modified terms on April 1, 2008 (the "2008 NPDES Permit").

35. The 2008 NPDES Permit identified, and authorized discharges from, one WWTP outfall and 80 combined sewer outfalls.

36. Defendant appealed certain terms of the 2008 NPDES Permit.

37. The PaDEP reissued NPDES permit no. PA-0026492 to Defendant with modified terms on September 21, 2009 (the "2009 NPDES Permit"), to become effective on October 1, 2009.

38. At all relevant times, Defendant's NPDES Permit has authorized Defendant to discharge pollutants only from specified point sources (identified in the permit as one or more numbered "outfalls") to specified waters of the United States and/or the Commonwealth, subject to limitations and conditions set forth in the NPDES permits.

39. Defendant's collection system includes an interceptor pipe that, if well maintained, is capable of conveying sewage to the WWTP at a rate of 99 million gallons per day.

40. Defendant's wastewater treatment plant was designed to treat only 20 million gallons of wastewater per day.

41. If the interceptor conveys wastewater to the WWTP at a rate that exceeds the capacity of the WWTP, Defendant's NPDES permit authorizes it to discharge untreated wastewater from Outfall 003, but only if wastewater flows into the WWTP at a rate of more than 39 million gallons per day for one hour and continues to flow into the WWTP at a rate of more than 25 million gallons per day.

42. In 2008, Defendant discharged in excess of 1 billion gallons of untreated wastewater from Outfall 003 and more than 100 million gallons of untreated wastewater from its other combined sewer outfalls.

43. Defendant's WWTP outfall, known as Outfall 001, discharges treated wastewater into the Lackawanna River.

44. The Lackawanna River is a perennial tributary of the Susquehanna River, which is in turn a perennial tributary of the Chesapeake Bay.

45. Defendant's combined sewer outfalls discharge untreated combined sewage into the Lackawanna River, Roaring Brook, Meadow Brook, Keyser Creek, Stafford Meadow Brook, Little Roaring Brook, and Leggetts Creek.

46. Roaring Brook, Meadow Brook, Keyser Creek, Stafford Meadow Brook, Little Roaring Brook, and Leggetts Creek are all perennial tributaries of the Lackawanna River.

47. For portions of the Lackawanna River and its tributaries affected by discharges from Defendant's POTW and identified as waters of the Commonwealth, Pennsylvania has adopted water quality standards and designated beneficial water uses of recreation, drinking water as well as the aquatic life uses "Cold Water Fishery" and/or "Trout Stocking Fishery." 25 PA Code § 93.9.

48. The Lackawanna River, Roaring Brook, Meadow Brook, Keyser Creek, Stafford Meadow Brook, Little Roaring Brook, Leggett Creek, the Susquehanna River, and the Chesapeake Bay are "waters of the United States" within the meaning of the Clean Water Act.

49. The combined sewage that Defendant sometimes discharges from its combined sewer outfalls contains raw sewage, commercial and industrial waste from industrial users of the system, and storm water runoff.

50. Raw sewage and combined sewage contain viruses, bacteria and protozoa as well as other pathogens.

51. Infection with organisms contained in raw sewage can cause a number of adverse

health effects ranging from minor illnesses such as sore throats and mild gastroenteritis (causing stomach cramps and diarrhea) to life-threatening ailments such as cholera, dysentery, infectious hepatitis, and severe gastroenteritis.

52. Children, the elderly, people with weakened immune systems, and pregnant women are at more risk for adverse consequences from such infections than the general population.

53. When raw sewage and combined sewage are discharged into waterways, bacteria consume organic matter in the sewage and consume oxygen dissolved in the water. When large amounts of sewage are discharged, dissolved oxygen levels can become severely depleted, resulting in the suffocation of oxygen-dependent aquatic life forms including fish, mollusks, and crustaceans.

54. Raw sewage and combined sewage contains high levels of nutrients such as nitrogen and phosphorous. When such nutrients enter water ways in large amounts, they can fuel algal blooms that block the penetration of light through the water and thereby threaten aquatic plants that rely on photosynthesis for energy. When algae decays, it can consume dissolved oxygen in the same manner as the decomposition of sewage.

FIRST CLAIM FOR RELIEF
(Failure to Submit an Adequate Long Term Control Plan)

55. Paragraphs 1-54 are re-alleged and incorporated herein by reference.

56. The EPA's CSO Policy requires the submission of a "Long Term Control Plan" to describe how the POTW will minimize or prevent CSOs. CSO Policy, 59 Fed. Reg. 18691-94 (April 19, 1994).

57. Defendant's 1996 NPDES Permit required in part C.1.SIX that Defendant submit an adequate Long Term Control Plan and a schedule for implementing the plan by November 5, 1999.

58. Defendant submitted a Long Term Control Plan in 1998 but did not submit a schedule for implementing the plan.

59. The EPA has determined that the Long Term Control Plan submitted in 1998 did not satisfy the requirements of the EPA's CSO Policy.

60. The 2002 Order directed Respondents to submit a revised Long Term Control Plan and a schedule for implementation consistent with EPA guidance by December 4, 2005.

61. The 2003 NPDES Permit directed SSA to develop and implement a Long Term Control Plan by the deadlines identified in the 2002 Order.

62. From at least December 4, 2005 and continuing to the present, Defendant has failed to submit a Long Term Control Plan and schedule for implementation consistent with the EPA's CSO Policy as required by the 2002 Order and the 2003 NPDES Permit.

63. Sections 309(b) and (d) of the CWA, 33 U.S.C. §§ 1319(b) and (d), provide that any person who violates any condition or limitation which implements § 301 of the Clean Water Act, including permit conditions and limitations, shall be subject to injunctive relief and a civil penalty. The statutory maximum civil penalty amounts that may be awarded per day for each violation are set forth in Paragraph 23.

64. Unless enjoined by an order of the Court, Defendant will continue to violate Section 301(a) of the CWA, 33 U.S.C. § 1311(a), by failing to submit a Long Term Control Plan consistent with the requirements of Section 402(q) of the CWA and the EPA's CSO Policy.

SECOND CLAIM FOR RELIEF
(Failure To Implement Nine Minimum Controls)

65. Paragraph 1-64 are re-alleged and incorporated herein by reference.

66. The EPA's CSO Policy requires implementation of Nine Minimum Controls (NMC) for CSOs by January 1, 1997.

67. The Nine Minimum Controls are best management practices that serve as technology-based effluent limits in permits that authorize discharges from CSOs.

68. The EPA described the NMCs in detail in the guidance document, "Guidance for Nine Minimum Control Measures" (EPA No. 832-R-94-002) (the "NMC Guidance")

69. The NMCs including the following:

a. (#1) Proper operation and regular maintenance programs for the sewer system and combined sewer outfalls;

b. (#2) Maximum use of the collection system for storage;

c. (#3) Review and modification of the pretreatment requirements to ensure that CSO impacts are minimized;

d. (#4) Maximization of flow to the WWTP for treatment;

e. (#5) Elimination of CSOs during dry weather;

f. (#6) Control of solids and floatable materials in CSOs;

g. (#7) Pollution prevention programs to reduce contaminants in CSOs;

h. (#8) Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; and

i. (#9) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

70. Defendant's 1996 NPDES Permit required in Part C.1.SIX.II that Defendant

demonstrate implementation of, and compliance with, the nine minimum controls as described in the NMC Guidance.

71. Pursuant to the requirements of the 1996 NPDES Permit, Defendant submitted a plan for implementing the nine minimum controls on November 10, 1998 (the "1998 NCM Plan").

72. The EPA determined in the 2002 Order that Defendant failed to implement several portions of the 1998 NMC Plan.

73. In February 2003, Defendant submitted another plan for implementing the NMCs (the "2003 NMC Plan").

74. The 2003 NPDES Permit required Defendants to implement the 2003 NMC Plan and demonstrate compliance with the NMCs.

75. Part C.I.Nine.II of Defendant's 2008 NPDES permit requires Defendant to "demonstrate system wide compliance with the NMCs."

76. Defendant has failed and continues to fail to properly operate and regularly maintain its POTW (NMC #1) in at least the following respects:

a. Defendant has failed and continues to fail to perform operation and maintenance work that is common in the industry and that, if performed, would improve its ability to use its collection system for storage and maximize flow to and through the WWTP;

b. Defendant lacks an operations and maintenance (O&M) manual for the collection system;

c. Defendant lacks written standard operating procedures (SOPs) for conducting maintenance and inspection activities in the collection system;

d. Defendant has an SOP for operating only one of its 80 CSO outfalls;

e. Defendant lacks a list of facilities critical to the performance of the collection system and wastewater treatment plant;

f. Defendant does not have a system for scheduling preventive maintenance tasks such as pipe or line cleaning;

g. Upon information and belief, Defendant has a backlog of approximately 100 identified corrective maintenance activities, some of which have been on the backlog list for more than two years; and

j. Defendant lacks formal training manuals or records of training for its employees.

77. Defendant has failed and continues to fail to maximize its use of the collection system for storage (NMC #2) in at least the following respects:

a. Defendant has failed and continues to fail to use its collection system to store wastewater during periods of high inflow rates;

b. Defendant has failed and continues to fail to gather adequate information to use its collection system for storage, such as a map of the location of sanitary sewer lines and combined sewer lines and data regarding the rates of flow within the collection system during rain events;

c. Defendant has failed and continues to fail to adjust the positions of its weirs to maximize storage and in response to changes in wastewater flows in the service area;

d. Defendant has failed and continues to fail to minimize infiltration of water and grit into the collection from structural defects in the pipes;

e. Defendant has failed and continues to fail to prevent river water from flowing into the collection system at combined sewer outfalls 015 and 035;

f. Defendant has failed and continues to fail to clean accumulated grit and sediment from the collection system on a regular basis, reducing the capacity of the collection system; and

g. Defendant has failed and continues to fail to conduct an evaluation of inflow and infiltration in the separate sanitary sewer system component of the collection system.

78. Defendant has failed and continues to fail to conduct an adequate or complete program of reviewing and modifying pretreatment requirements (NMC #3) in at least the following respects:

a. Defendant has failed and continues to fail to update its map of the location of significant industrial users of the collection system since 2003;

b. Defendant has failed and continues to fail to conduct a formal, written evaluation of the impact of non-domestic discharges on CSOs; and

c. Because Defendant does not have data regarding rates of flow within the collection system, it has failed and continues to fail to adequately assess the potential and actual impacts from significant industrial users of the collection system.

79. Defendant has failed and continues to fail to maximize the flow of wastewater to the WWTP (NMC #4) in at least the following respects:

a. Defendant has failed and continues to fail to adjust weir heights to maximize flow to the WWTP;

b. Because Defendant does not have data regarding rates of flow within the collection system, it cannot adjust weir heights to maximize flow to the WWTP without risking sewage backups into home or businesses or localized flooding;

c. Defendant has failed and continues to fail to take adequate steps to control

grit, which limits the ability of WWTP to treat wastewater;

d. Defendant has failed and continues to fail to consistently use its primary clarifiers to store flows to the WWTP;

e. Because Defendant does not have a list of critical equipment and does not perform adequate operation and maintenance, Defendant has failed and continues to fail to maximize flow to the WWTP; and

f. Defendant has failed and continues to fail to schedule maintenance activities in a way that maximizes flow to and through the WWTP.

80. Defendant has failed and continues to fail to comply with the minimum control of eliminating discharges from CSO outfalls during dry weather (NMC #5) in at least the following respects:

a. Defendant has discharged wastewater from CSO outfalls during dry weather, not as a result of precipitation;

b. Defendant does not have formal training manuals or records of training for its employees on procedures for inspecting CSO outfalls to determine whether a dry weather overflow has occurred;

c. Signs posted by Defendant at CSO outfalls are not placed in such a way as to provide sufficient information for a citizen to identify and report the occurrence of a dry weather overflow;

d. Defendant does not know the precise location of one CSO outfall, and therefore cannot determine whether dry weather overflows have occurred there; and

e. Defendant does not know whether two discharge pipes located in the Lackawanna River adjacent to the collection system are CSO outfalls.

81. Defendant has failed and continues to fail to adequately control solids and floatables materials in the CSOs (NMC #6) in at least the following respects:

a. Defendant has installed baffles to prevent solids and floatables from being discharged in only 3 of its 80 combined sewer outfall locations;

b. Defendant has not installed effective means of preventing solids and floatables from being discharged during combined sewer overflows, and, as a result, Defendant's employees manually pick up solids and other debris from areas surrounding combined sewer outfalls after rain events;

c. Defendant purchased a street sweeper that could help reduce the discharges of solids and floatable during CSOs, but Defendant does not have a schedule or program for street sweeping activities and has not yet begun using the sweeper; and

d. Defendant does not know how many catch basins are included in its collection system, nor how many are connected to combined sewer outfalls, and therefore has failed and continues to fail to implement an effective program of cleaning them.

82. Defendant has failed and continues to fail to comply with the minimum control of pollution prevention (NMC #7) in at least the following respects:

a. Defendant has purchased a street sweeper, but does not yet use it;

b. Defendant has not obtained permission from the City of Scranton to sweep its streets; and

c. Defendant has failed and continues to fail to minimize grit entering the collection system from structural defects in pipes.

83. Defendant has failed and continues to fail to comply with the minimum control of public notification (NMC #8) in at least the following respects:

a. Signs posted by Defendant to mark the location of combined sewer outfalls are not visible from the water in some locations or have become overgrown by vegetation;

b. Because Defendant does not know the location of combined sewer outfall 054, it cannot post signs at that precise location; and

c. Defendant does not notify the public of the occurrence of overflow events that occur in areas that are not permitted combined sewer outfalls.

84. Defendant has failed and continues to fail to comply with the minimum control of monitoring to effectively characterize CSO impacts and the efficacy of CSO controls (NMC #9) in at least the following respects:

a. Defendant does not have a map of the locations of sanitary sewer lines and combined sewer lines;

b. Defendant cannot monitor combined sewer outfall 054 because Defendant does not know its location;

c. Defendant does not know whether two pipes that discharge to the Lackawanna River were CSO Outfalls; and

d. Defendant does not have written procedures for CSO inspections and does not document CSOs in a standardized fashion.

85. Sections 309(b) and (d) of the CWA, 33 U.S.C. §§ 1319(b) and (d), provide that any person who violates any condition or limitation which implements § 301 of the Clean Water Act, including permit conditions and limitations, shall be subject to injunctive relief and a civil penalty. The statutory maximum civil penalty amounts that may be awarded per day for each violation are set forth in Paragraph 23.

86. Unless enjoined by an order of the Court, Defendant will continue to violate Section 301 of the CWA, 33 U.S.C. § 1311, by failing to comply with the conditions of its NPDES permit regarding the nine minimum controls.

THIRD CLAIM FOR RELIEF
(Unpermitted Discharges from CSO Outfalls to Waters of the United States)

87. Paragraphs 1-86 are re-alleged and incorporated herein by reference.

88. The 2003 NPDES Permit, the 2008 NPDES Permit, and the 2009 NPDES Permit authorize Defendant to discharge combined sewage from its combined sewer outfalls only when necessitated by stormwater entering the sewer system and exceeding the hydraulic capacity of the sewers and /or the treatment plant.

89. The 2003 NPDES Permit, the 2008 NPDES Permit, and the 2009 NPDES Permit authorize Defendant to discharge combined sewage from Outfall 003 only during wet weather and only when flows to the WWTP have exceed 39 million gallons per day for more than one hour in a 24-hour period, and continue to exceed 25 million gallons per day thereafter.

90. The 2003 NPDES Permit, the 2008 NPDES Permit, and the 2009 NPDES Permit state that dry weather overflows are prohibited.

91. Section 301(a) of the CWA, 33 U.S.C. § 1311(a), prohibits the discharge of any pollutant by any person except as authorized by a National Pollutant Discharge Elimination System ("NPDES") permit issued by the EPA or an authorized State pursuant to Section 402 of the CWA, 33 U.S.C. § 1342.

92. Defendant has repeatedly discharged combined sewage from combined sewer outfalls during dry weather.

93. Defendant has repeatedly discharged combined sewage from combined sewer outfalls during storm events where the hydraulic capacity of the sewers and /or the treatment

plant has not been exceeded due to precipitation.

94. Defendant has repeatedly discharged combined sewage from Outfall 003 without meeting the flow requirements described in paragraph 89.

95. Sections 309(b) and (d) of the CWA, 33 U.S.C. §§ 1319(b) and (d), provide that any person who violates any condition or limitation which implements Section 301 of the Clean Water Act, including permit conditions and limitations, shall be subject to injunctive relief and a civil penalty. The statutory maximum civil penalty amounts that may be awarded per day for each violation are set forth in Paragraph 23.

96. Unless enjoined by an order of the Court, Defendant will continue to discharge pollutants from its combined sewer outfalls in violation of its NPDES permit and Section 301(a) of the CWA, 33 U.S.C. § 1311(a).

FOURTH CLAIM FOR RELIEF
(Discharges in Excess of Permit Limits)

97. Paragraphs 1-96 are re-alleged and incorporated herein by reference

98. Defendant's NPDES permits contain limits on the concentrations of certain pollutants likely to be present in the treated effluent from the WWTP, including total suspended solids, ammonia nitrogen, carbonaceous biochemical oxygen demand, fecal coliform, and total residual chlorine.

99. Appendix A , incorporated herein by reference, provides a table of currently known occasions on which Defendant discharged pollutants from its WWTP at concentrations that violated its permit.

100. Section 301(a) of the CWA, 33 U.S.C. § 1311(a), prohibits the discharge of any pollutant by any person except as authorized by a National Pollutant Discharge Elimination

System ("NPDES") permit issued by the EPA or an authorized State pursuant to Section 402 of the CWA, 33 U.S.C. § 1342.

101. Sections 309(b) and (d) of the CWA, 33 U.S.C. §§ 1319(b) and (d), provide that any person who violates any condition or limitation which implements Section 301 of the Clean Water Act, including permit conditions and limitations, shall be subject to injunctive relief and a civil penalty. The statutory maximum civil penalty amounts that may be awarded per day for each violation are set forth in Paragraph 23.

102. Unless enjoined by an order of the Court, Defendant will continue to discharge pollutants in excess of its permit limits in violation of the NPDES permits and Section 301(a) of the CWA, 33 U.S.C. § 1311(a).

FIFTH CLAIM FOR RELIEF
(Violation of the Proper Operation and Maintenance Condition in Permits)

103. Paragraphs 1-102 are re-alleged and incorporated herein by reference.

104. The 2003 NPDES Permit, the 2008 NPDES Permit, and the 2009 NPDES Permit state that Defendant shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by Defendant to achieve compliance with the terms and conditions of the permits (the "Proper Operation and Maintenance Conditions").

105. Defendant has failed to comply with the Proper Operation and Maintenance Conditions in at least the respects identified in Paragraph 76.

106. Many illegal discharges, including those alleged in Paragraphs 92 and 94, resulted, in whole or in part, from Defendant's failure to comply with the Proper Operation and Maintenance Conditions.

107. Sections 309(b) and (d) of the CWA, 33 U.S.C. §§ 1319(b) and (d), provide that

any person who violates any condition or limitation that implements Section 301 of the Clean Water Act, including permit conditions and limitations, shall be subject to injunctive relief and a civil penalty. The statutory maximum civil penalty amounts that may be awarded per day for each violation are set forth in Paragraph 23.

108. Unless enjoined by an order of the Court, Defendant will continue to violate Section 301(a) of the CWA, 33 U.S.C. § 1311(a), by failing to comply with the Proper Operation and Maintenance Conditions of its NPDES Permit.

SIXTH CLAIM FOR RELIEF
(Violation of Reporting Requirements in Permits)

109. Paragraphs 1-108 are re-alleged and incorporated herein by reference

110. The 2003 NPDES Permit, the 2008 NPDES Permit, and the 2009 NPDES Permit each state that Defendant "shall give advance notice to [PaDEP] of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements."

111. Since 2006, Defendant has, on several occasions, made physical changes to the WWTP that made it temporarily unable, or unlikely to be able, to comply with its permit limits, including but not limited to the following:

a. For a period of time in 2009, Defendant took offline several sewage pumps at the headworks of the WWTP. During that time period, Defendant used three temporary pumps with a total combined pumping capacity of 18 million gallons per day. While these pumps were in service, and the regular pumps were not, Defendant was unable to comply with the permit condition described in Paragraph 89.

b. For a period of time in 2009, Defendant took one of its two grit chambers offline. The grit chamber remaining in service during that time period had a flow capacity of

approximately 30 million gallons per day, making it impossible for Defendant to comply with the permit conditions described in Paragraph 89.

112. Defendant failed to report the circumstances described in Paragraph 111, above, to the PaDEP.

113. The 2003 NPDES Permit, the 2008 NPDES Permit, and the 2009 NPDES Permit state that Defendant "shall report [to the PaDEP] any noncompliance which may endanger health or the environment."

114. At various times from 2002 until the present, Defendant has discharged untreated wastewater containing raw sewage from manholes, sewer pipes and other conveyances into buildings, public areas, homes, and streams.

115. Upon information and belief, Defendant did not report all such discharges to the PaDEP.

116. Sections 309(b) and (d) of the CWA, 33 U.S.C. §§ 1319(b) and (d), provide that any person who violates any condition or limitation which implements Section 301 of the Clean Water Act, including reporting requirements in an NDPES permit, shall be subject to injunctive relief and a civil penalty. The statutory maximum civil penalty amounts that may be awarded per day for each violation are set forth in Paragraph 23.

117. Unless enjoined by an order of the Court, Defendant will continue to violate Section 301(a) of the CWA, 33 U.S.C. § 1311(a), by failing to report anticipated and unanticipated non-compliance with its NPDES Permit.

SEVENTH CLAIM FOR RELIEF
(Failure to Comply with EPA Administrative Order)

118. Paragraphs 1-117 are re-alleged and incorporated herein by reference.

119. The 2002 Order found that Defendant had numerous violations of the CWA and

CSO policy including, but not limited to, failure to implement the Nine Minimum Controls and failure to submit a revised Long Term Control Plan and schedule for implementation consistent with the CSO Policy.

120. The 2002 Order required Defendant to conduct the activities identified in paragraphs 81-123 of the 2002 Order, attached hereto as Appendix B.

121. Upon information and belief, Defendant did not perform many of the tasks described in the order by the provided deadline, including but not limited to:

a. Defendant failed to identify all discharge points to PaDEP within 45 days of the effective date of the 2002 Order, as required by paragraph 82 of the 2002 Order;

b. Defendant did not timely submit a plan and schedule for eliminating discharge points from the combined sewer system as required by paragraph 95 of the 2002 Order;

c. Defendant failed to submit to EPA various plans, reports, and other documentation related to its pretreatment program, as required by paragraphs 102-08 of the 2002 Order;

d. Defendant failed to submit to EPA within 180 days of the effective date of the 2002 Order, a re-evaluation of local limits, as required by paragraph 109 of the 2002 Order;

e. Defendant failed to certify to EPA, within 30 days of the effective date of the 2002 order, the status of repairs related to deficiencies identified during an inspection of outfalls 201 and 202 conducted on or about May 21, 2002, as required by paragraph 113 of the 2002 order;

f. Defendant did not timely install, operate and collect data from monitoring devices at fifteen (15) CSO discharge points that are representative of the combined sewer relief

discharge points listed in the Permit as discharge points 003-071 as required by paragraph 114 of the 2002 Order;

g. Defendant has failed, with respect to various items submitted pursuant to the 2002 Order, to correct deficiencies in such submissions in accordance with EPA's comments and resubmit such submissions with 45 days of receiving comments from EPA, as required by paragraph 117 of the 2002 Order; and

h. Defendant has failed to meet schedules included in various items submitted pursuant to the 2002 Order, in violation of paragraph 118 of the 2002 order.

122. Upon information and belief, Defendant has not yet completed many of the tasks described in the order by the provided deadline, including but not limited to:

a. Defendant has failed and continues to fail to implement the specific operating protocols described in paragraph 86 and the monitoring protocol described in subparagraph 86.a of the 2002 Order;

b. Defendant has failed and continues to fail to cease the discharge of pollutants into waters of the United States except in compliance with Permit No. PA-0026492 and Sections 301 and 402 of the Act as required by paragraph 81 of the 2002 Order;

c. Defendant has failed and continues to fail to submit to EPA a hydraulic model of the combined sewer system as required by paragraph 98 of the 2002 Order;

d. Defendant has failed and continues to fail to complete and submit to PaDEP and EPA a revised Long Term Control Plan and a schedule for implementation of the Long Term Control Plan in conformance with EPA's Combined Sewer Overflow (CSO) Control Policy, 59 Fed. Reg. 18688 (April 19, 1994) (codified at 33 U.S.C. § 1342(q)) and EPA's

Combined Sewer Overflows: Guidance for Long Term Control Plan (1995) as required by paragraph 99 of the 2002 Order; and

e. Defendant has failed and continues to fail to fully implement various items submitted pursuant to the 2002 Order, as required by paragraph 118 of the 2002 Order.

123. Sections 309(b) and (d) of the CWA, 33 U.S.C. §§ 1319(b) and (d), provide that any person who violates an order issued by the EPA Administrator under Section 309(a), 33 U.S.C. § 1319(a), shall be subject to injunctive relief and a civil penalty. The statutory maximum civil penalty amounts that may be awarded per day for each violation are set forth in paragraph 23.

124. Unless enjoined by an order of the Court, Defendant will continue to violate the 2002 Order.

EIGHTH CLAIM FOR RELIEF
(Imminent and Substantial Endangerment to Human Health)

125. Paragraphs 1-124 are re-alleged and incorporated herein by reference.

126. On at least 60 occasions between at least January 2009 and August 2009, and upon information and belief occurring regularly at all times relevant to this complaint, Defendant has discharged untreated wastewater containing raw sewage and other pollutants from various point sources in its collection system onto public and private property including, without limitation, streets, buildings, and homes located in the City of Scranton and surrounding areas, where persons have or may have come into contact with such sewage.

127. Defendant's POTW is a "pollution source or combination of sources" as that phrase is used in Section 504(a) of the CWA, 33 U.S.C. § 1364(a).

128. Defendant, as the owner and operator of the POTW, is a "person causing or contributing to the alleged pollution" within the meaning of Section 504 of the CWA, 33 U.S.C. § 1364.

129. Upon information and belief, Defendant's discharges of raw sewage and wastewater containing raw sewage will continue unless enjoined by this Court.

130. The risk of future discharges of raw sewage and wastewater containing raw sewage is presenting an "imminent and substantial endangerment to the health of persons" within the meaning of Section 504 of the CWA, 33 U.S.C. § 1364.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff, the United States of America, respectfully requests that this Court provide the following relief:

1. A permanent injunction enjoining Defendant from any and all ongoing and future violations of the CWA by ordering compliance with the Act;

2. A permanent injunction directing Defendant to take all steps necessary to come into permanent and consistent compliance with the prohibition on unpermitted discharges contained in Section 301(a) of the CWA;

3. A permanent injunction directing Defendant to take all steps as are necessary to prevent or minimize the imminent and substantial risk to human health posed by pollutants (raw sewage) originating in its POTW, in accordance with Section 504(a) of the CWA, 33 U.S.C. § 1364(a);

4. A permanent injunction directing Defendant to take all steps necessary to achieve permanent and consistent compliance with the CWA and the regulations promulgated thereunder, and all terms and conditions of its NPDES permits;

5. A permanent injunction requiring Defendant to submit and implement a full, complete, and adequate Long Term Control Plan;

6. A judgment assessing civil penalties against Defendant and in favor of the United States and the Commonwealth;

7. Order Defendant to mitigate the effects of each of its violations;

8. Award the United States and the Commonwealth their costs and disbursements in this action; and

9. Grant such other and further relief as this Court deems appropriate.

Respectfully Submitted,

JOHN C. CRUDEN
Acting Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice

Dated: Sept. 29, 2009

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JS 44 (Rev. 12/07)

CIVIL COVER SHEET

The JS 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON THE REVERSE OF THE FORM.)

I. (a) PLAINTIFFS
United States of America

DEFENDANTS
Sewer Authority of the City of Scranton

(b) County of Residence of First Listed Plaintiff _____
(EXCEPT IN U.S. PLAINTIFF CASES)

County of Residence of First Listed Defendant Lackawanna
(IN U.S. PLAINTIFF CASES ONLY)
NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE LAND INVOLVED.

(c) Attorney's (Firm Name, Address, and Telephone Number)
Daniel S. Smith, U.S. Department of Justice, P.O. Box 7611, Ben Franklin Station, Washington, D.C. 20044, 202-305-0371

Attorneys (If Known)
(See attachment)

II. BASIS OF JURISDICTION (Place an "X" in One Box Only)

- ☒ 1 U.S. Government Plaintiff
- ☐ 3 Federal Question (U.S. Government Not a Party)
- ☐ 2 U.S. Government Defendant
- ☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES (Place an "X" in One Box for Plaintiff and One Box for Defendant)
(For Diversity Cases Only)

	PTF	DEF		PTF	DEF
Citizen of This State	☐ 1	☐ 1	Incorporated *or* Principal Place of Business In This State	☐ 4	☐ 4
Citizen of Another State	☐ 2	☐ 2	Incorporated *and* Principal Place of Business In Another State	☐ 5	☐ 5
Citizen or Subject of a Foreign Country	☐ 3	☐ 3	Foreign Nation	☐ 6	☐ 6

IV. NATURE OF SUIT (Place an "X" in One Box Only)

CONTRACT	TORTS		FORFEITURE/PENALTY	BANKRUPTCY	OTHER STATUTES
☐ 110 Insurance	PERSONAL INJURY	PERSONAL INJURY	☐ 610 Agriculture	☐ 422 Appeal 28 USC 158	☐ 400 State Reapportionment
☐ 120 Marine	☐ 310 Airplane	☐ 362 Personal Injury - Med. Malpractice	☐ 620 Other Food & Drug	☐ 423 Withdrawal 28 USC 157	☐ 410 Antitrust
☐ 130 Miller Act	☐ 315 Airplane Product Liability	☐ 365 Personal Injury - Product Liability	☐ 625 Drug Related Seizure of Property 21 USC 881		☐ 430 Banks and Banking
☐ 140 Negotiable Instrument	☐ 320 Assault, Libel & Slander	☐ 368 Asbestos Personal Injury Product Liability	☐ 630 Liquor Laws	PROPERTY RIGHTS	☐ 450 Commerce
☐ 150 Recovery of Overpayment & Enforcement of Judgment	☐ 330 Federal Employers' Liability	PERSONAL PROPERTY	☐ 640 R.R. & Truck	☐ 820 Copyrights	☐ 460 Deportation
☐ 151 Medicare Act	☐ 340 Marine	☐ 370 Other Fraud	☐ 650 Airline Regs.	☐ 830 Patent	☐ 470 Racketeer Influenced and Corrupt Organizations
☐ 152 Recovery of Defaulted Student Loans (Excl. Veterans)	☐ 345 Marine Product Liability	☐ 371 Truth in Lending	☐ 660 Occupational Safety/Health	☐ 840 Trademark	☐ 480 Consumer Credit
☐ 153 Recovery of Overpayment of Veteran's Benefits	☐ 350 Motor Vehicle	☐ 380 Other Personal Property Damage	☐ 690 Other		☐ 490 Cable/Sat TV
☐ 160 Stockholders' Suits	☐ 355 Motor Vehicle Product Liability	☐ 385 Property Damage Product Liability	LABOR	SOCIAL SECURITY	☐ 810 Selective Service
☐ 190 Other Contract	☐ 360 Other Personal Injury		☐ 710 Fair Labor Standards Act	☐ 861 HIA (1395ff)	☐ 850 Securities/Commodities/ Exchange
☐ 195 Contract Product Liability			☐ 720 Labor/Mgmt. Relations	☐ 862 Black Lung (923)	☐ 875 Customer Challenge 12 USC 3410
☐ 196 Franchise			☐ 730 Labor/Mgmt.Reporting & Disclosure Act	☐ 863 DIWC/DIWW (405(g))	☐ 890 Other Statutory Actions
REAL PROPERTY	CIVIL RIGHTS	PRISONER PETITIONS	☐ 740 Railway Labor Act	☐ 864 SSID Title XVI	☐ 891 Agricultural Acts
☐ 210 Land Condemnation	☐ 441 Voting	☐ 510 Motions to Vacate Sentence	☐ 790 Other Labor Litigation	☐ 865 RSI (405(g))	☐ 892 Economic Stabilization Act
☐ 220 Foreclosure	☐ 442 Employment	Habeas Corpus:	☐ 791 Empl. Ret. Inc. Security Act	FEDERAL TAX SUITS	☒ 893 Environmental Matters
☐ 230 Rent Lease & Ejectment	☐ 443 Housing/ Accommodations	☐ 530 General	IMMIGRATION	☐ 870 Taxes (U.S. Plaintiff or Defendant)	☐ 894 Energy Allocation Act
☐ 240 Torts to Land	☐ 444 Welfare	☐ 535 Death Penalty	☐ 462 Naturalization Application	☐ 871 IRS—Third Party 26 USC 7609	☐ 895 Freedom of Information Act
☐ 245 Tort Product Liability	☐ 445 Amer. w/Disabilities - Employment	☐ 540 Mandamus & Other	☐ 463 Habeas Corpus - Alien Detainee		☐ 900Appeal of Fee Determination Under Equal Access to Justice
☐ 290 All Other Real Property	☐ 446 Amer. w/Disabilities - Other	☐ 550 Civil Rights	☐ 465 Other Immigration Actions		☐ 950 Constitutionality of State Statutes
	☐ 440 Other Civil Rights	☐ 555 Prison Condition			

V. ORIGIN (Place an "X" in One Box Only)

☒ 1 Original Proceeding ☐ 2 Removed from State Court ☐ 3 Remanded from Appellate Court ☐ 4 Reinstated or Reopened ☐ 5 Transferred from another district (specify) ☐ 6 Multidistrict Litigation ☐ 7 Appeal to District Judge from Magistrate Judgment

VI. CAUSE OF ACTION
Cite the U.S. Civil Statute under which you are filing (**Do not cite jurisdictional statutes unless diversity**):
Federal Clean Water Act, 33 U.S.C. §§ 1251-387
Brief description of cause:
Various civil violations of the Clean Water Act associated with a sewage collection and treatment system

VII. REQUESTED IN COMPLAINT:
☐ CHECK IF THIS IS A CLASS ACTION UNDER F.R.C.P. 23
DEMAND $
CHECK YES only if demanded in complaint:
JURY DEMAND: ☐ Yes ☐ No

VIII. RELATED CASE(S) IF ANY (See instructions): JUDGE _____ DOCKET NUMBER _____

DATE
Sept. 29, 2009

SIGNATURE OF ATTORNEY OF RECORD
/s/ Daniel S. Smith

FOR OFFICE USE ONLY

RECEIPT # _____ AMOUNT _____ APPLYING IFP _____ JUDGE _____ MAG. JUDGE _____

Continuation of Civil Cover Sheet for
United States v. Sewer Authority of the City of Scranton

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PAWC EXHIBIT NO. DRK-2

Complaint in Intervention of the Commonwealth of Pennsylvania Department of Environmental Protection
Against
The Sewer Authority of the City of Scranton
In the United States District Court for the Middle District of Pennsylvania
Civil Action No. 3:09-CV-1873

UNITED STATES DISTRICT COURT
FOR THE
MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA, Plaintiff	)	
v.	)	Civil Action No. 3:09-CV-1873 (Judge Thomas I. Vanaskie)
SEWER AUTHORITY OF THE CITY OF SCRANTON, Defendant.	)	

COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION'S UNOPPOSED MOTION TO INTERVENE AS PLAINTIFF

The Commonwealth of Pennsylvania, Department of Environmental Protection pursuant to Fed.R.Civ.P. 24(a)(1), 24(a)(2) and 24(b)(2), hereby moves this Court to grant its Unopposed Motion to Intervene as Plaintiff in the above-captioned matter, and in support thereof states as follows:

1. The Commonwealth of Pennsylvania, Department of Environmental Protection ("PADEP") files this motion to intervene and a complaint in

intervention, attached, in the above-captioned action brought by the United States Environmental Protection Agency ("United States" or "EPA") against the Sewer Authority of the City of Scranton ("SSA"). EPA seeks to enjoin SSA from violating the Federal Water Pollution Control Act, 33 U.S.C. § 1251, *et seq.* ("CWA") and seeks civil penalties from SSA.

2. PADEP is the executive agency of Pennsylvania charged by the General Assembly with the duty and authority to administer and enforce, *inter alia*, the Pennsylvania Clean Streams Law, Act of June 22, 1937, P.L. 1987, *as amended*, 35 P.S. §§ 691.1 *et seq.* ("Clean Streams Law"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, *as amended*, 71 P.S. § 510-17 ("Administrative Code"); the rules and regulations promulgated thereunder; and is the agency delegated with the authority to administer the National Pollutant Discharge Elimination System ("NPDES") Permit Program pursuant to CWA Section 402, 33 U.S.C. § 1342. PADEP seeks to enjoin SSA's violations of the Clean Water Act and the Clean Streams Law and also seeks civil penalties pursuant to the laws it administers. PADEP is a "State water pollution control agency" as defined in CWA Section 502(1), 33 U.S.C. § 1362(1).

3. The PADEP should be permitted to intervene as of right in this action pursuant to Fed.R.Civ.P. 24(a)(1) where:

(a) The Clean Water Act confers an unconditional right upon PADEP to intervene. CWA Section 505(b)(1)(B) authorizes intervention as a right of any "citizen" in any action commenced by the EPA to require compliance with standards, limitations or orders imposed under the Clean Water Act. *See* 33 U.S.C. § 1365(b)(1)(B). The Clean Water Act defines "citizen" to be a person or persons having an interest which is or may be adversely affected. *See* 33 U.S.C. § 1365(g). The term "person," according to the Clean Water Act, includes a "State, municipality, commission or political subdivision of a State." *See* 33 U.S.C. § 1362(5).

(b) The PADEP has interests that may be adversely affected, and, as a result, it holds an unconditional right to intervene in this action. PADEP is a "State water pollution control agency" as defined in CWA Section 502(1), 33 U.S.C. § 1362(1). The PADEP's interests, which may be adversely affected by this action, are threefold: (a) its constitutional responsibility to protect the waters of the Commonwealth as a resource of all people of the Commonwealth, including generations yet to come, Pa. Const. Art. 1, § 27; (b) its statutory obligation to prohibit unpermitted discharges of sewage to waters of the Commonwealth, under the Pennsylvania Clean Streams Law, 35 P.S. § 691.1 *et seq.*; and (c) its duty and authority to administer and enforce the NPDES Permitting Program under

delegation from the EPA pursuant to CWA Section 402, 33 U.S.C. § 1342.

(c) CWA Section 309 grants PADEP an unconditional right to intervene because EPA has initiated this action pursuant to CWA Section 309, 33 U.S.C. § 1319. *See* United States Complaint Paragraph 1. CWA Section 309(e), 33 U.S.C. § 1319(e), requires that in actions brought by the United States against a municipality, the State shall be joined as a party "[w]henever a municipality is a party to a civil action brought by the United States under this section, the State in which such municipality is located shall be joined as a party." PADEP is a "State water pollution control agency" as defined in CWA Section 502(1), 33 U.S.C. § 1362(1), and is the executive agency of Pennsylvania delegated with the authority to administer the NPDES Permit Program pursuant to CWA Section 402, 33 U.S.C. § 1342.

4. PADEP should be permitted to intervene as of right pursuant to Fed.R.Civ.P. 24(a)(2) where:

(a) The disposition of this action may impair the PADEP's ability to protect its interests. The EPA delegated authority to administer and enforce the NPDES Permitting Program to the PADEP in 1978 pursuant to CWA Section 402, 33 U.S.C. § 1342. As a result of that delegation, the PADEP regulates discharges of pollution into the navigable waters of the United States within and along its

borders. The PADEP also regulates discharges of sewage into "waters of the Commonwealth,"[1] as required by Sections 201 and 202 of the Clean Streams Law, 35 P.S. §§ 691.201 and 691.202. SSA discharges sewage to waters of the Commonwealth from its Waste Water Treatment Plant ("WWTP") which is owned by SSA and operated pursuant to NPDES Permit No. PA0026492 issued by the PADEP under the authority of Section 5, 201 and 202 of the Clean Streams Law, 35 P.S. §§ 691.5, 691.201 and 691.202, and the NPDES Permitting Program established by CWA Section 402, 33 U.S.C. § 1342.

(b) Resolution of this dispute between the EPA and SSA will or may affect the extent to which the conditions under which treated sewage discharges into the waters of the Commonwealth. Without participating in this action, the PADEP may be unable to protect the quality of its waters or would be forced to bring a separate action concerning the same nucleus of operative facts. It is in the interest of judicial economy of this Court to entertain and adjudicate the claims of the PADEP and of the United States against the Defendant in this one

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[1] Section 1 of the Clean Streams Law, 35 P.S. § 691.1 defines "waters of the Commonwealth" to be "any and all rivers, streams, creeks, rivulets, impoundments, ditches, water courses, storm sewers, lakes, dammed water, ponds, springs and all others bodies or channels of conveyance of surface and underground water, or parts thereof whether natural or artificial, within or on the boundaries of this Commonwealth."

action.

(c) Further, CWA Section 510 provides that nothing therein shall preclude the right of any state, or political subdivision thereof, to adopt and enforce any effluent limitation which is more stringent than would be imposed under the Clean Water Act. 33 U.S.C. § 1370. The PADEP has a direct and vital interest in insuring compliance with the water quality based effluent limitations contained in the NPDES permit at issue in this case. Disposition of this action will determine the extent and conditions under which the sewage discharge will be permitted from the SSA WWTP into the waters of the Commonwealth.

5. In the alternative, the PADEP should be permitted to intervene in this matter pursuant to Fed.R.Civ.P. 24(b)(2) because EPA's claims are based on violations of the NPDES Permit issued to SSA by PADEP. The United States, in part, relies for this action on Defendant's violations of CWA Section 402, 33 U.S.C. § 1342. PADEP and EPA exercise concurrent implementation and enforcement authority of the NPDES provisions of CWA Section 402, 33 U.S.C. § 1342(i). PADEP's and the United State's actions therefore have questions of law in common and are based upon the same nucleus of operative facts.

6. The PADEP's unopposed Motion to Intervene is timely where the PADEP filed its motion at or near to the time that the Plaintiff filed its Complaint,

Defendant has not yet filed its answer to the Complaint, and the Court has not held its initial case management conference. PADEP's intervention will not unduly delay this matter or prejudice the original parties.

7. Neither Plaintiff nor Defendant opposes the PADEP's intervention in this matter. *See* attached Certificate of Concurrence.

8. PADEP's Complaint in Intervention is attached hereto pursuant to Fed.R.Civ.P. 24(c).

WHEREFORE, based on the foregoing, the Commonwealth of Pennsylvania, Department of Environmental Protection, respectfully requests it be allowed to intervene in this matter as of right because the Clean Water Act grants it that right and because disposition of this action without its participation may jeopardize its ability to protect its waters. Alternatively, the Commonwealth of Pennsylvania, Department of Environmental Protection, respectfully requests it to be permitted to intervene because its claims and the claims of the United States

against SSA have issues of fact and law in common and intervention would best serve the interests of judicial economy.

Respectfully submitted,

FOR THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION:

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DATE: November 2, 2009

UNITED STATES DISTRICT COURT
FOR THE
MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA, Plaintiff,	)	
v.	)	Civil Action No. 3:09-CV-1873 (Judge Thomas I. Vanaskie)
SEWER AUTHORITY OF THE CITY OF SCRANTON, Defendant.	)	

COMPLAINT IN INTERVENTION

NOW, COMES the Commonwealth of Pennsylvania, Department of Environmental Protection ("PADEP"), by and through its undersigned counsel, to file this Complaint in Intervention. In support of its Complaint, the PADEP avers as follows:

PARTIES

1. Plaintiff, the United States of America, Environmental Protection Agency ("EPA"), is the federal agency with the duty and authority to administer

and enforce, *inter alia*, the Federal Water Pollution Control Act, 33 U.S.C. § 1251, *et seq.* ("Clean Water Act" or "CWA").

2. PADEP is a state agency with the duty and authority to administer and enforce, *inter alia*, the Pennsylvania Clean Streams Law, Act of June 22, 1937, P.L. 1987, *as amended*, 35 P.S. §§ 691.1-691.1001 ("Clean Streams Law"); the Pennsylvania Sewage Facilities Act, Act of January 24, 1966, P.L. 1535, *as amended*, 35 P.S. §§ 750.1-750.20(a) ("Sewage Facilities Act"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, *as amended*, 71 P.S. § 510-17 ("Administrative Code"); the rules and regulations of the Environmental Quality Board ("Rules and Regulations") promulgated thereunder and is the agency with the delegated authority to administer the National Pollutant Discharge Elimination System ("NPDES") Permit Program pursuant to Section 402 of the Federal Clean Water Act, 33 U.S.C. § 1342.

3. Defendant is a municipal authority created under the Pennsylvania Municipality Authorities Act, 53 Pa. C.S. §§ 5601-5623, and is known as the Sewer Authority of the City of Scranton or the Scranton Sewer Authority ("SSA").

4. Defendant is a "municipality" within the meaning of CWA Section 502(4), 33 U.S.C. § 1362(4), a "person" within the meaning of CWA Section

502(5), 33 U.S.C. § 1362(5), and a "municipality" and a "person" as defined by Section 1 of the Clean Streams Law, 35 P.S. § 691.1.

NATURE OF THE ACTION

5. This is a civil action by EPA for injunctive relief and civil penalties brought against SSA pursuant to Section 309(b) and (d) of the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 and the Water Quality Act of 1987 (the "Clean Water Act" or "CWA"), 33 U.S.C. § 1319(b) and (d), for permanent injunctive relief and assessment of civil penalties against SSA regarding the operation of a sewage treatment plant and collection system. The United States alleges that the Defendant discharged, and continues to discharge, pollutants into the waters of the United States in violation of CWA Section 301(a), 33 U.S.C. § 1311(a), including discharges of raw sewage, storm water and other waste water from at least 80 constructed combined sewer outfalls and for violations of conditions established in the NPDES permits issued to Defendant by the PADEP, as authorized by the EPA under CWA Section 402(b), 33 U.S.C. § 1342(b).

6. Plaintiff-Intervenor, PADEP, brings this civil action pursuant to Sections 601 and 605 of the Clean Streams Law, 35 P.S. §§ 691.601 and 691.605, for injunctive relief and assessment of civil penalties against SSA regarding the

operation of SSA's publicly owned treatment works. The PADEP alleges that SSA discharges and/or continues to discharge pollutants into navigable waters of the United States and into waters of the Commonwealth in violation of Sections 201 and 202 of the Clean Streams Law, 35 P.S. §§ 691.201 and 691.202, and the conditions and limitations of NPDES Permit No. PA0026492 issued to SSA pursuant to Section 402 of the CWA, 33 U.S.C. § 1342. The PADEP further alleges that SSA failed to properly maintain and operate its publicly owned treatment works in violation of Section 207 of the Clean Streams Law, 35 P.S. § 691.207, and SSA's NPDES Permit No. PA0026492.

7. The PADEP's action is supported by the same nucleus of operative facts that support the United States' action. Both actions are therefore part of the same case or controversy.

JURISDICTION, VENUE, AUTHORITY AND NOTICE

8. This Court has jurisdiction over the subject matter of this action pursuant to CWA Section 309(b), 33 U.S.C. § 1319(b), and 28 U.S.C. §§ 1331, 1345 and 1355.

9. This Court has supplemental jurisdiction over PADEP's pendant state law claims pursuant to Section 1367 of the Judicial Improvements Act of 1990, 28 U.S.C. § 1367(a).

10. Venue is proper in the Middle District of Pennsylvania pursuant to CWA Section 309(b), 33 U.S.C. § 1319(b), and 28 U.S.C.§§ 1391(b) and 1395(a) because it is the judicial district where Defendant is located, where a substantial part of the events or omissions giving rise to the claim occurred and where the alleged violations occurred. Venue in this District is also proper under 28 U.S.C. § 1391(c).

11. The United States has the authority to bring this action on behalf of the Administrator of the EPA under CWA Section 506, 33 U.S.C. § 1366, and under 28 U.S.C. §§ 516 and 519.

12. PADEP has the authority to bring this action pursuant to Sections 601 and 605 of the Clean Streams Law, 35 P.S. §§ 691.601 and 691.605.

13. Notice of the commencement of EPA's action was given to the PADEP pursuant to CWA Section 309(b), 33 U.S.C. § 1319(b). PADEP has filed a Motion for Intervention as a Plaintiff which is accompanied by the instant Complaint.

FEDERAL STATUTORY BACKGROUND

14. The PADEP adopts paragraphs 11-23 of the Complaint filed in above-captioned matter by reference as if fully set forth herein in accordance with Fed. R. Civ. P. 10(c).

FACTUAL ALLEGATIONS

15. The PADEP adopts paragraphs 24-54 of the Complaint filed in above-captioned matter by reference as if fully set forth herein in accordance with Fed. R. Civ. P. 10(c).

FEDERAL CLAIMS

FIRST CLAIM FOR RELIEF
(Failure to Submit an Adequate Long Term Control Plan)

16. Paragraphs 1-15 are re-alleged and incorporated herein by reference.

17. The PADEP adopts paragraphs 55-64 of the Complaint filed in above-captioned matter by reference as if fully set forth herein in accordance with Fed. R. Civ. P. 10(c).

SECOND CLAIM FOR RELIEF
(Failure to Implement Nine Minimum Controls)

18. Paragraphs1-17 are re-alleged and incorporated herein by reference.

19. The PADEP adopts paragraphs 65-86 of the Complaint filed in above-captioned matter by reference as if fully set forth herein in accordance with Fed. R. Civ. P. 10(c).

THIRD CLAIM OF RELIEF
(Unpermitted Discharges from CSO Outfalls to Waters of the United States)

20. Paragraphs 1-19 are re-alleged and incorporated herein by reference.

21. The PADEP adopts paragraphs 87-96 of the Complaint filed in above-captioned matter by reference as if fully set forth herein in accordance with Fed. R. Civ. P. 10(c).

FOURTH CLAIM FOR RELIEF
(Discharges in Excess of Permit Limits)

22. Paragraphs 1-21 are re-alleged and incorporated herein by reference.

23. The PADEP adopts paragraphs 97-102 of the Complaint filed in above-captioned matter by reference as if fully set forth herein in accordance with Fed. R. Civ. P. 10(c).

FIFTH CLAIM FOR RELIEF
(Violation of the Proper Operation and Maintenance Conditions in Permits)

24. Paragraphs 1-23 are re-alleged and incorporated herein by reference.

25. The PADEP adopts paragraphs 103-108 of the Complaint filed in above-captioned matter by reference as if fully set forth herein in accordance with Fed. R. Civ. P. 10(c).

SIXTH CLAIM FOR RELIEF
(Violation of Reporting Requirements in Permits)

26. Paragraphs 1-25 are re-alleged and incorporated herein by reference.

27. The PADEP adopts paragraphs 109-117 of the Complaint filed in above-captioned matter by reference as if fully set forth herein in accordance with Fed. R. Civ. P. 10(c).

SEVENTH CLAIM FOR RELIEF
(Failure to Comply with EPA Administrative Order)

28. Paragraphs 1-27 are re-alleged and incorporated herein by reference.

29. The PADEP adopts paragraphs 118-124 of the Complaint filed in above-captioned matter by reference as if fully set forth herein in accordance with Fed. R. Civ. P. 10(c).

EIGHTH CLAIM FOR RELIEF
(Imminent and Substantial Endangerment to Human Health)

30. Paragraphs 1-29 are re-alleged and incorporated herein by reference.

31. The PADEP adopts paragraphs 125-130 of the Complaint filed in above-captioned matter by reference as if fully set forth herein in accordance with Fed. R. Civ. P. 10(c).

SUPPLEMENTAL STATE LAW CLAIMS

STATE STATUTORY AND REGULATORY BACKGROUND

32. Sections 201 and 202 of the Clean Streams Law, 35 P.S. §§ 691.201 and 691.202, prohibit the discharge of sewage by any person or municipality into any waters of the Commonwealth except in compliance with the permit issued under Section 202 of the Clean Streams Law.

33. Section 92.5 of the regulations adopted by the Pennsylvania Environmental Quality Board, 25 Pa. Code § 92.5, provides that an NPDES permit satisfies the permit requirements of Section 202 of the Clean Streams Law, 35 P.S. § 691.202.

34. Section 207 of the Clean Streams Law, 35 P.S. § 691.207, provides in pertinent part:

> All plans, designs, and relevant data for the construction of any new sewer system, or for the extension of any existing sewer system, except as provided in section (b), by a person or municipality, or for the erection, construction, and location of any treatment works or intercepting sewers by a person or municipality, shall be submitted to the department for its approval before the same are constructed or erected or acquired. Any such construction or erection which has not been approved by the department by written permit, or any treatment works not operated or maintained in accordance with the rules and regulations of the department, is hereby also declared to be a nuisance and abatable as herein provided.

35. Section 601 of the Clean Streams Law, 35 P.S. § 691.601, provides in pertinent part:

> (a) Any activity or condition declared by this Act to be a nuisance or which is otherwise in violation of this Act, shall be abatable in the manner provided by law or equity for the abatement of public nuisances.

36. Section 611 of the Clean Streams Law, 35 P.S. § 691.611, provides in pertinent part:

> It shall be unlawful to fail to comply with any rule or regulation of the department or to fail to comply with any order or permit or license of the department, to violate any provisions of this act or rules and regulations adopted hereunder, or any order or permit or license of the department to cause air or water pollution, or to hinder, obstruct, prevent or interfere with the department or its personnel in the performance of any duty hereunder or to violate the provisions of 18 PACS Section 4903 (relating to false swearing) or 4904 (relating to unsworn falsification to authorities). Any person or municipality engaged in such conduct shall be subject to the provisions of sections 601, 602 and 605.

37. Section 605 of the Clean Streams Law, 35 P.S. § 691.605, provides in pertinent part:

> In addition to proceeding under any other remedy available at law or in equity for a violation of a provision of this act, rule, regulation, order of the department, or a condition of any permit issued pursuant to this act, the department, after hearing, may assess a civil penalty upon a person or municipality for such violation. Such a penalty may be assessed whether or not the violation was willful. The civil penalty so assessed shall not exceed ten thousand dollars ($10,000) per day for each violation.

FIRST SUPPLEMENTAL STATE LAW CLAIM
(Failure to Submit a Long Term Control Plan)

38. Paragraphs 1-37 are realleged and incorporated herein by reference.

39. PADEP reissued NPDES Permit No. PA0026492 to Defendant with modified terms on July 1, 2003 (the "2003 NPDES Permit").

40. The 2003 NPDES Permit directed SSA to develop and implement a Long Term Control Plan by December 4, 2005, which is the deadline identified in EPA's order for compliance to Defendant which became effective on December 4, 2002 (the "2002 Order").

41. From at least December 4, 2005, SSA failed to submit a Long Term Control Plan and schedule for implementation consistent with the 2003 NPDES Permit and the 2002 Order.

42. SSA's failure to submit a Long Term Control Plan and schedule of implementation in accordance with the terms and conditions of the 2003 NPDES Permit is a violation of Section 202 of the Clean Streams Law, 35 P.S. § 691.202, and constitutes unlawful conduct pursuant to Section 611 of the Clean Streams Law, 35 P.S. § 691.611.

43. Pursuant to Section 601, 605 and 611 of the Clean Streams Law, 35

P.S. §§ 691.601, 691.605 and 691.611, SSA is liable for permanent injunctive relief and civil penalties of up to $10,000 per day for each violation.

44. Unless enjoined, SSA's violations will continue.

SECOND SUPPLEMENTAL STATE LAW CLAIM
(Failure to Implement Nine Minimum Controls)

45. Paragraphs 1-44 are realleged and incorporated herein by reference.

46. The EPA CSO policy requires implementation of nine minimum controls (NMC) for CSOs by January 1, 1997.

47. The NMC are best management practices that serves as technology based effluent limits in permits that authorize discharges from CSOs.

48. The NMCs include the following:

(a) Proper operation and regular maintenance programs for the sewer system and combined sewer outfalls;

(b) Maximum use of collection system for storage;

(c) Review and modification of the pretreatment requirements to insure that CSO impacts are minimized;

(d) Maximization of flows to the WWTP for treatment;

(e) Elimination of CSOs during dry weather;

(f) Control of solids and floatable materials in CSOs;

(g) Pollution prevention programs to reduce contaminants in CSOs;

(h) Public notification to insure that the public receives adequate notification of CSO occurrences and CSO impacts; and

(i) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

49. Defendant's NPDES Permit No. PA0026492 reissued by PADEP on November 5, 1996 (the "1996 NPDES Permit") required in Part C.1.SIX.II that SSA demonstrate implementation of, and compliance with, the nine minimum controls as described in the NMC guidance.

50. Pursuant to the requirements of the 1996 NPDES Permit, Defendant submitted a plan for implementing the nine minimum controls on November 10, 1998 (the "1998 NMC Plan").

51. The EPA determined in the 2002 Order that Defendant failed to implement several portions of the 1998 NMC Plan.

52. In February 2003, Defendant submitted another plan for implementing the NMCs (the "2003 NMC Plan").

53. The 2003 NPDES Permit required Defendant to implement the 2003 NMC Plan and demonstrate compliance with the NMCs.

54. Part C.I.NINE.II of Defendant's NPDES Permit No. PA0026492

reissued by PADEP on April 1, 2008 (the "2008 NPDES Permit") and September 21, 2009 (the "2009 NPDES Permit") requires Defendant to demonstrate system-wide compliance with the NMCs.

55. SSA has failed to demonstrate compliance with the NMCs in violation of the terms and conditions of the 2003 NPDES, the 2008 NPDES Permit and the 2009 NPDES Permit in at least the following respects:

(a) SSA has failed and continues to fail to perform operation and maintenance work that is common in the industry and that, if performed, would improve its ability to use its collection system for storage and maximize flow to and through the WWTP;

(b) SSA lacks an operation and maintenance (O&M) manual for the collections system;

(c) SSA lacks written standard operating procedures (SOPs) for conducting maintenance and inspection activities in the collection system;

(d) SSA does not have a system for scheduling preventative maintenance tasks such as pipe or line cleaning;

(e) SSA lacks formal training manuals or records of training;

(f) SSA has failed and continues to fail to adjust the position of its weirs to maximize storage in the service area;

(g) SSA has failed and continues to fail to minimize infiltration of water and grit into the collection system;

(h) SSA has failed and continues to fail to prevent river water from flowing into the collection system at combined sewer outfalls 015 and 035;

(i) SSA has failed and continues to fail to clean accumulated grit and sediment from the collection system on a regular basis, reducing the capacity of the collection system;

(j) SSA has failed and continues to fail to conduct an evaluation of inflow and infiltration in the separate sanitary sewer system component of the collection system;

(k) Upon information and belief, SSA has discharged wastewater from CSO outfalls during dry weather, not as a result of precipitation;

(l) Signs posted by SSA at CSO outfalls are not placed in such a way as to provide sufficient information for a citizen to identify and report the occurrence of a dry weather overflow;

(m) SSA has installed baffles to prevent solids and floatables from being discharged in only three (3) of its 80 combined sewer outfall locations;

(n) SSA has not installed an effective means of preventing solids and floatables from being discharged during combined sewer overflows;

(o) SSA purchased a street sweeper that could help reduce the discharge of solids and floatables during CSO events, but SSA does not have a schedule or program for street sweeping activities and has not yet begun using the sweeper; and

(p) SSA does not know how many catch basins are included in its collection system, or how many are connected to combined sewer outfalls, and therefore has failed and continues to fail to implement an effective program of cleaning them.

56. The conditions described in Paragraph 55 are a violation of the terms and conditions of SSA's NPDES Permit and Section 202 of the Clean Streams Law, 35 P.S. § 691.202, and constitutes unlawful conduct pursuant to Section 611 of the Clean Streams Law, 35 P.S. § 691.611.

57. Unless enjoined, SSA's violations will continue.

58. Pursuant to 601 and 605 of the Clean Streams Law, 35 P.S. §§ 691.601 and 691.605, SSA is liable for permanent injunctive relief and civil penalties of up to ten thousand dollars ($10,000) per day for each violation.

THIRD SUPPLEMENTAL STATE LAW CLAIM
(Unpermitted Discharges from CSO Outfalls into Waters of the Commonwealth)

59. Paragraphs 1-58 are realleged and incorporated herein by reference.

60. The 2003 NPDES Permit, the 2008 NPDES Permit and the 2009 NPDES Permit authorized SSA to discharge combined sewage from its combined sewer outfalls only when "necessitated by storm water entering the sewer system and exceeding the hydraulic capacity of the sewers and/or the treatment plant."

61. The 2003 NPDES Permit, the 2008 NPDES Permit and the 2009 NPDES Permit authorize SSA to discharge combined sewage from Outfall 003 only during wet weather and only when flows to the WWTP have exceeded 39 million gallons per day for more than one hour in a 24-hour period and continue to exceed 25 million gallons per day thereafter.

62. The 2003 NPDES Permit, the 2008 NPDES Permit and the 2009 NPDES Permit state that dry weather overflows are prohibited.

63. Section 201 of the Pennsylvania Clean Streams Law, 33 P.S. § 691.201, prohibits the discharge of sewage in any manner unless such discharge is in accordance with terms and conditions of a permit issued by PADEP.

64. Upon information and belief, SSA has repeatedly discharged combined sewage from combined sewer outfalls during dry weather.

65. SSA has repeatedly discharge combined sewage from combined sewer outfalls during storm events where the hydraulic capacity of the sewers and/or the treatment plant has not been exceeded due to precipitation.

66. SSA has repeatedly discharged combined sewage from Outfall 003 without meeting the flow requirements described in Paragraph 61.

67. SSA's discharges of combined sewage as described in Paragraphs 64-66 are a violation of the terms and conditions of SSA's NPDES Permit and Sections 201 and 202 of the Clean Streams Law, 35 P.S. §§ 691.201 and 691.202, and constitutes unlawful conduct pursuant to Section 611 of the Clean Streams Law, 35 P.S. § 691.611.

68. Unless enjoined by an order of the Court, SSA will continue to discharge pollutants from its combined sewer outfalls in violation of its NPDES permit and Sections 201 and 202 of the Pennsylvania Clean Streams Law, 35 P.S. §§ 691.201 and 691.202.

69. Pursuant to Sections 601 and 605 of the Clean Streams Law, 35 P.S. §§ 691.601 and 691.605, SSA is liable for permanent injunctive relief and civil penalties of up to ten thousand dollars ($10,000) per day for each violation.

FOURTH SUPPLEMENTAL STATE LAW CLAIM
(Violation of the Proper Operation and Maintenance Condition in Permit)

70. Paragraphs 1-69 are realleged and incorporated herein by reference.

71. The 2003 NPDES Permit, the 2008 NPDES Permit and the 2009 NPDES Permit state that Defendant shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by Defendant to achieve compliance with the terms and conditions of the permit (the "proper operation and maintenance conditions").

72. SSA has failed to comply with the proper operation and maintenance conditions in at least the following respects:

(a) SSA has failed and continues to fail to perform operation and maintenance work that is common in the industry and that, if performed, would improve its ability to use its collection system for storage and maximize flow to and through the WWTP;

(b) SSA lacks an operation and maintenance (O&M) manual for the collection system;

(c) SSA lacks written standard operating procedures (SOPs) for conducting maintenance and inspection activities in the collection system;

(d) SSA does not have a system for scheduling preventative maintenance tasks such as pipe or line cleaning;

(e) SSA lacks formal training manuals or records of training for its employees; and

(f) Many illegal discharges resulted in whole, or in part, from SSA's failure to comply with the proper operation and maintenance conditions.

73. SSA's failure to properly operate and maintain all facilities and systems of treatment control as described in Paragraph 72 is a violation of its NPDES Permit and a violation of Sections 201 and 202 of the Clean Streams Law, 35 P.S. §§ 691.201 and 691.202, and constitutes unlawful conduct pursuant to section 611 of the Clean Streams Law, 35 P.S. § 691.611.

74. Unless enjoined by an order of the Court, SSA will continue to fail to operate and maintain the sewage system in violation of its NPDES permit and Section 202 of the Pennsylvania Clean Streams Law, 35 P.S. § 691.202.

75. Pursuant to Sections 601 and 605 of the Clean Streams Law, 35 P.S. §§ 691.601 and 691.605, SSA is liable for permanent injunctive relief and civil penalties of up to ten thousand dollars ($10,000) per day for each violation.

FIFTH SUPPLEMENTAL STATE LAW CLAIM
(Violation of Reporting Requirements)

76. Paragraphs 1-75 are realleged and incorporated by reference.

77. The 2003 NPDES Permit, the 2008 NPDES Permit and the 2009 NPDES Permit each state that SSA "shall give advance notice to [PADEP] of any plan changes in the permitted facility or activities that may result in noncompliance with permit requirements."

78. SSA's NPDES Permit states that Defendant "shall report [to the PADEP] any noncompliance which may endanger health or the environment."

79. Upon information and belief, at various times from 2002 until the present, SSA has discharged untreated waste water containing raw sewage from man holes, sewer pipes and other conveyances into buildings, public areas, homes and streams.

80. Upon information and belief, Defendant did not report all such discharges to PADEP.

81. The 2003 NPDES Permit, the 2008 NPDES Permit and the 2009 NPDES Permit require that the PADEP receive a monthly discharge monitoring report from SSA within 28 days after the end of each monthly reporting period.

82. SSA failed to submit monthly discharge monitoring reports in a

timely fashion as follows:

(a) For the calendar year 2005, SSA did not submit timely discharge monitoring reports for the following months: January, March, April, May, June, July, August, September, October and December.

(b) For the calendar year 2006, SSA did not submit timely discharge monitoring reports for the month of July.

(c) For the calendar year of 2007, SSA did not submit timely discharge monitoring reports for the month of April.

(d) For the calendar year of 2008, SSA did not submit timely discharge monitoring reports for the month of August.

(e) For the calendar year of 2009, SSA did not submit timely discharge monitoring reports for the month of February.

83. SSA's failure to properly report unpermitted discharges and failure to timely submit monthly discharge monitoring reports are a violation of its NPDES Permit and a violation of Section 201 and 202 of the Clean Streams Law, 35 P.S. §§ 691.201 and 691.202, and constitutes unlawful conduct pursuant to Section 611 of the Clean Streams Law, 35 P.S. § 691.611.

84. Unless enjoined by an order of the Court, SSA will continue to fail to report unlawful discharge and submit timely discharge monitoring reports in

violation of the terms and conditions of its NPDES Permit and Section 202 of the Pennsylvania Clean Streams Law, 35 P.S. § 691.202.

85. Pursuant to Sections 601 and 605 of the Clean Streams Law, 35 P.S. §§ 691.601 and 691.605, SSA is liable for permanent injunctive relief and civil penalties of up to ten thousand dollars ($10,000) per day for each violation.

SIXTH SUPPLEMENTAL STATE LAW CLAIM
(Violation of Chesapeake Bay Nutrient Requirements)

86. Paragraphs 1-85 are re-alleged and incorporated by reference.

87. The 2009 NPDES Permit imposes a schedule of implementation for compliance with effluent limitations for Net Total Nitrogen and Net Total Phosphorus mass load effluent limitations.

88. Part C, Section I, 7, I, B of the 2009 NPDES Permit requires SSA to submit a Water Quality Permit Application to PADEP no later than September 30, 2009 concerning modifications to the WWTP to achieve compliance with effluent limitations for Net Total Nitrogen and Net Total Phosphorus.

89. The Department has not received a Water Quality Permit application from SSA as required by Part C, Section I, 7, I, B of the 2009 NPDES Permit.

90. Part C, Section I, 7, I, E of the 2009 NPDES Permit states that "[t]he

permittee should contact the compliance specialist indicated in the event of anticipated non-compliance with any of a *[sic]* compliance schedule activities listed, seven (7) days prior to the due date of the activity."

91. SSA did not notify PADEP of its failure to submit a Water Quality Permit Application at least seven days prior to the due date of the submission.

92. Part C, Section I, 7, I, C and D of the 2009 NPDES Permit requires SSA to submit a notice of non-compliance including, but not limited to, an estimated date of compliance within 14 calendar days following the due date of the obligation.

93. SSA did not submit a notice of non-compliance in accordance with Part C, Section I, 7, I, C and D of the 2009 NPDES Permit.

94. SSA's failure to submit a Water Quality Permit application, notice of anticipated non-compliance and notice of non-compliance are violations of the terms and conditions of the 2009 NPDES Permit and Sections 201 and 202 of the Clean Streams Law, 35 P.S. §§ 691.201 and 691.202, and constitutes unlawful conduct pursuant to Section 611 of the Clean Streams Law, 35 P.S. § 691.611.

95. Unless enjoined by an order of the Court, SSA will continue to violate the terms and conditions of its NPDES Permit and Sections 201 and 202 of the Clean Streams Law, 35 P.S. §§ 691.201 and 691.202.

96. Pursuant to Section 601 and 605 of the Clean Streams Law, 35 P.S. §§ 691.601 and 691.605, SSA is liable for permanent injunctive relief and civil penalties of up to ten thousand dollars ($10,000) per day for each violation.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff-Intervenor, the Commonwealth of Pennsylvania, Department of Environmental Protection, respectfully requests that this Court provide the following relief:

1. A permanent injunction enjoining SSA from discharging pollutants except as expressly authorized by the Pennsylvania Clean Streams Law and the terms and conditions of the applicable NPDES Permit;

2. A permanent injunction directing SSA to take all steps necessary to comply with the Pennsylvania Clean Streams Law, the federal Clean Water Act and the terms and conditions of the applicable NPDES Permit;

3. Order SSA to take all steps necessary to redress or mitigate the impact of its discharges to waters of the Commonwealth and waters of the United States in violation of the Pennsylvania Clean Streams Law and the federal Clean Water Act and the applicable NPDES Permit;

4. A permanent injunction requiring SSA to submit and implement a

full, complete, and adequate Long Term Control Plan;

5. A judgment assessing civil penalties against Defendant and in favor of the United States and the Commonwealth;

6. Award the Commonwealth its costs and disbursements in this action; and

7. Grant such other and further relief as this Court deems appropriate.

Respectfully submitted,

FOR THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION:

Joseph S. Cigan, III
Assistant Counsel
Office of Chief Counsel
2 Public Square
Wilkes-Barre, PA 18711-0790
(570) 826-2519
(570) 820-4838
jcigan@state.pa.us
PA 74927

DATE: November 2, 2009

UNITED STATES DISTRICT COURT
FOR THE
MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA, Plaintiff,	)	
v.	)	Civil Action No. 3:09-CV-1873 (Judge Thomas I. Vanaskie)
SEWER AUTHORITY OF THE CITY OF SCRANTON, Defendant.	)	

CERTIFICATE OF CONCURRENCE

The undersigned counsel for the Commonwealth of Pennsylvania, Department of Environmental Protection certifies pursuant to Middle District L.R. 7.1 the concurrence for this Motion was sought from Plaintiff's counsel and from Defendant's counsel. Both Plaintiff's counsel and Defendant's counsel concur in this Motion.

Respectfully submitted,

FOR THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION:

Joseph S. Cigan, III
Assistant Counsel
Office of Chief Counsel
2 Public Square
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DATE: November 2, 2009

UNITED STATES DISTRICT COURT
FOR THE
MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA, Plaintiff,	)	
v.	)	Civil Action No. 3:09-CV-1873 (Judge Thomas I. Vanaskie)
SEWER AUTHORITY OF THE CITY OF SCRANTON, Defendant.	)	

ORDER

After consideration of the Commonwealth of Pennsylvania, Department of Environmental Protection's unopposed Motion to Intervene, the Commonwealth of Pennsylvania, Department of Environmental Protection is hereby granted Plaintiff-Intervenor status in this matter. The caption in this matter shall be amended as follows.

UNITED STATES OF AMERICA, Plaintiff, and,	)	
COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION, Plaintiff-Intervenor,	)	
v.	)	Civil Action No. 3:09-CV-1873 (Judge Thomas I. Vanaskie)
SEWER AUTHORITY OF THE CITY OF SCRANTON, Defendant.	)	

It is so ordered dated _____ day of _____, 2009.

_____

UNITED STATES DISTRICT JUDGE

UNITED STATES DISTRICT COURT
FOR THE
MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA, Plaintiff,	)	
v.	)	Civil Action No. 3:09-CV-1873 (Judge Thomas I. Vanaskie)
SEWER AUTHORITY OF THE CITY OF SCRANTON, Defendant.	)	

CERTIFICATE OF SERVICE

I certify that on this 2nd day of November 2009, I served the Intervenor Commonwealth of Pennsylvania, Department of Environmental Protection's Unopposed Motion to Intervene and Complaint as Plaintiff-Intervenor on the following by service as indicated:

By U.S. Mail Service:

For United States of America

Daniel Smith
U.S. Department of Justice
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044

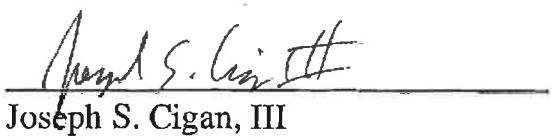
For Sewer Authority of the City of Scranton

Jeffrey Belardi
Belardi Law Offices
First Liberty Bank Building
400 Spruce Street
Suite 402
Scranton, PA 18503-1814

Frank P. Calamita
Aqualaw PLC
6 South 5th Street
Richmond, VA 23219

Respectfully submitted,

FOR THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION:



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PAWC EXHIBIT NO. DRK-3

CONSENT DECREE
Entered January 31, 2013
In
United States of America, Plaintiff
And
Pennsylvania Department of Environmental Protection,
Plaintiff-Intervenor

v.

Scranton Sewer Authority

In the United States District Court for the Middle District of Pennsylvania
Civil Action No. 3:09-CV-1873

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA, Plaintiff, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION Plaintiff-Intervenor, v. SCRANTON SEWER AUTHORITY, Defendant.	CIVIL ACTION NO. 3:CV-09-1873 (Judge Jones)

CONSENT DECREE

TABLE OF CONTENTS

WHEREAS, Plaintiff, the United States of America ("United States"), on behalf of the United States Environmental Protection Agency (the "EPA"), filed a Complaint in this matter against Defendant Scranton Sewer Authority, (the "Defendant" or the "SSA") seeking injunctive relief and civil penalties, and alleging, *inter alia*, that the SSA violated the Clean Water Act (the "CWA"), 33 U.S.C. §§ 1251-1387, and certain terms and conditions of the National Pollutant Discharge Elimination System (NPDES) permit issued to the SSA pursuant to the CWA relating to the municipal wastewater treatment plant and collection system owned and operated by the SSA;

WHEREAS, Plaintiff-Intervenor, the Commonwealth of Pennsylvania Department of Environmental Protection ("PADEP") filed a Complaint in Intervention against the SSA seeking injunctive relief and civil penalties, and alleging, *inter alia*, that the SSA violated the Clean Water Act, 33 U.S.C. §§ 1251-1387, Sections 201, 202 and 401 of the Clean Streams Law, 35 Pa. Stat. Ann. §§ 691.201, 691.202 and 695.401, and certain terms and conditions of the NPDES Permit issued to the SSA pursuant to the CWA relating to the municipal wastewater treatment plant and collection system owned and operated by the SSA;

WHEREAS, the SSA is a municipal authority organized under the Municipal Authorities Act, as amended, 53 Pa. Cons. Stat. Ann. §§ 5601-5623, that owns, operates, and maintains a publicly owned treatment works ("POTW"), which includes a wastewater treatment plant known as the Scranton Sewer Authority Wastewater Treatment Plant ("WWTP") and a collection system ("Collection System") which collects stormwater and wastewater from residential, commercial and industrial sources for the purpose of transporting that wastewater to the WWTP. Certain portions of the Collection System are a Combined Sewer System and other portions are a Sanitary Sewer System. The WWTP and Collection System are authorized to discharge

pollutants in accordance with the SSA's NPDES permit into the Lackawanna River, Roaring Brook, Stafford Meadow Brook, Little Roaring Brook, Keyser Creek, Leggetts Creek, and Meadow Brook; all of which are located within the jurisdiction of the U.S. District Court for the Middle District of Pennsylvania;

WHEREAS, the United States and the PADEP allege the SSA has violated and continues to violate Sections 301 and 402 of the Clean Water Act, 33 U.S.C. §§ 1311 and 1342, Sections 3, 201, 202 and 401 of the Clean Streams Law, 35 Pa. Stat. Ann. §§ 691.3, 691.201, 691.202 and 691.401, by impermissibly discharging untreated sewage from the Collection System to the Lackawanna River and several smaller water tributaries to the Lackawanna;

WHEREAS, the United States brings its claims pursuant to Section 309 of the CWA, 33 U.S.C. § 1319. In its complaint, the United States seeks the imposition of civil penalties and injunctive relief against the SSA for alleged violations of Section 301(a) of the CWA, 33 U.S.C. § 1311(a), and terms and conditions of the NPDES permit last issued by the PADEP as NPDES Permit No. PA-0026492, effective on October 1, 2009 and amended on May 13, 2011;

WHEREAS, the SSA has demonstrated through disclosure of its financial records to Plaintiffs that it has, and will likely continue to have for the foreseeable future, limited ability to pay civil or stipulated penalties and simultaneously meet the compliance requirements of this Consent Decree;

WHEREAS, nothing in this Consent Decree will be construed as an admission by the SSA of violations of any provisions of the CWA, or of the SSA's current or past NPDES permits, or of the Clean Streams Law; and

WHEREAS, the United States, the PADEP, and the SSA ("Parties") recognize, and this Court by entering this Consent Decree finds, that this Consent Decree has been negotiated in

good faith and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest;

NOW, THEREFORE, before the taking of any testimony, without the adjudication or admission of any issue of fact or law except as provided in Section I (Jurisdiction and Venue) below, and with the consent of the Parties, it is hereby ORDERED, ADJUDGED and DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the Parties and the subject matter of this action pursuant to Section 309(b) of the CWA, 33 U.S.C. § 1319(b), and 28 U.S.C. §§ 1331, 1345, 1355, and 1367. Venue is proper in this District pursuant to Section 309(b) of the CWA, 33 U.S.C. § 1319(b), and 28 U.S.C. §§ 1391(b) and 1395(a). For purposes of this Consent Decree, or any action to enforce this Consent Decree, Defendant consents to the Court's jurisdiction over this Decree and any such action and over Defendant and consents to venue in this judicial district.

2. For purposes of this Consent Decree, Defendant agrees that the Complaint and the Complaint in Intervention state claims upon which relief may be granted pursuant to Sections 301 and 402 of the Clean Water Act, 33 U.S.C. §§ 1311 and 1342, and Sections 3, 201, 202, 401, 601, and 605 of the Clean Streams Law, 35 Pa. Stat. Ann. §§ 691.3, 691.201, 691.202, 691.401, 691.601, and 691.605.

II. APPLICABILITY AND BINDING EFFECT

3. This Consent Decree will apply to and be binding upon the United States, on behalf of the EPA, the PADEP, and upon Defendant and its successors, assigns, and all other entities and persons provided for in Fed. R. Civ. P. 65(d).

4. Defendant shall notify the following of the existence of this Consent Decree and make a copy available to them: all officers, employees, and agents whose duties might reasonably include compliance with any provision of this Consent Decree, as well as to any contractor retained to perform work required under this Consent Decree.

5. Effective from the Date of Lodging of this Consent Decree until its termination, in the event that the SSA transfers any ownership or operation of its WWTP, the Collection System, or any portion of the WWTP or Collection System, and includes in such transfer, the transfer of any obligations under this Consent Decree, the SSA will give written notice and a copy of this Consent Decree to any successors in interest at least 30 Days prior to such transfer. The SSA will condition any transfer, in whole or in part, of ownership, operation, or other interest in its WWTP, the Collection System, or any other portion of the SSA WWTP and/or Collection System upon the successful execution of the terms and conditions of this Consent Decree. Simultaneously with notice to any successor in interest, the SSA will provide written notice of such transfer to the United States and the PADEP as provided in Section XVI (Notices and Submissions). In the event of any such transfer of ownership or other interest, the SSA will not be released from the obligations or liabilities of this Consent Decree unless: (i) the transferee has the financial and technical ability to assume these obligations and liabilities; (ii) the United States and the PADEP have agreed to release the SSA from the obligations and liabilities; (iii) the United States, the PADEP, and the transferee have jointly moved to substitute the transferee as Defendant to this Consent Decree; and (iv) the Court has approved the substitution.

6. In any action to enforce this Consent Decree, Defendant will not raise as a defense the failure of its officers, directors, agents, contractors, employees, successors, assigns or any other persons or entities provided for in Fed. R. Civ. P. 65(d) to take any actions necessary to

comply with the provisions hereof. Nothing in this Paragraph prevents the Defendant from invoking Section XI of this Decree (Force Majeure), provided that the event meets the definition of a Force Majeure provided in Paragraph 53.

III. OBJECTIVES

7. The objectives of this Consent Decree are for the Defendant to take the steps necessary to achieve full compliance with the CWA, the regulations promulgated thereunder, including, but not limited to, 33 U.S.C. § 1342(q) and the regulations promulgated thereunder, and the Clean Streams Law and the regulations promulgated thereunder. All plans, reports, construction, remedial maintenance, and other obligations in this Consent Decree or resulting from the activities required by this Consent Decree shall have the objective of causing Defendant to come into and remain in full compliance with the terms and conditions of Defendant's NPDES Permit, the Clean Water Act, and the Clean Streams Law, as these terms are defined in Section IV (Definitions).

IV. DEFINITIONS

8. Unless otherwise defined herein, terms used in this Consent Decree shall have the meaning given to those terms in the CWA, 33 U.S.C. § 1251-1387 the regulations promulgated thereunder, or, if not defined in the Clean Water Act or its regulations, then as defined in the Pennsylvania Clean Streams Law, 35 Pa. Stat. Ann. §§ 691.1-691.1001 and the regulations promulgated thereunder. The following definitions shall apply to the terms used in the Consent Decree:

a. "BNR Project" shall mean the wastewater treatment plant upgrades that the SSA is constructing pursuant to requirements in the NPDES Permit, which, as of the Effective Date, are described in Part C § SEVEN.

b. "Building/Private Property Backup" shall mean a wastewater release or backup into a building or private property that is caused by blockages, flow conditions, or other malfunctions of the Collection System. A wastewater backup or release that is caused by blockages, flow conditions, or other malfunctions of a Private Lateral is not a Building/Private Property Backup.

c. "Clean Water Act" or "CWA" shall mean the Federal Water Pollution Control Act found at 33 U.S.C. §§ 1251-1387, and the regulations promulgated thereunder.

d. "Collection System" shall mean the current and future municipal wastewater collection and transmission system owned or operated by the SSA, including all pipes, interceptors, force mains, gravity sewer lines, lift stations, pumping stations, manholes and appurtenances thereto designed to collect and convey municipal sewage and wastewaters (domestic, commercial, and industrial) to the SSA's WWTP or to a CSO Outfall. "Collection System" includes both the "Combined Sewer System" and the "Sanitary Sewer System."

e. "Combined Sewer Overflow Control Policy" or "CSO Policy" shall mean the policy issued by the EPA regarding combined sewer overflows, entitled "Combined Sewer Overflow (CSO) Control Policy," 59 Fed. Reg. 18688 (April 19, 1994) and as identified in Section 402(q) of the Clean Water Act, 33 U.S.C. § 1342(q).

f. "Combined Sewer Overflow" or "CSO" shall mean any discharge from the SSA's Combined Sewer System at a CSO Outfall designated in the currently applicable NPDES Permit.

g. "Combined Sewer System" shall mean the portion of the SSA's Collection System designed to convey municipal sewage and wastewaters (domestic,

commercial, and industrial) and stormwater in the same system of pipes to the WWTP or to a CSO Outfall.

h. "Consent Decree" shall mean this Consent Decree, all Appendices hereto, and all plans, schedules, reports, memoranda, or other submittals approved by the Plaintiffs pursuant to the requirements of this Consent Decree or any Appendix hereto. In the event of any conflict between the Consent Decree and any Appendix, this Consent Decree shall control.

i. "CSO Outfall" shall mean an outfall in the Combined Sewer System from which combined sewage and stormwater are discharged and so designated in the currently applicable NPDES Permit.

j. "Date of Lodging" shall mean the date that this Consent Decree is lodged with the Clerk of the Court for the United States District Court for the Middle District of Pennsylvania.

k. "Day" shall mean a calendar day unless expressly stated to be a working day. When the day a report or other deliverable is due under this Consent Decree falls on a Saturday, Sunday, federal holiday, or legal holiday for the SSA, the SSA shall have until the next calendar day that is not one of the aforementioned days for submission of such report or other deliverable.

l. "Dry Weather Overflow" shall mean a discharge that occurs at a permitted CSO Outfall that is not caused by precipitation-related Inflow or Infiltration.

m. "Effective Date" shall mean the date set forth in Section XVII (Effective Date) of this Consent Decree.

n. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

o. "Green Infrastructure Measures" shall mean the range of stormwater control measures that use plant systems, soil systems, permeable pavement, or stormwater management, harvest and reuse, to store, infiltrate, evapotranspirate, or reuse stormwater and reduce flows to the Combined Sewer System. Green Infrastructure Measures may include, but shall not be limited to, extended detention wetland areas, green roofs, and cisterns.

p. "Infiltration" shall mean water entering the Collection System and service connections from the ground through means that include, but are not limited to, defective pipes and sewer walls, pipe and sewer joints, connections, and manhole walls.

q. "Inflow" shall mean water introduced into the Collection System, including service connections, from sources including, but not limited to, roof leaders, cellars, basement sump pumps, area drains in yards and driveways, foundation drains, cooling water discharges, drains from springs and other wet areas, cracked or broken manhole covers, cross connections from separate storm sewers, catch basins, stormwater, surface run-off, street wash waters, and drainage.

r. "Long Term Control Plan" or "LTCP" shall mean the currently applicable plan that the SSA develops pursuant to Section V.B.

s. "MGD" shall mean million gallons per day.

t. "Nine Minimum Controls" or "NMCs" shall mean those controls identified in Section II.B. of the EPA's April 19, 1994, Combined Sewer Overflow (CSO) Control Policy.

u. "Nine Minimum Controls Plan" or "NMC Plan" shall mean the plan attached hereto as Appendix A, as the same may be revised and updated in accordance with

Section V.A. (Nine Minimum Controls) of this Consent Decree and in accordance with the CSO Policy.

v. "NPDES Permit" shall mean the currently effective NPDES Permit No. PA-0026492, effective on October 1, 2009 and amended on May 13, 2011, issued to the SSA by the PADEP. This definition includes any subsequent modification or reissuance of the Permit in accordance with 40 C.F.R Part 123.

w. "Operating Protocols" shall mean the procedures described, as of the Effective Date, in Part C, § TWELVE of the NPDES Permit.

x. "PADEP" shall mean the Pennsylvania Department of Environmental Protection and any successor departments or agencies of the Commonwealth of Pennsylvania.

y. "Paragraph" shall mean a provision of this Consent Decree identified by an Arabic number.

z. "Parties" shall mean the United States, the PADEP, and the SSA.

aa. "Plaintiffs" shall mean the United States and the PADEP.

bb. "Private Lateral" shall mean that portion of the Collection System not owned by the SSA and used to convey wastewater from a building(s) to a portion of the Collection System owned by the SSA.

cc. "Sanitary Sewer System" shall mean the current and future portion of the Collection System Sewer designed to convey municipal sewage and wastewaters (domestic, commercial, and industrial) to the WWTP in one system and stormwater in a separate system.

dd. "Sanitary Sewer Overflow" or "SSO" shall mean an overflow, spill, diversion, or release of wastewater from or caused by the Sanitary Sewer System. This term shall include: (i) discharges to waters of the Commonwealth of Pennsylvania or United States from the

Sanitary Sewer System and (ii) any release of wastewater from the Sanitary Sewer System to public or private property that does not reach waters of the United States or the Commonwealth of Pennsylvania, including Building/Private Property Backups.

ee. "Section" shall mean a portion of this Consent Decree identified by an uppercase Roman Number.

ff. "Semi-annual Progress Report" shall mean the reports due on a semi-annual basis under Section VII (Reporting).

gg. "Six-month Period" shall mean a six month period ending on June 30 and December 31.

hh. "SSA" shall mean Defendant Scranton Sewer Authority, a municipal corporation located in Scranton, Pennsylvania.

ii. "Subparagraph" shall mean a provision of this Consent Decree identified by one or two lowercase letters followed immediately by a period. All Subparagraphs are incorporated into and a part of the Paragraph immediately preceding the Subparagraph.

jj. "Unpermitted Discharge" shall mean a Dry Weather Overflow or any discharge to waters of the United States or the Commonwealth of Pennsylvania from the Collection System at a location other than an Outfall designated in the NPDES Permit.

kk. "Waste Water Treatment Plant" or "WWTP" shall mean the waste water treatment plant owned and operated by the SSA located in Scranton, Pennsylvania.

V. COMPLIANCE MEASURES

A. NINE MINIMUM CONTROLS

9. The SSA shall implement the NMC Plan attached hereto as Appendix A in accordance with the provisions and schedules set forth therein.

10. Ongoing Review of the Nine Minimum Control Plan. The SSA shall, on at least an annual basis, evaluate the efficacy of the measures implemented under its Nine Minimum Controls Plan, as well as other measures undertaken by the SSA pursuant to this Consent Decree, in reducing the impacts of Combined Sewer Overflows on receiving waters. Based on such evaluation, the SSA shall submit to Plaintiffs for review and approval additional proposed changes to its NMC Plan, to the extent any are necessary, which the SSA shall implement, upon approval by Plaintiffs, in accordance with the provisions and schedules set forth therein.

B. LONG-TERM CONTROL PLAN

11. The SSA shall complete and submit a Long Term Control Plan ("LTCP") to both the EPA and the PADEP by December 1, 2012 for review and approval. This LTCP must:

a. Meet the requirements of the EPA's CSO Policy, including but not limited to those requirements set forth in Section II.C. of the CSO Policy;

b. Select a remedy for CSOs that will result in no more than 4 overflows in a typical year to non-channelized tributaries of the Lackawanna River and no more than 9 overflows in a typical year to the Lackawanna River and its channelized tributaries;

c. Include a schedule for implementation with appropriate interim milestones that concludes no later than December 1, 2037;

d. Include a deadline for substantial completion (plant fully operational) of the BNR Project that concludes no later than August 1, 2014;

e. Include a schedule for constructing CSO controls such as box culverts and storage tanks that is consistent with Appendix B; and

f. Include a post construction monitoring plan ("PCMP"), which must also meet the requirements of the CSO Policy, including the Policy's requirements that it be "adequate to verify compliance with water quality standards and protection of designated uses as

well as to ascertain the effectiveness of the CSO controls" and that it "details the monitoring protocols to be followed, including the necessary effluent and ambient monitoring and, where appropriate, other monitoring protocols such as biological assessments, whole effluent toxicity testing, and sediment sampling."

12. The SSA shall complete implementation of the LTCP as soon as practicable, but no later than December 1, 2037.

13. The SSA shall undertake a study (the "GI Study") to evaluate the feasibility of implementing Green Infrastructure Measures as part of its long term controls for reducing CSOs from the Collection System. The evaluation in the GI Study must address at least the following criteria: GI site selection, identification and resolution of institutional issues and obstacles, public outreach, design and construction, and monitoring and evaluation. No later than December 1, 2017, the SSA shall submit the completed GI Study to the EPA and to the PADEP.

14. Following completion of the GI Study, Defendant may submit to the EPA and the PADEP for review and approval pursuant to Section VI (Review and Approval of Submittals) a modification of the LTCP that alters the CSO controls in the LTCP by incorporating Green Infrastructure Measures. Defendant shall include the following information with any such submission: (1) a description of the specific technology to be applied; (2) the locations where the technology will be used; (3) the design limits of the proposed use of the technology; and (4) the costs of installation and maintenance and who will bear those costs. If the proposed modification seeks to alter the size of any CSO control in the LTCP, the proposed modification must also include reliable computer modeling and other evidence sufficient to demonstrate that (1) the proposed Green Infrastructure Measures will result in a reduction of wet weather flows into the Combined Sewer System; (2) during future wet weather events the SSA will continue to achieve

such flow reductions; and (3) as a result of the flow reductions achieved as a result of the proposed Green Infrastructure Measures, the proposed modification of the LTCP will achieve the same or better performance, in terms of gallons controlled and the number of CSO activations in a typical year, as the unmodified LTCP.

C. GENERAL COMPLIANCE

15. Effluent Limits.

a. Commencing on the Day that Defendant signs this Consent Decree, the SSA shall comply with all final effluent limits set forth in the NPDES Permit.

b. If, on October 1, 2014, the SSA is not in compliance with its annual effluent limitation for the compliance period ending on September 30, 2014, it shall, on or before November 28, 2014, purchase nutrient credits to the extent required in the NPDES Permit in a quantity costing up to the amount of $100,000. The SSA shall use reasonable diligence in obtaining the best value for any money it spends purchasing credits.

16. Dry Weather Overflows.

a. All Dry Weather Overflows from the Collection System are prohibited.

b. The SSA must report all Dry Weather Overflows to the PADEP by telephone at 570-826-2511 within twenty-four hours of when the SSA becomes aware of the Dry Weather Overflow and must provide written notification to the PADEP and the EPA within five Days of when the SSA becomes aware of the Dry Weather Overflow.

c. Should the SSA detect a Dry Weather Overflow, the SSA shall begin corrective action immediately. The SSA shall inspect the outfall(s) from which the Dry Weather Overflow occurred each subsequent Day until the overflow has been eliminated.

d. The SSA shall summarize all such Dry Weather Overflows in the Semi-Annual Progress Report required under Section VII (Reporting). Nothing in this Section shall eliminate or minimize any additional notification or reporting required by the NPDES Permit.

17. Compliance with Operating Protocols.

a. Commencing on the Day Defendant signs this Consent Decree, the SSA shall comply with the Operating Protocols regarding flows to the WWTP, which, as of the Effective Date, are described in Part C, § TWELVE of the NPDES Permit.

b. Should the SSA fail to comply with the Operating Protocols described in Subparagraph a. above for more than ten minutes in any 24-hour period, it shall report such failure within 10 Days in writing in accordance with Section XVI (Notices and Submissions).

c. The SSA shall, within 14 Days of a request by the EPA or the PADEP, provide a report in comma-delimited format of the measurements of influent to the WWTP and discharges from Outfall 003 recorded by its supervisory control and data acquisition (SCADA) system in increments of no more than five minutes. To the extent practicable, the data shall be provided in a single table with each measurement being taken simultaneously. The SSA may not limit its production of SCADA data to the data available from one server or storage location, unless that server or storage location contains all of data available to the SSA for the time period covered by the request.

d. Nothing in this Paragraph shall limit the United States' or the PADEP's authority to request other information or information in other formats.

18. Identification of Outfalls.

a. Prior to the Date of Lodging, the SSA identified the following outfalls that are not currently included in its NPDES Permit:

(i) McNichols (#083);

(ii) 600 Elm East (#084);

(iii) 600 Elm West (#085);

(iv) Cedar/Maple (#086);

(v) Leggetts/Kelly (#087); and

(vi) Prospect/Locust (#088).

b. The SSA plugged the Prospect/Locust outfall (#088) and submitted an application to the PADEP on November 28, 2011 requesting an amendment to the NPDES Permit to authorize discharges from the remaining outfalls and to permanently remove the following outfalls from the NPDES Permit: #010, #039, #041, #042, #046, #054, and #064.

c. The SSA hereby affirms that it has conducted a thorough study of its collection system and has identified to the United States and the PADEP, to the best of its knowledge, all of the outfalls from which pollutants may enter waters of the United States or the Commonwealth of Pennsylvania.

d. The SSA shall not discharge pollutants into waters of the United States or the Commonwealth of Pennsylvania from any outfall not identified in its NPDES Permit or in Subparagraph 18.a. above.

e. Should the SSA discover an outfall that is not identified in Subparagraph 18.a or in its NPDES Permit, it shall notify the United States and the PADEP in writing in accordance with Section XVI (Notices and Submissions) within five Days of the discovery of the outfall. The notice shall include a description of the outfall, its location, the portion of the collection system that drains to the outfall, the description of any pathway by which discharges from the outfall might reach waters of the United States or the Commonwealth of Pennsylvania,

any information as to whether stormwater is included in the discharges from the outfall, and any information that might indicate whether pollutants have been discharged from the outfall. Within 60 Days of the discovery of the outfall, Defendant shall submit to the EPA and the PADEP for review and approval pursuant to Section VI (Review and Approval of Submittals) a plan that addresses how the newly discovered outfall(s) will be addressed consistent with SSA's applicable NPDES Permit.

19. Elimination of Sanitary Sewer Overflows. SSOs are prohibited.

20. Reporting Planned Changes and Non-Compliance.

a. The SSA shall comply with the provisions of the NPDES Permit requiring the reporting of anticipated and unanticipated non-compliance with the NPDES Permit, which, as of the Effective Date, are described in Part A, § III.C of the NPDES Permit.

b. Whenever written notice of non-compliance is required to be given to the PADEP pursuant to the NPDES Permit, the SSA shall simultaneously notify the EPA in accordance with Section XVI (Notices and Submissions).

VI. REVIEW AND APPROVAL OF SUBMITTALS

21. For each plan, report, schedule or other document submitted by the SSA for EPA and PADEP approval (other than a request to modify this Consent Decree submitted pursuant to Section XIX (Modification)) the EPA, after consultation with the PADEP, may (a) approve the submittal, in whole or in part; (b) disapprove the submittal, in whole or in part; (c) approve the submittal upon specified conditions, directing the SSA to modify its submission; or (d) any combination of the above. If the EPA approves the submittal, the EPA shall notify the SSA in writing. If the submittal is disapproved in whole or in part, or approved with conditions, the EPA shall describe the deficiencies or conditions in writing so that the SSA can make the required modifications and provide the EPA with a modified submittal. The SSA may request a meeting

and/or conference call with the EPA to discuss the deficiencies, but no such request or meeting shall extend any deadlines set forth in this Section.

22. Within 60 Days following receipt of any notice from the EPA disapproving a submittal or directing modification of a submittal pursuant to the preceding Paragraph (or within such longer time set forth in the notice or agreed to by the parties), the SSA shall submit a modified submittal to the EPA and the PADEP for approval, subject only to the SSA's right to invoke the dispute resolution procedures set forth in Section XII (Dispute Resolution). The modified submittal shall correct any deficiencies identified by the EPA, and conform to any directions set forth in the notice provided pursuant to the preceding Paragraph. If the SSA fails to submit a modified document to the EPA within the 60-Day period, the EPA retains the right to modify or develop any disapproved or conditionally approved portion of the submittal. The SSA shall implement any such plan, report, schedule or other submittal as modified or developed by the EPA, subject only to the SSA's right to invoke the dispute resolution procedures set forth in Section XII (Dispute Resolution).

23. In the event that a resubmitted plan, report, schedule or other document or portion thereof is disapproved in whole or in part or approved with conditions by the EPA, the EPA shall provide the SSA with a written notice describing the remaining deficiencies or conditions for approval. The EPA may require the SSA to correct the deficiencies or satisfy the conditions for approval of the submittal within a specified time frame, or the EPA may modify or develop any disapproved or conditionally approved portion of the submittal. The SSA may request a meeting and/or conference call with the EPA to discuss the deficiencies, but no such request or meeting shall extend any deadlines set forth in this Section. Following receipt of a notice requiring the SSA to correct deficiencies or satisfy conditions for approval, the SSA shall submit a modified

document in accordance with the EPA's directions, subject only to the SSA's right to invoke the dispute resolution procedures set forth in Section XII (Dispute Resolution).

24. Notwithstanding the receipt of a notice of disapproval pursuant to Paragraph 21 or 23, above, the SSA shall proceed, if directed by the EPA, to take any action required by any non-deficient portion of the SSA's submission, if such action can be undertaken independent of the deficient portion of the SSA's submission. Implementation of any non-deficient portion of a submission shall not relieve the SSA of any liability for stipulated penalties under Section X (Stipulated Penalties) for the deficient portion(s).

25. Other than a modification of the LTCP, all plans and studies submitted pursuant to this Consent Decree shall be incorporated herein as part of this Consent Decree upon approval by the EPA. A modification of the LTCP shall be incorporated into this Consent Decree only if the Parties enter into a written agreement pursuant to Paragraph 88.

26. The SSA shall take all lawful and appropriate actions to facilitate the implementation of this Consent Decree, including prompt review and approval of any appropriate and responsive bids, contracts, or other documents, and, if applicable, prompt review and approval of any appropriate schedule of work necessary to maintain compliance with this Consent Decree.

27. If the EPA fails to take action under Paragraph 21 with respect to a submittal or modified submittal, other than the LTCP or a proposal to modify this Consent Decree, within 90 Days of receiving the submittal or modified submittal, the EPA shall extend any subsequent deadlines dependent upon approval of the submittal by the number of Days in excess of 90 that elapsed between: (i) the date that the EPA and the PADEP received the submittal or modified submittal; and (ii) the date that the EPA took action under Paragraph 21. Such extension will not

be effective unless the EPA grants it in writing. Defendant may invoke dispute resolution under Section XII (Dispute Resolution) with respect to any disputes under this Paragraph.

VII. REPORTING

A. REPORTS

28. The SSA will provide to the EPA copies of all written notifications and reports that the SSA is required to submit to the PADEP relevant to this Consent Decree.

29. On January 31 and July 31 of every year commencing with the first full Six-month Period after Entry of this Consent Decree and continuing until termination of this Consent Decree, the SSA will submit to the EPA and the PADEP a progress report ("Semi-annual Progress Report") regarding the implementation of the requirements of this Consent Decree in the previous Six-month Period. The Semi-Annual Progress Report will include at a minimum:

a. A statement setting forth the deadlines and other terms that the SSA was required by this Consent Decree to meet since the date of the last Semi-annual Progress Report, whether and to what extent the SSA has met these requirements, and the reasons for any noncompliance;

b. A general description of the work completed within the prior Six-month Period, and a projection of work to be performed pursuant to this Consent Decree during the next or succeeding Six-month Period;

c. A summary of all contacts with the EPA and the PADEP during the reporting period relating to CSOs, SSOs, or implementation of the BNR Project;

d. A statement of any exceedances of NPDES Permit limitations; and,

e. A summary of all CSOs, SSOs and Unpermitted Discharges occurring within the Six-month Period including the actual or estimated frequency, duration, and volume of each CSO, SSO, and Unpermitted Discharge.

B. CERTIFICATION AND ADMISSIBILITY

30. Any report or plan relating to monitoring data or any representation made by the SSA as to its compliance with this Consent Decree that the SSA is required by this Consent Decree to submit, including reports or plans, shall be signed by an official or authorized agent of the SSA and shall include the following certification:

> I certify under penalty of law that the document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

31. The SSA shall not object to the authenticity of any report, plan, or other submission prepared in accordance with Paragraph 30 or the information contained in said report, plan or submission in any proceeding to enforce this Consent Decree.

VIII. FUNDING

32. Compliance with the terms of this Consent Decree by the SSA is not conditioned on the receipt of federal or state grant or loan funds or upon the SSA's financial capabilities. In addition, the SSA's failure to comply is not excused by the lack of federal or state grant or loan funds, or by the processing of any applications for the same, or by the SSA's financial capabilities.

IX. CIVIL PENALTY

33. The SSA shall pay the sum of $170,000 plus an additional sum for interest as explained below, to the United States as a civil penalty. Payment shall be made in two installments. The first installment of $70,000 shall be made within 30 Days after the Effective Date. The second installment of $100,000 plus interest shall be made within six months of the

Effective Date. Interest shall accrue from the Date of Lodging at the rate specified in 28 U.S.C. § 1961 as of the Date of Lodging.

34. Defendant shall pay the civil penalty due to the United States by FedWire Electronic Funds Transfer ("EFT") to the U.S. Department of Justice in accordance with written instruction to be provided to the SSA, following lodging of the Consent Decree, by the Financial Litigation Unit of the U.S. Attorney's Office for the Middle District of Pennsylvania, 235 N. Washington Ave., Suite 311, Scranton, PA 18503, Phone: 570-348-2800. At the time of payment, Defendant shall send a copy of the EFT authorization form and the EFT transaction record, together with a transmittal letter, which shall state that the payment is for the civil penalty owed pursuant to the Consent Decree in *United States v. Scranton Sewer Authority*, and shall reference the civil action number 3:09-cv-1873 and DOJ case number 90-5-1-1-08778, to the United States in accordance with Section XVI (Notices and Submissions) and to:

EPA Region III Docket Clerk
Office of Enforcement and Compliance Assistance (3EC00)
1650 Arch Street
Philadelphia, PA 19103.

35. The SSA shall pay the sum of $170,000, plus an additional sum for interest as explained below, to the PADEP as a civil penalty. Payment shall be made in two installments. The first installment of $70,000 shall be made within 30 Days after the Effective Date. The second installment of $100,000 plus interest shall be made within six months of the Effective Date. Interest shall accrue from the Date of Lodging at the rate specified in 28 U.S.C. § 1961 as of the Date of Lodging. The payment shall be made by corporate check or the like made payable to "Commonwealth of Pennsylvania, Clean Water Fund" and sent to Program Manager, Clean Water Program, Department of Environmental Protection, Northeast Regional Office, 2 Public Square, Wilkes-Barre, Pennsylvania 18701-1915.

X. STIPULATED PENALTIES

36. The SSA shall be liable for stipulated penalties to the United States and the PADEP for violations of this Consent Decree specified below. A violation includes failing to perform any obligation required by the terms of this Consent Decree, including any work plan or schedule approved under this Consent Decree, according to all applicable requirements of this Consent Decree, and within the specified time schedules established by or approved under this Consent Decree.

37. Late Payment of Civil Penalty. If Defendant fails to pay the civil penalty required to be paid under Section IX of this Decree (Civil Penalty) when due, Defendant shall pay a stipulated penalty of $500 per Day for each Day that the payment is late.

38. Reporting Requirements. For each failure to submit a timely and adequate plan, report, schedule, written notice, or other submission required by this Decree, the SSA shall pay the following stipulated penalties to Plaintiffs per violation per Day:

Period of Noncompliance	Penalty per Day per Violation
Days 1-30	$500
Days 31-60	$750
Days 61-90	$1,000
Days 91 and over	$1,500

39. Compliance Milestones.

a. For each failure to comply with any deadline for completion of construction or for achievement of full operation set forth in the implementation schedule developed and approved pursuant to Paragraph(s) 11 and 12, the SSA shall pay the following stipulated penalties to Plaintiffs per violation per Day:

Period of Noncompliance	Penalty per Day per Violation
Days 1-30	$500
Days 31-60	$750
Days 61-90	$1,000
Days 91 and over	$2,000

b. For each failure to comply with a requirement of, or meet a deadline in, the Nine Minimum Controls Plan pursuant to Paragraph 9 of Section V.A (Nine Minimum Controls), the SSA shall pay the following stipulated penalties to Plaintiffs per violation per Day:

Period of Noncompliance	Penalty per Day per Violation
Days 1-30	$500
Days 31-60	$750
Days 61-90	$1,000
Days 91 and over	$2,000

40. General Compliance.

a. For each discharge in violation of Subparagraph 16.a or for each discharge in violation of Paragraph 19 that reaches waters of the United States or the Commonwealth of Pennsylvania, the SSA shall pay the following stipulated penalties based on the volume of the discharge:

Volume:	The penalty shall be:
Less than 100 gallons	$100
100 to 2,499 gallons	$750
2,500 to 9,999 gallons	$1,250
10,000 to 99,999 gallons	$3,000
100,000 to 999,999 gallons	$5,000
1 million gallons or greater	$10,000

b. For each discharge in violation of Subparagraph 17.a, the SSA shall pay the following stipulated penalties based on the difference between the volume of combined sewage that the SSA would have taken into the WWTP while it was discharging from Outfall 003 if it had complied with Paragraph 17.a., and the volume of combined sewage that it actually took into the WWTP while it was discharging from Outfall 003:

Difference in Volume:	The penalty shall be:
Up to two million gallons	$2,500
More than two million gallons, but not more than four million gallons	$5,000
More than four million gallons, but not more than six million gallons	$7,500
More than six million gallons	$10,000

c. For each failure to comply with Subparagraph 18.d., the SSA shall pay the following stipulated penalties to Plaintiffs per violation per Day:

Period of Noncompliance	Penalty per Day per Violation
Days 1-30	$500
Days 31-60	$1,000
Days 61-90	$2,000
Days 91 and over	$3,000

d. For failure to comply with Subparagraph 15.b, the SSA shall pay to the Plaintiffs a stipulated penalty equal to the difference between $100,000 and the amount paid for nutrient credits. The unavailability of credits is not a defense to liability for penalties under this Subparagraph. Thus, if the SSA were to need 10,000 pounds of credits and were to purchase that amount for $50,000 in accordance with Subparagraph 15.b, then this Subparagraph would have no effect. However, if the SSA were to need 10,000 pounds of credits and were to purchase only 5,000 pounds at a cost of $25,000, it would have to pay a stipulated penalty equal to $100,000 minus the $25,000 it actually spent, or $75,000.

e. For each failure to comply with Paragraph 15, other than a failure to comply with an annual effluent limit, the SSA shall pay the following stipulated penalties to Plaintiffs:

Type of Permit Limit:	Penalty per violation:
Daily or Instantaneous	$500
Weekly	$1,500
Monthly	$3,000

f. For each failure to provide telephonic notification in compliance with Paragraph 16.b, the SSA shall pay a stipulated penalty of $1,000 per occurrence.

g. For each failure to comply with Subparagraphs 16.c or 17.c, the SSA shall pay the following stipulated penalties to Plaintiffs per violation per Day:

Period of Noncompliance	Penalty per Day per Violation
Days 1-30	$500
Days 31-60	$750
Days 61-90	$1,000
Days 91 and over	$2,000

41. If any person discovers an outfall that existed as of the Effective Date, but that is not included in the SSA's NPDES Permit or identified in Subparagraph 18. a, the SSA shall pay a stipulated penalty of $2,500.

42. Access Requirements. For each failure to allow access to the WWTP in accordance with Section XV (Information Collection and Retention), below, the SSA shall pay stipulated penalties of $1,000 to Plaintiffs per Day.

43. Stipulated penalties under this Section shall begin to accrue on the Day after performance is due or on the Day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree.

44. For stipulated penalties incurred more than one year after the Effective Date, the amount of penalties for which Defendant is liable shall be multiplied by the quotient of: (i) the maximum penalty under 33 U.S.C. § 1319(d) as adjusted pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990, Pub. L. 101-410, 104 Stat. 890, as amended; and (ii) $37,500

45. Defendant shall pay stipulated penalties to the United States and the PADEP within 30 Days of a written demand by either Plaintiff. Defendant shall pay 50% of the total stipulated penalty amount due to the United States and 50% percent to the PADEP. The Plaintiff making a demand for payment of a stipulated penalty shall simultaneously send a copy of the demand to the other Plaintiff.

46. Each Plaintiff may, in the unreviewable exercise of its discretion, reduce or waive stipulated penalties otherwise due it under this Consent Decree.

47. Stipulated penalties shall continue to accrue as provided in Paragraph 43, during any Dispute Resolution, but need not be paid until the following:

a. If the dispute is resolved by agreement or by a decision of the EPA that is not appealed to the Court, Defendant shall pay accrued penalties determined to be owing, together with interest, to the United States within 30 Days of the effective date of the agreement or the receipt of the EPA's decision or order.

b. If the dispute is appealed to the Court and the United States prevails in whole or in part, Defendant shall pay all accrued penalties determined by the Court to be owing, together with interest, within 60 Days of receiving the Court's decision or order, except as provided in Subparagraph c, below.

c. If any Party appeals the District Court's decision, Defendant shall pay all accrued penalties determined to be owing, together with interest, within 15 Days of receiving the final appellate court decision.

48. Obligations Prior to the Effective Date. Upon the Effective Date, the stipulated penalty provisions of this Decree shall be retroactively enforceable to the date the SSA signed this Decree, with regard to any and all violations that have occurred after the SSA signed, provided that stipulated penalties that may have accrued prior to the Effective Date may not be collected unless and until this Consent Decree is entered by the Court.

49. Defendant shall pay stipulated penalties owing to the United States in the manner set forth and with the confirmation notices required by Paragraph 34, except that the transmittal letter shall state that the payment is for stipulated penalties and shall state for which violation(s) the penalties are being paid.

50. Defendant shall pay stipulated penalties owing to the PADEP by corporate check or the like made payable to "Commonwealth of Pennsylvania, Clean Water Fund" and sent to Program Manager, Clean Water Program, Department of Environmental Protection, Northeast Regional Office, 2 Public Square, Wilkes-Barre, Pennsylvania 18701-1915. The check shall be accompanied by a transmittal letter which shall state that the payment is for stipulated penalties and for which violation(s) the penalties are being paid.

51. If Defendant fails to pay stipulated penalties according to the terms of this Consent Decree, Defendant shall be liable for interest on such penalties, as provided for in 28 U.S.C. § 1961, accruing as of the date payment became due. Nothing in this Paragraph shall be construed to limit the United States or the PADEP from seeking any remedy otherwise provided by law for Defendant's failure to pay any stipulated penalties.

52. Subject to the provisions of Section XIII (Effect of Settlement), the stipulated penalties provided for in this Consent Decree shall be in addition to any other rights, remedies, or sanctions available to the United States or the PADEP for Defendant's violation of this Consent Decree or applicable law. Where a violation of this Consent Decree is also a violation of the Clean Water Act, 33 U.S.C. §§ 1251-1387, or the Pennsylvania Clean Streams Law, 35 Pa. Stat. Ann. §§ 691.1-691.1001, Defendant shall be allowed a credit, for any stipulated penalties paid, against any statutory penalties imposed for such violation.

XI. FORCE MAJEURE

53. "Force Majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Defendant; its agents, consultants, or contractors; or any entity controlled by Defendant; that delays or prevents the performance of any obligation under this Consent Decree despite Defendant's best efforts to fulfill the obligation. The requirement that Defendant exercise "best efforts to fulfill the obligation" includes using best

efforts to anticipate any potential Force Majeure and best efforts to address the effects of any such event (a) as it is occurring and (b) after it has occurred to prevent or minimize any resulting delay to the greatest extent possible. "Force Majeure" does not include Defendant's financial inability to perform any obligation under this Consent Decree.

54. Any delays in implementation of this Consent Decree shall not be excused merely because the SSA notified the EPA and/or the PADEP of the anticipated delay, regardless of whether such notification is contained in a report required under Section VII (Reporting) or any other communication.

55. When the SSA knows, or should have known by the exercise of reasonable diligence, of an event that might delay completion of any requirement of this Consent Decree, whether or not the event is a Force Majeure, the SSA will notify the EPA and the PADEP, in writing, within 14 Days after the SSA first knew, or in the exercise of reasonable diligence under the circumstances, should have known of such event. The notice will indicate whether the SSA claims that the delay should be excused due to a Force Majeure. The notice shall describe in detail the basis for the SSA's contention that it experienced a Force Majeure delay, the anticipated duration of the delay, the cause or causes of the delay, all actions taken or to be taken to prevent or minimize the delay, and the timetable by which those measures will be implemented. Failure to timely notify the EPA and the PADEP may, at the EPA's option, in consultation with the PADEP, preclude SSA from asserting Force Majeure for the period beyond 14 Days it took SSA to provide the required notice.

56. If, after consultation with the PADEP, the EPA finds that a delay in performance is, or was, caused by a Force Majeure, it will extend the time for performance, in writing, for a period to compensate for the delay resulting from such event and stipulated penalties will not be

due to the United States or the PADEP for such period. If the EPA does not grant such an extension within 30 days of receiving the SSA's written notice of the Force Majeure, the SSA may consider the request for an extended time for performance to have been denied, and the SSA may invoke dispute resolution.

57. In proceedings on any dispute regarding a delay in performance, the dispute resolution provisions of Section XII (Dispute Resolution) will apply, and the SSA will have the burden of proving that the delay is, or was, caused by a Force Majeure and that the amount of additional time requested is necessary to compensate for that event.

58. Compliance with a requirement of this Consent Decree shall not by itself constitute compliance with any other requirement. An extension of one compliance date based on a particular event will not extend any other compliance date. The SSA will make an individual showing of proof regarding the cause of each delayed incremental step or other requirement for which an extension is sought. The SSA may petition for the extension of more than one compliance date in a single request.

XII. DISPUTE RESOLUTION

59. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree.

60. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when Defendant sends the United States and the PADEP a written "Notice of Dispute." Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed 30 Days from the date the dispute arises, unless that period is modified by written agreement. If the Parties cannot resolve a dispute by informal

negotiations, then the position advanced by the United States, in consultation with the PADEP, shall be considered binding unless, within 30 Days after the conclusion of the informal negotiation period, Defendant invokes formal dispute resolution procedures as set forth below.

61. Formal Dispute Resolution. Defendant shall invoke formal dispute resolution procedures, within the time period provided in the preceding Paragraph, by serving on the United States and the PADEP a written "Statement of Position" regarding the matter in dispute. The Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting Defendant's position and any supporting documentation relied upon by Defendant.

62. The United States, in consultation with the PADEP, shall serve its Statement of Position within 30 Days of receipt of Defendant's Statement of Position. The United States' Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the United States. The United States' Statement of Position shall be binding on Defendant, unless Defendant files a motion for judicial review of the dispute in accordance with the following Paragraph.

63. Defendant may seek judicial review of the dispute by filing with the Court and serving on the United States and the PADEP, in accordance with Section XVI (Notices and Submissions), a motion requesting judicial resolution of the dispute. The motion must be filed within 30 Days of receipt of the United States' Statement of Position pursuant to the preceding Paragraph. The motion shall contain a written statement of Defendant's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree.

64. The United States, in consultation with the PADEP, shall respond to Defendant's motion within the time period allowed by the Local Rules of this Court. Defendant may file a reply memorandum, to the extent permitted by the Local Rules.

65. Standard of Review.

a. Disputes Concerning Matters Accorded Record Review. Except as otherwise provided in this Consent Decree, in any dispute brought under Paragraph 63 pertaining to the adequacy or appropriateness of plans, procedures to implement plans, schedules or any other items requiring approval by the EPA and/or the PADEP under this Consent Decree; the adequacy of the performance of work undertaken pursuant to this Consent Decree; and all other disputes that are accorded review on the administrative record under applicable principles of administrative law, Defendant shall have the burden of demonstrating, based on the administrative record, that the position of the United States and/or the PADEP is arbitrary and capricious or otherwise not in accordance with law.

b. Other Disputes. Except as otherwise provided in this Consent Decree, in any other dispute brought under Paragraph 63, Defendant shall bear the burden of demonstrating by a preponderance of the evidence that its position complies with this Consent Decree and that Defendant is entitled to relief under applicable law.

66. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of Defendant under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall continue to accrue from the first Day of noncompliance, but payment shall be stayed pending resolution of the dispute as provided in Paragraph 47. If

Defendant does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section X (Stipulated Penalties).

XIII. EFFECT OF SETTLEMENT

67. SSA hereby knowingly waives its right to appeal or challenge the validity of Part C.I.SEVEN.I.B.(5) (Compliance with effluent limitations) of the NPDES Permit, including rights that may be available under Section 4 of the Pennsylvania Environmental Hearing Board Act, Act of July 13, 1988, P.L. 530, 35 P.S. Section 7514; the Pennsylvania Administrative Agency Law, 2 Pa. C.S. Section 103(a) and Chapters 5A and 7A; or any other provision of law. This Paragraph, and the SSA's waiver hereunder, shall expire at midnight on September 30, 2014.

68. This Consent Decree resolves the civil claims of the United States for the violations alleged in the United States' Complaint through the Date of Lodging of this Consent Decree and the civil claims of the PADEP for the violations alleged in the PADEP's Complaint in Intervention through the Date of Lodging of this Consent Decree.

69. The United States and the PADEP reserve any and all legal and equitable remedies available to enforce the provisions of this Consent Decree, except as expressly stated in Paragraph 68. This Consent Decree shall not be construed to limit the rights of the United States or the PADEP to obtain penalties or injunctive relief under the Act or implementing regulations, or under other federal or state laws, regulations, or permit conditions, except as expressly specified in Paragraph 68. The United States and the PADEP further reserve all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising at, or posed by, the POTW, whether related to the violations addressed in this Consent Decree or otherwise.

70. In any subsequent administrative or judicial proceeding initiated by the United States or the PADEP for injunctive relief, civil penalties, or other appropriate relief relating to

the Facility, Defendant shall not assert, and may not maintain, any defense or claim against Plaintiffs based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or the PADEP in the subsequent proceeding were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to Paragraph 67 of this Section.

71. This Consent Decree does not limit or affect the rights of Defendant or of the United States or the PADEP against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against Defendant, except as otherwise provided by law.

72. This Consent Decree does not create rights in, or grant any cause of action to, any third party not party to this Consent Decree.

XIV. NOT A PERMIT

73. This Consent Decree is not a permit, or a modification of any permit, under any federal, state, or local laws or regulations. Defendant is responsible for achieving and maintaining complete compliance with all applicable federal, state, and local laws, regulations, and permits; and Defendant's compliance with this Consent Decree shall be no defense to any action commenced by the United States or the PADEP pursuant to any such laws, regulations, or permits, except as set forth herein. The United States and the PADEP do not, by their consent to the entry of this Consent Decree, warrant or aver in any manner that Defendant's compliance with any aspect of this Consent Decree will result in compliance with provisions of the Act, 33 U.S.C. §§ 1251-1387, or with any other provisions of federal, state, or local laws, regulations, or permits.

74. This Consent Decree does not authorize or approve the construction of any physical structure or facilities, or the modification of any existing treatment works or sewer system.

XV. INFORMATION COLLECTION AND RETENTION

75. The United States and the PADEP, and their representatives, contractors, consultants, and attorneys shall have the right of entry into and upon the SSA's WWTP and Sewer System, at all reasonable times, upon proper presentation of credentials, to:

a. monitor the progress of activities required under this Consent Decree;

b. verify any data or information submitted to the United States or the PADEP in accordance the terms of to this Consent Decree;

c. obtain samples and, upon request, splits of any samples taken by the SSA or its representatives, contractors or consultants;

d. obtain documentary evidence, including photographs and similar data;

e. inspect and evaluate any portion or portions of the POTW;

f. inspect and review any records required to be kept under the terms and conditions of the Consent Decree, the SSA's NPDES Permit, any future modifications or renewals thereof, and the CWA; and

g. assess the SSA's compliance with this Consent Decree.

76. Upon request, Defendant shall provide the EPA and the PADEP or their authorized representatives splits of any samples taken by Defendant. Upon request, the EPA and the PADEP shall provide Defendant splits of any sample taken by the EPA or the PADEP.

77. Defendant shall retain the following documents and electronically stored data for at least five years from the date they are created:

a. All complaints received by Defendant or its contractors or agents from any person or entity pertaining to the matters addressed by this Consent Decree;

b. All documents required to be created, submitted, or maintained pursuant to Appendix A (Nine Minimum Controls Plan);

c. Documentation of all measures undertaken by Defendant to comply with the terms of this Consent Decree; and

d. SCADA data or other data regarding compliance with Paragraph 17 (Compliance with Operating Protocols).

78. Defendant shall retain the following documents and electronically stored data for at least five years after termination of this Consent Decree:

a. All reports, plans, permits, and documents submitted to the EPA or the PADEP pursuant to this Consent Decree, including all underlying research and data;

b. All data developed by, or on behalf of, Defendant pursuant to any post-construction monitoring activities; and

c. All reports and data regarding water quality;

79. The information-retention requirements in this Section establish minimum retention periods that shall apply regardless of any contrary corporate or institutional policies or procedures but do not excuse Defendant from any legal requirement to retain documents or data for longer periods of time. At any time during this information-retention period, upon request by the United States or the PADEP, Defendant shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

80. At the conclusion of the information-retention period provided in Paragraph 79, Defendant shall notify the United States and the PADEP at least 90 Days prior to the destruction

of any documents, records, or other information subject to the requirements of the preceding Paragraph and, upon request by the United States or the PADEP, Defendant shall deliver any such documents, records, or other information to the EPA or the PADEP. Defendant may assert that certain documents, records, or other information is privileged under the attorney-client privilege or any other privilege recognized by federal law. If Defendant asserts such a privilege, it shall provide the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of each author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by Defendant. However, no final documents, records, or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on grounds of privilege.

81. Defendant may also assert that information required to be provided under this Section is protected as Confidential Business Information ("CBI") under 40 C.F.R. Part 2. As to any information that Defendant seeks to protect as CBI, Defendant shall follow the procedures set forth in 40 C.F.R. Part 2.

82. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States or the PADEP pursuant to applicable federal or state laws, regulations, or permits, nor does it limit or affect any duty or obligation of Defendant to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

XVI. NOTICES AND SUBMISSIONS

83. Unless otherwise specified herein, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed as follows:

As to the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, D.C. 20044-7611
Re: DOJ No. 90-5-1-1-08778

As to the EPA:

Chief
NPDES Enforcement Branch (3WP42)
Water Protection Division
U.S. Environmental Protection Agency, Region 3
1650 Arch St.
Philadelphia, PA 19103-2029

And

Christopher A. Day
Office of Regional Counsel (3RC20)
U.S. Environmental Protection Agency, Region 3
1650 Arch St.
Philadelphia, PA 19103-2029

As to the PADEP:

Program Manager – Clean Water Program
Department of Environmental Protection
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18701-1915

As to the SSA:

Executive Director
Scranton Sewer Authority
312-314 North Adams Avenue
Scranton, PA 18503-1501

Jeffrey Belardi
Belardi Law Offices
410 Spruce Street, 4th Floor
Scranton, PA 18503

84. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

85. Notices submitted pursuant to this Section shall be deemed submitted upon mailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

XVII. EFFECTIVE DATE

86. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court; provided, however, that Defendant hereby agrees that it shall be bound to perform duties scheduled to occur prior to the Effective Date. In the event the United States withdraws or withholds consent to this Consent Decree before entry, or the Court declines to enter the Consent Decree, then the preceding requirement to perform duties scheduled to occur before the Effective Date shall be void.

XVIII. RETENTION OF JURISDICTION

87. The Court shall retain jurisdiction over this case until termination of this Consent Decree, for the purpose of resolving disputes arising under this Decree or entering orders modifying this Decree, pursuant to Sections XII (Dispute Resolution) and XIX (Modification), or effectuating or enforcing compliance with the terms of this Decree.

XIX. MODIFICATION

88. Except as otherwise expressly set forth in this Consent Decree, the terms of this Consent Decree, including the attached appendices and the LTCP approved pursuant to this Consent Decree, may be modified only by a subsequent written agreement signed by all of the Parties or their successors in interest. Where the modification constitutes a material change to this Consent Decree, it shall be effective only upon approval by the Court.

89. Any disputes concerning modification of this Consent Decree shall be resolved pursuant to Section XII (Dispute Resolution), provided, however, that, instead of the burden of proof provided by Paragraph 65, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

XX. TERMINATION

90. After Defendant has: (i) completed implementation of the requirements of Section V (Compliance Measures); (ii) certified that all construction required by the Long-Term Control Plan is complete and that the Long-Term Control Plan has been fully implemented; (iii) completed post construction monitoring as required by the Long-Term Control Plan; (iv) submitted a PCMP report to the EPA and the PADEP; (v) demonstrated in the PCMP report that any remaining CSOs will not cause the SSA to violate the CSO Policy or its NPDES Permit; (vi) satisfactorily complied, as determined by the EPA, with its NPDES Permit for a period of 12 months; and (vii) paid the civil penalty and any accrued stipulated penalties as required by this Consent Decree; Defendant may serve upon the United States and the PADEP a "Request for Termination" stating that Defendant has satisfied those requirements, together with all necessary supporting documentation.

91. Following receipt by the United States and the PADEP of Defendant's Request for Termination, the Parties shall confer informally concerning the request and any disagreement that the Parties may have as to whether Defendant has satisfactorily complied with the requirements for termination of this Consent Decree. If the United States after consultation with the PADEP agrees that the Consent Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Consent Decree.

92. If the United States after consultation with the PADEP does not agree that the Consent Decree may be terminated, Defendant may invoke Dispute Resolution under Section XII (Dispute Resolution). However, Defendant shall not seek formal dispute resolution under Paragraph 61 of any dispute regarding termination until at least 90 Days after service of its Request for Termination.

XXI. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

93. This Consent Decree will be lodged with the Court for a period of not less than 30 Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the public comments regarding this Consent Decree disclose facts or considerations which indicate that this Consent Decree is inappropriate, improper, or inadequate. Defendant consents to entry of this Consent Decree without further notice and agrees not to withdraw from or oppose entry of this Consent Decree by the Court or to challenge any provision of the Consent Decree, unless the United States has notified Defendant in writing that it no longer supports entry of the Consent Decree.

XXII. SIGNATORIES/SERVICE

94. Each undersigned representative of Defendant and the PADEP and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

95. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. Defendant agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.

XXIII. COSTS OF SUIT

96. The Parties shall bear their own costs of this action, including attorneys' fees, except that the United States and the PADEP shall be entitled to collect the costs (including attorneys' fees) incurred in any action necessary to collect any portion of the civil penalty or any stipulated penalties due but not paid by Defendant.

XXIV. INTEGRATION

97. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. Other than deliverables that are subsequently submitted and approved pursuant to this Decree, no other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Consent Decree or the settlement it represents, nor shall it be used in construing the terms of this Consent Decree.

XXV. APPENDICES

98. The following Appendices are attached to, and a part of, this Consent Decree:

"Appendix A" is the Nine Minimum Controls Plan; and

"Appendix B" is the SSA's schedule for constructing CSO controls.

XXVI. FINAL JUDGMENT

99. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment of the Court as to the United States, the PADEP and Defendant. The Court finds that there is no just reason for delay and, therefore, enters this judgment as a final judgment under Federal Rules of Civil Procedure 54 and 58.

SO ORDERED THIS 31st DAY OF January, 2013

HON. JOHN E. JONES
UNITED STATES DISTRICT JUDGE

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of *United States v. Sewer Authority of the City of Scranton.*

FOR THE UNITED STATES OF AMERICA:

IGNACIA S. MORENO
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice

12/13/2012
Dated

/s/ Daniel S. Smith
DANIEL S. SMITH
Trial Attorney
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, D.C. 20044
601 D Street NW
Washington, D.C. 20004
(202) 305-0371 (voice)
(202) 616-6583 (fax)
dan.smith2@usdoj.gov

Of Counsel:

PETER J. SMITH
U.S. Attorney
Middle District of Pennsylvania

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PA Bar # 90744
Stephen.Cerutti@usdoj.gov
228 Walnut Street, Suite 220
P.O. Box 11754
Harrisburg, PA 17108-1754
Phone: (717) 221-4482
Fax: (717) 221-2246

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of ***United States v. Sewer Authority of the City of Scranton.***

PAMELA J. MAZAKAS
Deputy Director
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency

MARK POLLINS
Director, Water Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency

SUSHILA NANDA
Senior Attorney Advisor
Office of Civil Enforcement
U.S. Environmental Protection Agency

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of *United States v. Sewer Authority of the City of Scranton.*

SHAWN M. GARVIN
Regional Administrator
U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

MARCIA E. MULKEY
Regional Counsel
U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

CHRISTOPHER DAY
Assistant Regional Counsel
Office of Regional Counsel
U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of *United States v. Sewer Authority of the City of Scranton.*

FOR THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION:

MICHAEL V. BRUNAMONTI, P.E.
Program Manager
Clean Water Program
Department of Environmental Protection
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18701-1915

11/21/12
Dated

JOSEPH S. CIGAN III
Assistant Counsel
Office of Chief Counsel
Department of Environmental Protection
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18701-1915
(570) 826-2519 (voice)
(570) 820-4838 (fax)
jcigan@state.pa.us
PA 74927

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of *United States v. Sewer Authority of the City of Scranton.*

FOR THE SEWER AUTHORITY OF THE CITY OF SCRANTON.

11/15/2012
Date

EUGENE P. BARRETT
Executive Director
Scranton Sewer Authority
312-314 North Adams Avenue
Scranton, PA 18503-1501

JEFFREY BELARDI, ESQ.
Belardi Law Offices
410 Spruce Street, 4th Floor
Scranton, PA 18503

APPENDIX A

Background

The City of Scranton owns the wastewater collection, conveyance and treatment system serving the City of Scranton and the Borough of Dunmore. The Scranton Sewer Authority (SSA or the Authority) was appointed by the City of Scranton to act as the City's agent to maintain the wastewater system.

The wastewater system consists of over 275 miles of collection sewers and large interceptors, 80 combined sewer overflows (CSOs), 7 pumping stations and a wastewater treatment plant (WWTP). Approximately 63% (172 miles) of the collection sewers are combined sewers, which convey the combined storm water and sanitary sewage flow to regulator chambers prior to connection with an interceptor sewer. Under high wet-weather flow conditions that exceed the capacities of downstream facilities, the regulators direct combined sanitary sewage and storm water to the receiving streams. The SSA's NPDES Permit, No 0026492, lists permitted discharge points including: Treatment Plant Outfall – 001, Treatment Plant Headworks Bypass – 003 and CSOs – 004 through 082, totaling 80 CSO regulators. An additional five outfalls (numbers 83-87) have been requested to be added to the permit. Accordingly, there are 85 total designated CSO outfalls in the sewer system. SSA is currently working to permanently seal a number of these outfalls and will provide an update in the next annual report.

This document summarizes SSA's program to implement the Nine Minimum Controls pursuant to our discharge permit and the National CSO Policy.

1.0 Proper Operation and Regular Maintenance Program – NMC No. 1

1.1 Introduction

The first minimum control, proper operation and regular maintenance of the Combined Sewer System (CSS) and CSO outfalls consists of a program that establishes operation, maintenance and inspection procedures to ensure that a CSS and treatment facility will function in a way to maximize treatment of combined sewage and still comply with NPDES Permit Limitations. Implementation of this control is intended to ensure that the collection and treatment systems perform effectively. The essential elements of a proper operation and maintenance (O&M) program include maintenance of suitable records and identification of O&M as a high management priority.

The steps involved in implementing this minimum control are:

1. Assess how well the O&M program is implemented.

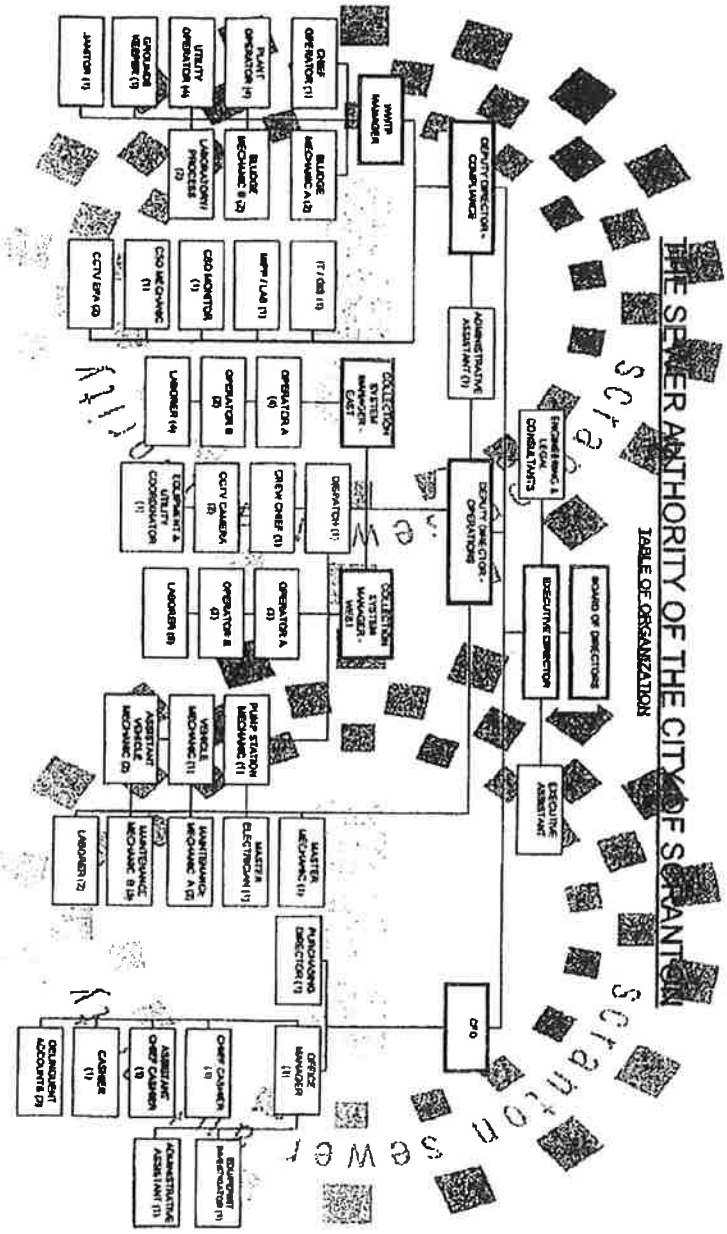
2. Determine if the O&M program needs to be improved to satisfy the intent of the CSO control policy.

3. Develop and implement the improvements to address CSOs.

4. Document any actions and report them to the PADEP.

1.2 Organizational Structure

The combined sewer system of the City of Scranton is owned and operated by the SSA. The SSA is a municipal Authority established by the City of Scranton and the Borough of Dunmore. Its Board consists of four members from the City of Scranton which are appointed by the Mayor and confirmed by City Council, and a fifth member who is appointed by the Borough Council of Dunmore. The Authority sewer system serves the City of Scranton and the Borough of Dunmore. The Authority has also entered into agreements with other adjoining municipalities and their sewer authorities for the treatment of additional municipal wastewaters. The Authority provides conveyance and treatment of wastewater from portions of the Boroughs of Taylor, Dickson City, and Moosic. The Authority holds an NPDES permit to discharge treated effluent and CSOs into the Lackawanna River and its tributaries. The organizational structure of the Authority is shown in Figure 1.


THE SEWER AUTHORITY OF THE CITY OF SCRANTON
TABLE OF ORGANIZATION
Scranton Sewer Authority
JANITOR (1)
GROUNDS KEEPER (1)
UTILITY OPERATION (4)
PLANT OPERATOR (5)
CHIEF OPERATOR (1)
WWTP MANAGER
LABORATORY/ PROCESS (2)
SLUDGE MECHANIC B (2)
SLUDGE MECHANIC A (2)
DEPUTY DIRECTOR - COMPLIANCE
CCTV EPA (2)
CSO MECHANIC (1)
CSO MONITOR (1)
WWTP / LAB (1)
IT / GIS (1)
ADMINISTRATIVE ASSISTANT (1)
LABORER (4)
OPERATOR B (2)
OPERATOR A (4)
COLLECTION SYSTEM MANAGER - CAST
ENGINEERING & LEGAL CONSULTANTS
COLLECTION SYSTEM UTILITY COORDINATOR (1)
CCTV CAMERA (2)
CREW CHIEF (3)
DISPATCH (1)
DEPUTY DIRECTOR - OPERATIONS
LABORER (6)
OPERATOR B (2)
OPERATOR A (3)
COLLECTION SYSTEM MANAGER - WEST
EXECUTIVE DIRECTOR
BOARD OF DIRECTORS
ASSISTANT VEHICLE MECHANIC (2)
VEHICLE MECHANIC (1)
PUMP STATION MECHANIC (1)
EXECUTIVE ASSISTANT
LABORER (2)
MAINTENANCE MECHANIC B (2)
MAINTENANCE MECHANIC A (2)
MASTER ELECTRICIAN (1)
MASTER MECHANIC (1)
PURCHASING DIRECTOR (1)
CFO
DELINQUENT ACCOUNTS (2)
CASHIER (1)
ASSISTANT CHIEF CASHIER (1)
CHIEF CASHIER (1)
OFFICE MANAGER (1)
ADMINISTRATIVE ASSISTANT (1)
EQUIPMENT INVESTIGATOR (1)

Scranton is a Class 2A City with a Home Rule/Mayor-Council form of municipal government. The elected mayor has the power and responsibility to administer government operations. The elected SSA Board of Directors has the power and responsibility to enact legislation, approve agreements, and adopt an annual budget. Typically the budget is prepared by the SSA staff and submitted to SSA Board of Directors for approval. The City director of public works, appointed by the mayor and confirmed by council, is responsible for the O&M of the public streets and the public storm water drainage system in the City. The Manager of the Borough of Dunmore is responsible for the O&M of the public streets and the public storm water drainage system in the Borough. The SSA maintains the responsibility to set user rates that are sufficient to meet the obligations of the Authority, operating and capital wise.

SSA is the permittee for the Combined Sewer System and is responsible for routine O&M. Figure 1 shows the current SSA organization chart.

1.3 Budget

Normal O&M expenses for the facilities are the responsibility of SSA. Non-routine and extraordinary maintenance expenses, as well as capital improvements are also the responsibility of the SSA.

SSA prepares an annual operating budget of revenues and expenses. The budget for the fiscal year beginning each April 1 will include the funds budgeted for resources and staff for the O&M program. The Authority sets rates for customers in the City of Scranton and the Borough of Dunmore and outside municipalities for bulk treatment of sewage. These various revenues support operation of facilities and the debt service. The Authority has the power, to float tax-exempt bonds or otherwise obtain funds for the design and construction of facilities.

The City is responsible for highway operations including streets maintenance. Highway operations are supported through the City general and the liquid fuels fund. The general fund obtains revenue through property taxes, other taxes, state grants, and various fees. The liquid fuels fund obtains revenue from proceeds of the state motor vehicle liquid fuels tax.

The Authority as owner and operator of the sewer system provides long-term planning and day-to-day operation of the facilities. The Authority operates, maintains, and repairs facilities, conducts measurements and testing, and provides reports to comply with environmental requirements. The Authority retains a consulting engineer and legal counsel.

1.4 Critical Facilities

The critical elements of the combined sewer system are listed in general order of priority below. These facilities and their roles in the operation of the combined sewer system were previously characterized in the 1970 "Design Report" and the October 1994 "Combined Sewer Overflow Minimization Final Plan of Action" reports.

PRIORITY	CRITICAL ELEMENTS OF THE COMBINED SEWER SYSTEM
1	Wastewater Treatment Plant
2	NPDES Outfall 003
3	Pump Stations
4	Diversion Chambers and CSO Outfalls
5	Sanitary Sewer Collection System
6	Combined Sewer Collection System

The operation, maintenance, inspection, and reporting requirements for the above-identified facilities (except the Treatment Plant) are outlined in the Collection System Operation and Maintenance Manual. This manual is to receive annual review to determine if revisions are needed. Requirements for the Treatment plant are listed in Wet Weather Operating Plan.

A list of the CSO regulators and their locations is included in the Collection System Operation and Maintenance Manual.

Trained SSA personnel will use the National Association of Sewer Service Companies (NASCO) ratings (numeric grades from 1-5, where 5 is the most significant defect) to rank its major trunk sewers, interceptors and each pump station by December 31, 2013.

1.5 Procedures for Routine Maintenance

The procedures for routine O&M are included in the Collection System Operation and Maintenance Manual. Typical O&M procedures that are part of the SSA manual include inspection with a CCTV camera, flow measurement, cleaning and removal of foreign materials, chemical treatment of roots, repair/rehabilitation of defects, and maintaining adequate records of inspections and findings.

SSA will use its JOBPLUS/CATS electronic work order management systems to identify and track all collection system routine maintenance. The JOBPLUS database contains all of SSA's Standard Operating Procedures for performing system maintenance. SSA inputs work orders from O & M manuals for new equipment in the JOBPLUS system, making modification as necessary to best fit SSA's process and applications. The JOBPLUS database generates work orders every Monday for each department, which complete tasks as they are able, depending upon the demands of the tasks, task priorities and available staffing. Consequently, tasks are not always completed within a given week, although SSA makes best efforts to perform assigned tasks within a weeks' time. All completed collection system inspection and cleaning is recorded in the CATS system. SSA managers use a map at the plant to direct crews' proactive maintenance through different areas of the collection system, generally working from north to south, and east to west, since the CATS system cannot generate work orders. CATS data is annually provided to SSA's regulators as part of its CSO Report. Although SSA currently cleans its system from north to south, SSA will evaluate cleaning from south to north, starting at the plant and working upstream.

In 2011, SSA rededicated itself to maximizing the utility and use of the JOBPLUS database to memorialize SOPs and to schedule/track maintenance required and performed. SSA presently schedules and prioritizes maintenance in JOBPLUS. When SSA acquires new equipment for the plant, the manufacturer's recommendations contained in the accompanying O& M manuals are entered into the JOBPLUS database and adjusted to meet SSA's application of the equipment. Every Monday, managers print out preventive maintenance work orders from JOBSPLUS and distribute the work orders to each department, as appropriate. Work crews proceed with work based on these work orders. In addition, as needed, corrective action work orders are delivered to managers and distributed to work crews.

1.6 Non-Routine Maintenance and Emergency Situations

A call out list of private contractors is maintained for both the plant and the collection system to insure that repairs can be arranged outside of normal working hours to the extent outside assistance is necessary.

The Authority recognizes that the operation of the sewer utility may require the expenditure of funds that have not been budgeted. The Authority has secured a $2 million revolving line of credit for extraordinary problems and expenditures for emergencies that can be accessed upon authorization by the Executive Director.

Management of emergencies in the collection system is also critical. Pipe failures can result in dry weather overflows. Upon notification by outside parties or upon discovery, the Authority takes immediate and appropriate steps to respond to the collection system problem, repair the problem and maintain or restore service to the customers. SSA's target response time for complaints and emergencies relating to collection system releases is as soon as possible. Typical response times are within an hour or two, depending upon the circumstances. Procedures are in place for arranging for bypass pumping between manholes if required to perform the work and SSA maintains a variety of pumps on hand, in addition to its call out list of private contractors, and is well equipped to respond to pump stations as necessary.

1.7 Inspections

Manual onsite inspections of all CSO discharge points will occur at least monthly; however, most outfalls are inspected several times each month in response to significant rain events and SSA will continue its practice of reviewing rainfall data and its correlation to activations at certain "problem" regulators. The result is that most outfalls are visited frequently each month whether due to (1) routinely scheduled inspections, (2) inspection following rain events, (3) in connection with outfall flow meter inspections, or (4) in connection with other visits/inspections. SSA will also regularly deploy a Vactor truck dedicated to CSOs, which it acquired and put into service in 2011.

Inspections include the following: (1) recording time of arrival and departure, (2) noting the inspection type (biweekly or rain event), (3) noting the condition of the outfall, (4) noting infiltration from the river, (5) nothing it the gate was moving freely, (6) noting the weather

conditions, (7) noting whether the wooden block was in or out, (8) noting whether discharge is present, and if so, (9) estimating rainfall, (10) noting the receiving waters, (11) estimating flow, (12) determining the cause of the discharge, (13) noting whether the discharge is wet weather or dry weather related, (14) estimating the duration of the discharge, (15) noting any erosion, (16) dispatching necessary equipment, (17) noting if solids and floatables being discharged, (18) noting whether a plume is present, and (19) performing sampling, noting any other maintenance needs for the regulator. Inspection forms will be completed for each CSO inspection. SSA will continue to employ a wooden block system to assist in verifying CSO activations.

These frequent physical inspections are supported by 1 permanent Sigma 950 flow meter, 4 permanent Sigma 940 flow meters, and 17 portable Sigma 910 flow meters thus providing monitoring at approximately one-third of the regulators in the system. Normal O&M of the wastewater facility occurs with records of operation maintained daily. A Computerized Managed Maintenance Program (CMMP) for preventative maintenance was initiated in January 2003. SSA is utilizing JOBPLUS. This program generates work orders and maintains inventory records. The program also tracks orders for parts and equipment. Historical records are stored in the CMMP database.

Pump stations will be inspected five days per week with logbooks and log sheets maintaining the O&M activities. This includes observations of blocks of wood placed in the emergency overflows and recording of storm pump operation.

Beginning in 2011, SSA undertook a grit cleaning program (televise, clean, re-televise). On a three-year, rolling basis, SSA will clean and inspect 150,000 feet of sewer lines per year, which effectively puts SSA on a 10-year cleaning schedule. SSA will conduct more frequent inspections for areas which warrant them. As appropriate, inspections will be digitally recorded and log sheets and digital recordings of the work will be maintained at the Treatment Plant and the SSA Board of Directors will be updated monthly on the progress of the program.

SSA inspects and cleans catch basins, manhole structures, and sewer lines each year. In our annual reports we will identify the following:

- Catch basins inspected – three-year rolling average of at least 2,000 per year. Catch basins will be inspected: (1) for the presence of a hood or trap (to retain floatables); (2) to determine the rate of solids accumulation (to facilitate a targeted cleanup schedule); and (3) to determine the physical condition of the basin (e.g., cracked, broken outlet pipe, adjacent street collapse) and to assign it a rating based on a consistent rating system.
- Catch basins cleaned – three-year rolling average of at least 2,000 per year.
- Catch basins repaired – as necessary consistent with the rating assigned to each catch basin, as follows: 1 – Excellent; Minor defects; 2 – Good; Defects that have not begun to deteriorate; 3 – Fair; Moderate defects that will continue to deteriorate; 4 – Poor; Severe defects that will become Grade 5 defects within the foreseeable future; or 5 – Attention required; Defects requiring a high priority for repair or attention to be made consistent with NASSCO standards, to return the catch basin to Good (2) or Excellent (1) condition, including the installation/replacement of hoods or traps.

- Manhole structures inspected – SSA's manholes are not labeled; however, SSA will assign identifiers to its manholes by January 1, 2013, and will update this section by March 1, 2013. In the meantime, SSA will inspect and clean all manhole structures at the same time it inspects and cleans the corresponding sewer segments.
- Manhole structures cleaned – see above.
- Manhole structures repaired/replaced – as necessary, consistent with the NASSCO rating assigned to each manhole; repairs to be consistent with NASSCO standards to return the manhole to Good (2) or Excellent (1) condition
- New manholes installed – as necessary.
- Sewer lines inspected – three-year rolling average of at least 150,000 feet per year.
- Sewer lines televised – three-year rolling average of at least 150,000 feet per year.
- Sewer line cleaned/jetted – three-year rolling average of at least 150,000 feet per year.
- Sewer lines replaced/repaired – as necessary, consistent with the NASSCO rating assigned to each sewer segment; repairs to be consistent with NASSCO standards to return the sewer line to Good (2) or Excellent (1) condition.

SSA maintains a network of rain gauges, which are inspected at least monthly, with many being inspected twice a month. The SSA rain gauges are supplemented by other area rain gauges, such as the Wilkes-Barre-Scranton Airport. These other rain gauges are maintained by the gauge owners (such as the Airport Authority).

1.8 Training

The Authority provides and promotes training of operators and maintenance personnel. The Authority supports operator certification for all personnel. At present the SSA has 6 certified "A" Wastewater Operators. The Authority provides direct training in various aspects of sewer operations on an as needed basis. The State operator certification Act as well as other training requirements such as those needed for PENNVEST loan compliance will be accomplished.

1.9 Periodic Review of O&M Plans

The operations manual and other operational instructions will be reviewed annually, during the 4th quarter of each calendar year. SSA is scanning all key O&M Manuals into a central electronic database, searchable by title, and anticipates completion of this effort in FY 2012. During the annual review of O&M manuals, a summary report will be developed which will identify any modifications to the previous O&M plans and document the benefits realized from the specific revisions. SSA will also make best efforts to obtain electronic versions of O&M manuals and will incorporate them into the database.

In particular, SSA now requires that all O&M activities be logged in the JOBPLUS database. This will facilitate our recording and reporting of the extensive collection system O&M that is performed annually.

SSA has developed a wet weather operations plan for the WWTP (April 2011), and will develop plans that identify pre-event, during-event-, and post-event/recovery actions for the

collection system components during the first quarter of 2012. The collection system component plans will present the necessary activities in two ways: (i) organized by event stage (pre-, during-, and post-event), and (ii) organized by collection system component. Upon completion of their development, those plans are incorporated herein by reference.

2.0 Maximum Use of the Collection System for Storage – NMC No. 2

2.1 Introduction

The second of the nine minimum controls is to maximize the use of the collection system for storage of wet weather flows. The goal of this control is to enable the sewer system to store wet weather flows, as much as possible, until downstream sewers and treatment facilities can handle them. Control measures to obtain the goal include: inspection and removal of obstructions; tide and control gate maintenance and repair; regulator adjustment (including float mechanisms); reduction or retardation of inflows and infiltration; upgrade and adjustment of pumps; raising existing weirs and installation of new weirs. Any attempt to implement the typical measures to maximize the use of the collection system for storage must be tempered with the prevention of upstream basement and street flooding.

SSA has developed a hydraulic model and has worked extensively with Gannett Fleming and EPA/PADEP to evaluate and take full advantage of available collection system storage. This has included a number of weir height adjustments and modeling runs looking to fine-tune collection system performance. These evaluations will continue with the ongoing development of the LTCP.

By way of additional background, following the completion of the hydraulic model calibration in 2010, an evaluation of the CSO regulator settings, including pump station settings, was completed by Gannett Fleming using the calibrated model. The evaluation identified a number of CSO regulators that could be adjusted to reduce the number of CSO activations and improve capture of wet weather flows. The CSO regulators that were identified include the following:

- #004 Wells Street – The regulator sluice gate was removed in 2010. The intercepting capacity was increased from 1.0 MGD to 3.25 MGD.

- #006 Gardner Street – Recommendations include removal of the sluice gate and increasing the opening in the side of the regulator chamber. The intercepting capacity would increase from 2.28 MGD to 4.40 MGD.

- #016 Pettibone Street - Recommendations include removal of the sluice gate and increase the opening in the side of the regulator chamber. The intercepting capacity would increase from 1.94 MGD to 5.02 MGD.

- #034 East Parker Street – The regulator weir height was increased from 3.5 inches to 7 inches in 2010. The intercepting capacity was increased from 0.25 MGD to 0.89 MGD

Gannett Fleming has used the hydraulic model to evaluate other locations where SSA can increase weir heights without causing in-system problems and these adjustments have been made. SSA will continue to work with Gannett Fleming to identify opportunities to safely and appropriately raise weirs throughout the system.

The weir at the Outfall 003 bypass has been analyzed by Gannett Fleming extensively. The existing weir elevation at Outfall 003 results in significant surcharging along the main interceptor and interceptor backflow at a number of other CSOs during heavy precipitation events. This weir is raised to the greatest extent possible.

2.2 Procedures in Place

2.2.1 O&M Manual

The SSA has existing procedures to maximize the available storage in the collection system. A Collection System O&M Manual is in place to provide procedures for the O&M of the regulator chambers and pumping stations by SSA employees.

SSA is scanning all O&M manuals for both the treatment plant and collection system into a central database so all manuals will be available to all staff. SSA will finish scanning the manuals and saving them to a dedicated location on SSA's server by April 1, 2013, where they will be accessible on SSA's network.

The JOBPLUS database (includes all permitted CSOs, but not pump stations, which will be added April 1, 2013) provides the appropriate instructions for each required collection system O&M task.

2.2.2 Pumping Stations

Pumping stations will be inspected by a dedicated inspection team five days each week. In order to monitor overflows, each pumping station has a block of wood or other suitable indicator device placed in the overflow pipe. During the inspection, the operators will record if the block is present or absent. Rainfall data from rain gauges will also be recorded. Correlation between precipitation and the presence/absence of the wood blocks, or other suitable indicator device, will be reported monthly as part of the Discharge Monitoring Reports (DMRs) and annually in the SSA Chapter 94 Wasteload Management Report. Anomalous information will be investigated and appropriate follow-up measures are implemented. Two pumping stations (Middle Street and Shawnee) are equipped with storm overflow pumps. Runtime meters are installed on the storm water pumps to monitor the quantity of flow pumped into the Lackawanna River. The Myrtle Street pumping station has two main pumps plus a larger capacity storm pump that conveys flow to the force main, maintaining flow in the system.

2.2.3 Main Interceptor

The current configuration of the influent structure maximizes storage in the main interceptor. The flow that is allowed forward into the WWTP is 25-million-gallons-per-day (MGD) and a peak hourly flow of 39 MGD. The Bypass 003 elevation is set at approximately the crown of the 6.5-foot-diameter interceptor. The invert elevation of the interceptor is 644.86 feet and the invert elevation of the bypass is 650.68 feet. Therefore, the main interceptor must be flowing at nearly full capacity into the plant headworks before any discharge backs up to the point of overflow.

SSA is presently cleaning several major sections of the main interceptor and will report on removed volumes in the FY 2012 annual report. Reports of future scheduled cleaning activities will be integrated into annual budgetary forecasts of extraordinary maintenance & repairs. In the Annual CSO Report a Sediment and Debris Report will be included and submitted to the agencies.

Modeling of the main interceptor for hydraulic capacity and storage capability has been conducted as a part of the LTCP and is an ongoing effort toward optimizing wet weather storage in the interceptor. Weir height adjustments and other system refinements will be made in accordance with the modeling results and associated engineering evaluations.

2.2.4 Sewer Condition Assessment

A television inspection program is necessary to determine lines that are damaged, have root intrusion or silt build-up and may be limiting the upstream storage in the line. A television inspection program, which consists of a goal of inspecting sewers at a rate of 150,000 feet each year, has been established. SSA owns two television camera trucks. The cameras have been typically used to support maintenance activities. The length of lines to be televised will be a combination of those televised in support of normal maintenance activities and those of exploratory nature. Exploratory work will focus on priority areas tributary and those where CSOs have been identified for possible elimination.

2.2.5 Inlets and Catch Basins

Routine maintenance activities including inlet and catch basin cleaning and sewer flushing are performed by SSA. SSA has Vactor and clam trucks available for cleaning. All inlets and catch basins in the system will be cleaned on a maximum 3-year cycle. In priority areas cleaning will be scheduled as needed at a greater frequency interval with priority areas being cleaned twice annually. SSA will identify priority areas and inform EPA and PaDEP of the same by January 15, 2013. Additional cleaning will occur when problems are reported. As defects are observed, they will be reported to the City, Borough or State (PennDOT) for corrective action. Copies of daily work reports and monthly Board reports are maintained.

2.3 Control Measures

SSA will televise and utilize the equipment for routine scheduled inspections. Where it is documented that sediment or other obstructions in non-major sewer lines are present, SSA will flush and/or schedule repair of the sewer. The removal of obstructions increases the storage capacity of the system and can reduce the volume of overflows. Where televising documents excessive clear water flow during dry weather, investigations will be performed to discover/identify the source of the inflow and/or infiltration, since the removal of extraneous flow increases the capacity of the system. Depending on the magnitude and severity, the SSA will schedule the repair/rehabilitation as a part of major capital or extraordinary repair under its annual budgetary program. In the case of storm sewer separation, projects may be referred to the appropriate party (City or Borough) for action. SSA enjoys acceptable levels of cooperation from the City and the Borough, and all known locations of clear water addition have been cooperatively addressed.

SSA personnel generally inspect flap tide gates monthly from topside and specific gates will be inspected as required from the interior. Certain gates, based on experience, are also inspected at least twice a year from the riverside to clean debris. Inspection of the downstream side of the tide gates will be completed monthly. The Collection System Operation and Maintenance Manual contains more specifics on regulator/gate inspection protocol. The function of tide gates is to minimize the receiving stream from flowing back into the sewer system during high river water levels. Proper maintenance is required to ensure that leaks and cracks are not present and that the gate is operating as designed. Leaks and cracks permit water to pass into the overflow and reduce the available downstream storage capacity of the system.

Per discussions with USEPA and PADEP, SSA is evaluating five outfalls where the hydraulic model suggests the possibility of inflows to the combined system. If any material inflow is confirmed to be occurring, SSA will evaluate the need and appropriateness of the installation of a gate or duckbill to prevent river water intrusion. SSA will report on its findings in the next annual report.

SSA continues to work with Red Valve, Inc. to identify a solution to the duckbill regulator for outfall 003. This regulator has allowed some river water intrusion into the treatment plant. Red Valve has already replaced the initial valve twice at SSA's request. As of the date of this plan, a third valve had been installed and appeared to be working properly.

Regulator settings will be adjusted and overflow weirs will be raised as practicable. Regulators are an important component of the CSO system as they regulate the amount of flow permitted into the downstream sewer and provide an outlet for excessive flows. Adjusting the regulator settings and increasing the overflow weirs may permit an additional amount of flow into the downstream sewer and will control the amount of flow discharged into the overflow line. Evaluation of the settings of the regulators was completed as part of the hydraulic modeling of the Lackawanna Watershed 2000 program. Further evaluation is ongoing as part of the CSO LTCP efforts and in response to evaluation requests from PADEP and USEPA.

Catch basins in the City of Scranton and Borough of Dunmore will be evaluated. The design standards including the hood structure, sump and capacity of storm water discharge to the collection system will be investigated. The use of the hood and sump accomplish isolation of sewer odors, prevention of solids and floatables from entering the sewers, enable an effective means of capture of solids, and provide a reservoir for extracting the solids using non-labor-intensive equipment. The City of Scranton and Borough of Dunmore bear the responsibility to ensure that adequate storm water management is provided under their respective NPDES permits for the EPA Storm Water Phase II program, through a prescribed implementation of Best Management Practice (BMPs) and regulatory reporting. The SSA attempts to limit the amount of storm water discharging into the combined sewer system through a storm water policy. For new connections, the SSA adopted a "Policy on the Connection of Stormwater Discharges into the Combined Sewer System" on November 25, 2003, which includes requirements for effective inlet and catch basin design. This policy sets limits on peak storm water flow into the combined system by requiring storm water management at new developments, as well as requiring developers to look for storm water separation if existing storm conveyance systems or streams are nearby. The policy was provided to the City of Scranton, Borough of Dunmore and adjoining municipalities for incorporation into their storm water management policies and for enforcement. This activity is dependent upon the cooperative adoption of design standards by the municipalities. SSA estimates there are between 10,000 and 14,000 catch basins in its system, of which approximately 75% to 80% contain solids and floatables controls.

Wet wells at all pump stations will be cleaned once per year or more frequently if identified to be necessary by SSA staff through the every weekday pump station inspections. SSA has a pump station SCADA system in place which assists in evaluating dry and wet weather flows to each station. In-line flow meters will document flow, real-time recording rain gauges will document rainfall information (which can be used to correlate pump station flow), wet well levels will be continuously recorded (providing for monitoring of overflows) and storm pump operation will be documented.

Comprehensive CSO regulator and tide gate inspections are performed each year. Detailed assessment of all regulators and appropriate remedial measures are recorded and will be summarized in our annual reports.

Based on the urban setting and the lack of unused facilities, it is not feasible to provide additional in-system storage without significant capital additions to the system, which will be further evaluated in the LTCP.

SSA is working cooperatively with PADEP and USEPA to identify distributed storage solutions along the main interceptor and in other strategic locations as part of the LTCP effort.

2.4 Additional Measures

The LTCP will include evaluation of additional measures for maximum use of the collection system for storage.

The pumping stations will be evaluated based on the monitoring being performed. Improvements required at the pumping stations will be determined.

3.0 Review and Modification of Pretreatment Requirements – NMC No. 3

3.1 Introduction

The third minimum control is the review and assessment of non-domestic source discharges on CSO impacts. The objective of this control is to minimize the impacts of discharges into combined sewer systems from non-domestic sources during wet weather events.

SSA has relatively few industrial users which collectively contribute an insignificant amount of flow to the collection system.

3.2 Pretreatment Requirements

SSA has worked closely with USEPA to maintain an updated pretreatment program. In 2011, SSA has issued new discharge permits to each of our significant industrial users. These permits reflect updated headworks analysis associated with our newly reissued NPDES discharge permit.

SSA's pretreatment program includes the identification and location of all possible industries, which may be subject to the program.

All permits will be enforced and industries that are in significant noncompliance with the pretreatment requirements will be published in the local paper as required by federal regulations.

The largest non-domestic user is the local landfill, which has already cooperatively agreed to hold waste within their lagoons during periods of wet weather. This will avoid potential non-domestic discharge through a permitted CSO. The SSA on-site inspections will support determination of compliance of industrial users.

Appropriate enforcement action will be taken to bring industrial users into compliance and the Enforcement Response Guide shall be fully implemented. The SSA will prepare quarterly reports and an annual report in accordance with NPDES permitting requirements. In addition, an educational letter concerning the impacts of wet weather discharges will be developed and sent to industries in the service area. The educational letter is being developed in an attempt to encourage industries to voluntarily act to reduce flows during wet weather periods.

During inspections of sewers, if oil and grease build-up is observed SSA will attempt to determine where it is originating and contact the source for resolution. All inspections and follow-up investigations will be documented. SSA does not have any chronic Food, Oils and Grease (FOG) areas that have not been addressed.

4.0 Maximization of Flow to the WWTP for Treatment – NMC No. 4

4.1 Introduction

The fourth minimum control is to maximize the volume of combined wastewater that is processed at the municipal WWTP. The objective of this control is to minimize the amount of combined wastewater that is discharged untreated into receiving waters. The discussion below pertains to the WWTP as it is currently constructed and will have to be amended before completion of the expansion of the WWTP.

4.2 Measures to Increase Treated Flow Volumes

4.2.1 Collection and Conveyance Facilities

SSA has developed an O&M Program and has implemented the program. SSA will implement simple modifications to the collection and conveyance facilities based upon the results of the flow monitoring and modeling tasks being undertaken. CSOs in the system will be inspected on at least a monthly basis. The main interceptor will be probed at manholes to determine the depth of sediment, which will be documented. The main interceptor was cleaned in 2011.

SSA is maximizing flow to the WWTP. The current configuration of the influent structure maximizes storage in the main interceptor. The flow that is allowed forward into the WWTP is approximately 25 mgd with short-term peak flows of 39 mgd in accordance with the Wet Weather Operating Plan. The Bypass 003 elevation is set at approximately the crown of the 6.5-foot-diameter interceptor. The invert elevation of the interceptor is 644.86 feet and the invert elevation of the bypass is 650.68 feet. Therefore, the main interceptor must be flowing at nearly full capacity into the plant headworks before any discharge backs up to the point of overflow.

Based on staff comments, O&M experience and engineering observations, the existing system has no inoperative or unused facilities in the service area. Retaining flow, during wet weather events by utilizing unused facilities, is not applicable and the construction of additional facilities to retain flow is not feasible in this system, unless otherwise determined through the development of the LTCP. Hydraulic modeling of the collection and conveyance system to determine the hydraulic capacities is ongoing and will be included in the LTCP.

4.2.2 Pumping Stations

SSA will conduct and document draw down tests at each pumping station annually in conjunction with the PADEP Chapter 94 Report. The tests will be used to determine if adequate capacity is available at each of the stations. The results of the draw down tests will be utilized to further calibrate and adjust the sewer system model. Simple modifications (*i.e.*, wet well pump operation level adjustments) will be performed and more complex modifications will be evaluated. Pumping stations with storm water pumps are equipped with run hour meters. During inspection of these pumping stations, storm water pumps frequency and quantity of flow is recorded.

The LTCP will include modeling of wet weather events to determine required capacity and complex modifications that are required to pumping stations based on achieving and maintaining the necessary capacity.

4.2.3 WWTP

A peak flow hydraulic capacity study of the WWTP has been performed to determine the capacity and capabilities of the WWTP under high-flow conditions. The analysis identified that the WWTP should be capable of properly treating a peak hourly flow of 34 to 39 mgd. After the peak hourly flow, the WWTP should be able to properly treat a flow between 25 to 30 mgd for the next 23 hours. The flows should then be sustained between 20 to 30 mgd with a maximum monthly WWTP flow of 20 mgd. SSA will not divert flow, unless an emergency situation occurs, less than what can be properly treated as documented by the Peak Flow Hydraulic Capacity Study. If flow is diverted before the WWTP peak and sustained capacities are reached, the reason why the flow could not be treated and the quantity of flow bypassed will be documented.

SSA has a Wet Weather Operating Plan, which consists of an operating protocol for the use of the Outfalls 001 (main plant outfall), and 003 (upstream of headworks). The WWTP hydraulic capacity goals and guidelines through the secondary treatment system were established as follows:

Permit Flow Parameter	Goal (mgd)	Guidelines for Acceptable Performance (mgd)
Annual Average Flow/ Average Monthly Flow	20	Up to 20
Maximum Average 24 hr Flow	25	23 to 30
Peak Hourly Flow	39	34 to 42

The WWTP Wet Weather SOP, including proposed protocols for accepting peak flows, remains under development. The plans will reflect SSA's experience, which has strongly indicated the need for flexibility in implementing the peak flow goals. These goals must be viewed in the context of tradeoffs between overall plant maintenance parameters and total amounts of wastewater required to be bypassed. When the flows entering the treatment plant exceed 25 mgd, the headworks are negatively impacted by heavy loadings of grit. SSA continues to address influent flow measurement and is working with its consultants, as well as its state and federal regulators, to address this issue.

The plant headworks has been a continuing limitation on our ability to process peak wet weather flows. After years of grit-related problems, we upgraded the grit removal systems using a Eutek/Hydro International system of grit snails. This new grit system has been unsuccessful in handling the grit which we are experiencing. This has led to major operational problems and the need to use Outfall 003 while the grit systems have been chronically down for cleaning. As a result, SSA is currently in litigation with Eutek/Hydro International, as well as the design engineering firm. In the meantime, SSA is evaluating other grit removal options in conjunction

with the LTCP effort. Notwithstanding the ongoing litigation, in 2011, SSA cleaned the main interceptor and the branch interceptors.

We have worked daily to try to find a solution to the inability of the new grit system to handle incoming grit. Based upon performance testing, it was established that the grit snails could not handle the specified capacity of grit. SSA is in settlement negotiations with the grit snail manufacturer over this performance deficiency. In the interim, SSA has implemented a grit box system that is working well and will continue to be used in the indefinite future. PADEP has been notified of this situation.

In some instances, such as successive peak flow events, the operator has an obligation to exercise engineering judgment to reduce wet weather flows in order to protect the mechanical integrity of the system and to prevent the need for even more extensive bypasses. Such engineering judgment cannot be replaced by an inflexible peak flow requirement of 39 mgd. Thus, it may be necessary from time to time to discharge to outfall 003 during peak flows of less than 39 mgd, in order to protect the biological or mechanical integrity or general operating capability of the plant. Such decision must rest in the sole discretion of the plant operator and will be meticulously documented. In the event of such discharges, the reporting requirements of the NPDES permit will be followed, and where an SSA operator exercises professional judgment in managing flows inconsistent with flow thresholds in the NPDES permit, SSA will provide appropriate notifications to PaDEP per applicable permit requirements.

The SSA will implement the following operating and monitoring protocols:

- Operating mechanisms will be set to convey a peak flow of 39 mgd to the treatment plant for one hour and 25 mgd thereafter;
- Outfall 003 may discharge if the combined sewage flows to the WWTP exceed 39 mgd for more than one hour in a twenty-four hour period and the SSA is in compliance with the EPA Notice of Compliance Order and all permit conditions. The discharge from Outfall 003 may continue for as long as the combined sewage flows to the WWTP equal or exceed 25 mgd.
- If flow is discharged from Outfall 003 when combined flows have not exceeded 39 mgd for more than one hour in a twenty-four hour period, or have not sustained 25 mgd thereafter, SSA will notify DEP and EPA within 24 hours of the discharge.
- SSA will collect data from Outfall 003 using the flow chart meter.
- SSA will collect data on the flow through the WWTP measured in Mgal on an hourly basis.
- SSA will submit monitoring information on a monthly basis to DEP for each instance in which there is a discharge through Outfall 003.

The grit system has been a major source of frustration for SSA. Despite the daily challenges to keep this system operating, SSA has redoubled its efforts and dedicates plant personnel to directly monitor the system during wet weather events. SSA is evaluating options for a long-term solution as part of the LTCP.

5.0 Elimination of CSOs During Dry Weather – NMC No. 5

5.1 Introduction

The fifth minimum control is to minimize CSOs during dry weather periods when the sewer system is not conveying significant quantities of storm water. The collection, conveyance and treatment facilities must have sufficient capacity to be able to handle peak dry weather flow. In addition, the facilities are operated and maintained to minimize the potential for overflows during dry weather (i.e. blockages, pump malfunctions, etc.).

5.2 Measures Necessary

SSA will inspect all CSOs at least on a monthly basis. See Section 1.7, above. These inspections coupled with SSA's extensive metering program allow the detection – usually at an early stage – of any dry weather overflows.

SSA will document all overflow inspections conducted and maintenance performed. SSA will document all overflows on the CSO Discharge Monitoring Reports and submit the reports to the Pennsylvania Department of Environmental Protection.

Dry weather overflows are identified by SSA's practice of chalking or placing a block of wood in the overflow pipe at the pumping stations and CSO Regulators. Generally, historic dry weather overflows have been due to blockages. Any lines that experience chronic blockages will be televised, cleaned and repaired or replaced as necessary to attempt to eliminate the occurrence of future blockages in these lines. Evaluation of other potential modifications to eliminate DWOs will be performed on a case-by-case basis as potential future chronic locations are identified.

Comprehensive CSO regulator and tide gate inspections were performed during September/October 2004, October/November 2009 and re-inspections are ongoing as part of SSA's daily inspection program and CSO LTCP effort.

The permanent signage located at each CSO was revised to the following language, "NOTICE Scranton Sewer Authority Combined Sewer Outfall Untreated Sewage CSO # _____. This site is at or downstream of a Combined Sewer Overflow. Avoid water-related activities during discharges or heavy rains. To report a discharge call 570-348-5337." The signage will enable the general public to report malfunctions.

CSO signs will be maintained and replaced promptly in the event a sign is missing or damaged.

6.0 Control of Solids and Floatable Material – NMC No. 6

6.1 Introduction

The sixth minimum control is intended to reduce visible floatables and solids from CSO discharges and receiving waters. Controls such as baffles, screens or racks can be included in the combined system to remove solids and floatables before reaching the receiving water. Floatables can be removed from larger receiving water with the use of booms and skimmer vessels. In addition, pollution prevention measures can be utilized to reduce the amount of extraneous floatables and solids entering the combined system.

6.2 Study

SSA performed a study of available controls for solids and floatables and determined that baffles in certain outfalls, coupled with pipe hoods in system catch basins would be the most effective approach for SSA to control solids and floatables. Baffles in CSOs continue to be evaluated and implemented.

6.3 Combined Sewage Control Methods

6.3.1 Collection System Control

The catch basin design will be evaluated to ensure adequate storm water control while attempting to reduce the amount of storm water and debris entering the combined system. Catch basins can be modified to prevent floatables from entering the combined system. Inlet grates can be installed at the top of the catch basins to reduce the street debris that can enter. Trash buckets can be installed in the basin below the grate to retain floatables while letting the stormwater pass to the combined system. Hoods are vertical cast iron baffles that are installed in basins. Hoods are effective for retaining debris within catch basins. A basin can be modified with a vortex valve, which is a throttling device to reduce the frequency and volume of a CSO event and control floatables.

Due to the fact that there are thousands of catch basins in the contributing municipalities, the plan of action to modify the basins will be limited to hoods. It would be cost prohibitive to the contributing municipalities to enact a more elaborate retrofit program. On November 25, 2003, the SSA adopted an updated policy for storm water discharges into the combined sewer system, which included requirements for effective inlet and catch basin design. This policy sets limits on peak storm water flow into the combined system by requiring storm water management at new developments, as well as requiring developers to look for storm water separation if existing storm conveyance systems or streams are nearby. The policy will be provided to the City of Scranton, Borough of Dunmore and adjoining municipalities for incorporation into their storm water management policies and for enforcement. This activity is dependent upon the cooperative adoption of design standards by the municipalities.

The effectiveness of a catch basin in controlling floatables is dependent on regular maintenance and cleaning. All inlets and catch basins in the system will be cleaned on a maximum six-year cycle. In priority areas, cleaning will be scheduled generally twice annually. Additional cleaning will occur when problems are reported. SSA will document cleaning and input information onto a map and into a database. Through marking/updating inlet and catch basin locations, the map data will be retained for later incorporation into electronic mapping of the sewer system. As defects are observed, they will be reported to the City, Borough or State for corrective action.

SSA has an extensive catch basin hood program. The hoods (bent pipe elbows) are reported to be quite effective at catching solids and floatables. Based upon the experience of SSA's collection system crews in direct response to queries from SSA's Deputy Director for Compliance, SSA believes that 75-80% of all SSA catch basins have some form of hood in place. SSA is currently installing PVC hoods in all remaining catch basins as it performs maintenance on catch basins.

6.3.2 CSO Control

Screens and trash racks are a series of vertical and horizontal bars or wires designed to remove coarse and floating debris from CSOs. The efficiency of this control is based on the design size and typically ranges from 25-90 percent of the total solids. Fine screens are more effective at removing smaller particles but they are also more susceptible to clogging and require additional maintenance. The effectiveness of screening units is reduced significantly by the presence of oil and grease. In order for trash racks or screens to be utilized, the outfall pipe must be an adequate length or land space available for a small structure and outfall must be high enough above the receiving water to permit regular maintenance. Trash racks and screens require regular inspection and maintenance. Application of any of these devices is capital intensive and would be further considered in the floatable control study and the LTCP.

Baffles are floatable control devices that can be installed in a discharge chamber in front of the overflow weir. Baffles are simpler than many of the other control methods and they have lower operating and maintenance costs. The design of the diversion chamber flow regulator and overflow weir determines the effectiveness of the baffles. The discharge chamber and overflow weir must be designed to provide reasonably uniform flow at a low velocity to ensure that floatables are not entrained.

Baffles have been installed at five diversion chambers on a pilot basis. The basic design of the baffle is the same for all of the regulators in the pilot project, but each baffle was customized to fit to the specific regulator such that they are not interchangeable among regulators. The baffles will continue to be monitored during and after storm events. SSA is evaluating the installation of baffles at approximately 10 more sites for FY 2012 and will report on those installations during the next annual report. These sites will be drawn from sites identified by EPA and will include outfalls where SSA staff can perform the installation (which means it will definitely occur in FY 2012) along with other installations that will require an engineering analysis and outside resources to implement (which means a longer schedule may be necessary than FY 2012).

Regulator and diversion chambers will be inspected monthly and cleaned as required. The inspection and cleaning will be documented in a form similar to the one located in the Collection System O&M Manual.

6.3.3 End-of-Pipe Controls

End-of-Pipe Controls are not currently in place in the SSA system. We have not found these controls to be effective for the SSA system.

6.4 Receiving Water Removal Methods

Receiving water removal methods are not currently utilized in the SSA receiving waters.

6.5 Source Control Methods

Street sweeping can be effective method to control the amount of street debris entering the combined system. SSA has obtained documentation from the City and Borough regarding the schedules for street sweeping. SSA has purchased its own street sweeper to facilitate effective street sweeping.

SSA will enforce the industrial pretreatment program to reduce the amount of extraneous material entering the combined system.

SSA has developed a website to inform the public about the combined sewer system. The website will include educational information addressing street litter. SSA will endeavor to support the City and Borough relative to disseminating educational messages that will advise residents of the importance of proper trash disposal related to the sewer system.

Labeling of specific catch basins is being implemented to identify that the combined sewer system interconnects directly to the receiving streams and that no dumping is allowed. Note that labeling within our GIS has been implemented and documented, but the physical labeling of each basin is still ongoing and is subject to availability of resources.

SSA has also approved a proposal from the Lackawanna River Corridor Association (LRCA) to develop a Public Education and Outreach Program. Among the tasks of the proposed program, SSA is working with LRCA to develop educational materials, identify target audiences and stakeholders, and utilize communication channels to reach and involve target audiences. SSA will conduct educational events for schools and community groups, develop volunteer opportunities for public involvement, and conduct public education meetings. A Household Hazardous Waste program will also be evaluated under the LRCA proposal.

Pollution Prevention Programs – NMC No. 7

7.1 Introduction

The seventh minimum control is the implementation of pollution prevention programs to reduce contaminants in CSOs. The objective of this control is to reduce to the greatest extent possible, the amount of contaminants that enter the combined sewer system.

7.2 Measures Necessary

SSA will provide information regarding pollution prevention on the website. In addition, pollution prevention information is included in sewer bill mailings.

SSA is evaluating continuation of a marking program to further raise public awareness of the connection between urban impervious area runoff and local water quality.

SSA has developed a website that will be used to provide educational information regarding recycling, proper disposal of waste, proper fertilizer and lawn care products application, and spent oil drop-off programs. The stakeholders involved with the LTCP development will be involved in determining the educational material to be placed on the website and any additional programs to inform residents.

SSA contacted the Lackawanna County Solid Waste Management Authority and determined that there is no collection of household hazardous waste in the area.

SSA is utilizing a clam truck for cleaning. All inlets and catch basins in the system will be cleaned within six years. Additional cleaning will occur when problems are reported.

Street sweeping can be effective method to control the amount of street debris entering the combined system. In concert with NMC No. 6, SSA will obtain documentation from the City and Borough when streets were swept. SSA has purchased its own street sweeper to facilitate street sweeping.

A Household Hazardous Waste program will also be evaluated under the LRCA Public Education and Outreach Program. SSA would like to have such a program, but it must be prioritized in light of all other regulatory commitments.

8.0 Public Notification – NMC No. 8

8.1 Introduction

The eighth minimum control is public notification to inform the public of the location of CSO outfalls, the actual occurrences of CSOs, and the potential health and environmental effects of CSOs.

8.2 Communications Strategy

SSA currently provides educational materials in sewer bill mailings. SSA will continue to provide educational material to residents.

The permanent signage located at each CSO was revised to the following language, "NOTICE Scranton Sewer Authority Combined Sewer Outfall Untreated Sewage CSO # ____. This site is at or downstream of a Combined Sewer Overflow. Avoid water-related activities during discharges or heavy rains. To report a discharge call 570-348-5337." The signage will enable the general public to report malfunctions.

SSA has developed a website to inform residents about the about the sewer system and proper operation of the system. Also, the site includes appropriate precautions, risks, potential health hazards, locations of the CSO discharges and incidents of DWOs.

SSA is also working with the Lackawanna River Corridor Association (LRCA) to develop and implement a Public Education and Outreach Program. Among the tasks of the proposed program, SSA will coordinate with LRCA to develop educational materials, identify target audiences and stakeholders, and utilize communication channels to reach and involve target audiences. SSA will conduct educational events for schools and community groups, develop volunteer opportunities for public involvement, and conduct public education meetings. A Household Hazardous Waste program will also be evaluated under the LRCA proposal.

SSA has also implemented additional controls at selected outfalls to prevent public access to CSO facilities (such as large diameter outfalls) and to ensure public safety. Recent fencing at Outfall 023 is a good example of these activities.

9.0 Monitoring to Characterize CSO Impacts – NMC No. 9

9.1 Introduction

The ninth minimum control is monitoring through visual inspections and other simple methods to determine the occurrence and apparent impacts of CSOs.

9.2 Characterization Measures

9.2.1 Mapping

The SSA has a comprehensive set of sewer system index drawings. Additionally, the details of most sewers are contained in original "spur books" obtained from the City Engineer's office for sewers constructed generally prior to 1960, "ward book" sewer mapping for expanded information on all sewers, and engineer's design or record drawings for construction since 1970. GIS mapping was performed as part of the Lackawanna Watershed 2000 program and has been updated by SSA during 2010 and 2011. The SSA has purchased a GPS grade survey unit to continually update this GIS system, as was done through 2010 into 2011.

9.2.2 Water Quality and Uses

SSA has compiled existing water quality data for the following receiving waters: Lackawanna River, Leggetts Creek, Roaring Brook, Stafford Meadow Brook and Keyser Creek.

As discussed below, using Hawk Mountain Labs, SSA has obtained ambient water quality data at key locations in our CSO receiving waters during the past several years.

The designated uses of some of the local waters in the Scranton area that receive CSO discharges include (as well as the universal designated uses of: Public Water Supply, Boating, Fishing, Water Contact Sports and Esthetics):

- Lackawanna River — Warm Water Fishes
- Meadow Brook — Cold Water Fishes
- Leggetts Creek — Trout Stocking
- Roaring Brook — Cold Water Fishes
- Keyser Creek — Cold Water Fishes

However, actual uses of these water bodies may be different, which will be inventoried as part of the LTCP.

SSA has developed a comprehensive 3-year water quality monitoring program built upon previously performed water quality studies conducted by SSA as presented in the December 2006 Draft LTCP Report. The Water Quality Monitoring Program began in 2009 and is intended to establish baseline conditions and includes both dry weather and wet weather characterization:

- Dry weather river and stream characterization is intended to provide a baseline water quality description of the existing conditions of the SSA receiving waters to characterize water quality without inputs from CSO or stormwater discharges from the SSA service area. Dry weather monitoring occurs at 14 locations along the Lackawanna River and its six (6) tributaries (Leggetts Creek, Meadow Brook, Roaring Brook, Little Roaring Brook, Stafford Meadow Brook, and Keyser Creek), as well as the SSA WWTP Effluent Outfall No. 001.

- Wet weather river and stream characterization is intended to provide information, that when analyzed in conjunction with the other characterizations, will define the CSO contribution to, and stormwater impact on, water quality of the SSA receiving waters. Wet weather monitoring is conducted at the 14 dry weather monitoring locations, as well as five (5) CSOs (CSO Outfall Nos. 003, 004, 016, 023, and 029), and two (2) stormwater outfalls. Wet weather samples are taken on an hourly basis to depict changes in water quality during and following a wet weather event.

Laboratory analysis of the river and stream samples includes biochemical oxygen demand (BOD), total suspended solids (TSS), total dissolved solids (TDS), oil and grease,

dissolved oxygen (DO), pH, temperature, microbiological parameters (fecal coliform and E. coli), metals (total chromium, total copper, total lead, total mercury, total nickel, and total zinc), and nutrients (ammonia nitrogen, total nitrogen, and total phosphorus). The initial 3 year program includes approximately 20 dry weather sampling events and 2 wet weather sampling events. A benthic macro-invertebrate characterization was also conducted in 2011 to supplement the water quality data in assessing the effects of CSO discharges on receiving water quality in the SSA service area, and to serve as a benchmark for measuring improvements through long-term monitoring. The biota characterization analysis includes EPT Index (%), Hilsenhoff Biotic Index (HBI), Taxa Evenness, and Taxa Richness determinations. The results of this study will be used to assess and quantify the general aquatic health of the ecosystems and compared with previous and future studies to identify trends in the biotic community.

The planning incorporated into the initial 3-year Water Quality Monitoring Program has established the groundwork for on-going water quality monitoring throughout the SSA service area. At the completion of the initial monitoring program in summer 2012, a comprehensive report will be developed detailing the findings of the program and outlining recommendations for future water quality monitoring activities. This information will be included in the LTCP.

9.2.3 System Monitoring

SSA employs flow meters and its updated and calibrated hydraulic model to monitor CSO activations and volumes. SSA has rotated the meters and believes the model is adequately calibrated. SSA will continue to evaluate appropriate locations for in-system meters

SSA visually inspects CSO discharges and documents apparent impacts. This activity will continue in the future. Observations of debris discharged from the CSOs is recorded on inspection forms and inputted into the Authority's electronic database. Also in 2010 the SSA has put their CSO and flowmeter teams on a wireless system allowing direct communication with the Authority's JOBPLUS database. This approach allows more a more efficient and productive CSO inspection program.

SSA is evaluating several outfalls for the potential installation of baffles in an effort to minimize post-activation accumulation of debris.

SSA characterizes the frequency, duration and volume of CSO discharges on a monthly basis in the DMRs. Meters and wooden blocks are used to determine whether regulators have been active. Inspections document the dates the regulators were checked and presence/absence of previous overflows. This information is provided with the monthly DMR.

SSA will monitor flow with permanent and portable flow metering equipment at 15 CSO regulators. SSA installed flow-monitoring devices at the pumping stations as part of the improvements under Phase III of the Capital Improvements Program. Continuous flow monitoring at these select sites will provide information and documented data on frequency, duration and volumes of wet weather overflows. Rain gauges have been installed throughout the sewer system.

Dry weather overflows will be recorded when observed or when determined from public calls to the SSA office. SSA will document and track public complaints after receiving them.

9.2.4 Impact Data and Trends

SSA will compile trends on an annual basis of:

- frequency of measured overflow volumes where monitored
- rainfall data
- observations of debris discharged
- incidents of DWOs
- reports of water quality problems attributed to CSO discharges
- public complaints
- weir adjustments – dates, previous elevation, new adjusted elevation

These data are being evaluated as part of the development of the LTCP.

APPENDIX B

SCRANTON SEWER AUTHORITY
CSO LONG TERM CONTROL PLAN
CSO CONTROL IMPROVEMENT SCHEDULE

PHASE	YEAR	OUTFALL #	LOCATION	DISTANCE FROM WWTP (MILES)	CSO CONTROL TYPE	RECEIVING STREAM	STORAGE VOLUME, ESTIMATED (MG)	TOTAL CAPITAL COST, ESTIMATE	EXISTING OVERFLOW VOLUME (MG)	SCORING: Total Score	Ranking
A	1	#064	[illegible] Street	13.045	Offline Box Culvert	Roaring Brook Natural	0.134	$1,740,000	1.841	16	2
A	1	#080	Keyser Valley PS	7.103	Inline Box Culvert	Keyser Creek	0.085	$780,000	0.801	16	3
A	1	#047	Keyser Creek	7.103	Combined With Other	Keyser Creek	N/A	$1,130,000	0.375	0	
A	2	#087	Leggetts-Kelly	12.881	Inline Box Culvert	Leggetts Creek	0.047	$880,000	0.684	17	[illegible]
A	2	#071	Leggetts Street	12.808	Offline Box Culvert	Leggetts Creek	0.308	$2,340,000	4.731	15	[illegible]
A	2	#065	[illegible] Street	11.708	Inline Box Culvert	Little Roaring Brook	0.072	$790,000	2.171	14	[illegible]
A	3	#099	Sanderson Avenue	10.718	Sewer Separation	Lackawanna River Upper	N/A	$190,000	1.471	15.5	[illegible]
A	3	#097	Brown Avenue	10.590	Offline Box Culvert	Lackawanna River Upper	0.017	$1,110,000	0.874	[illegible]	[illegible]
A	3	#011	Van Storch Avenue	9.150	Offline Box Culvert	Lackawanna River Upper	0.372	$2,760,000	[illegible]	[illegible]	[illegible]
A	4	#057	[illegible] Street	8.701	Offline Box Culvert	Lackawanna River Lower	0.042	$2,490,000	1.287	11.5	[illegible]
A	4	#030	[illegible] Lackawanna Avenue	7.003	Offline Box Culvert	Lackawanna River Lower	0.302	$2,670,000	4.812	11	[illegible]
A	4	#052	Wyoming Avenue	6.394	Inline Box Culvert	Lackawanna River Lower	0.021	$790,000	0.471	11.5	[illegible]
A	4	#061	[illegible]	6.710	Inline Box Culvert	Stafford Meadow Brook	0.001	$1,010,000	0.514	15	[illegible]
A	4	#084	[illegible] Elm St	6.876	Offline Box Culvert	Stafford Meadow Brook	0.300	$2,270,000	0.681	13	[illegible]
A	4	#083	Irving-Elm	7.180	Replace Regulator	Stafford Meadow Brook	N/A	[illegible]	0.686	6	
A	4	#085	[illegible] Elm St	6.871	Replace Regulator	Stafford Meadow Brook	N/A	[illegible]	[illegible]	0	
B	5	#079	Myrtle Street PS	9.516	Offline Box Culvert	Roaring Brook Natural	0.129	$1,260,000	2.448	13	[illegible]
B	5	#039	W Parker Street	11.434	Inline Box Culvert	Lackawanna River Upper	0.013	$340,000	0.324	12.5	[illegible]
B	5	#035	[illegible] Avenue	10.496	Offline Box Culvert	Lackawanna River Upper	0.117	$1,590,000	4.012	12.5	[illegible]
B	5	#078	Marvine Avenue PS	11.046	Inline Box Culvert	Lackawanna River Upper	0.008	$730,000	0.48	12.5	[illegible]
B	5	#040	W Market Street	10.087	Inline Box Culvert	Lackawanna River Upper	0.017	$470,000	0.81	11.5	[illegible]
B	5	#012	Grove Street	9.302	Offline Box Culvert	Lackawanna River Upper	0.087	$1,640,000	2.334	12.5	[illegible]
B	6	#018	Lane Road	6.067	Offline Box Culvert	Lackawanna River Lower	0.160	$1,250,000	4.534	11.5	[illegible]
B	6	#019	Linden Street	7.964	Offline Box Culvert	Lackawanna River Lower	0.107	$5,432,200	18.24	11.5	[illegible]
B	7	#021	[illegible]	[illegible]	Offline Box Culvert	Lackawanna River Lower	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B	7	#022	[illegible] Street	[illegible]	Combined With Other	Lackawanna River Lower	[illegible]	$120,000	[illegible]	0	
B	8	#030	[illegible] Avenue	3.096	Offline Box Culvert	Roaring Brook Natural	1.347	$4,700,000	31.747	12	[illegible]
B	8	#024	Hickory Street	7.021	Offline Box Culvert	Lackawanna River Lower	0.245	$2,110,000	4.157	11.5	[illegible]
B	9	#025	Willow Street	7.081	Offline Box Culvert	Roaring Brook Channel	0.360	$2,740,000	6.349	11.5	[illegible]
B	9	#049	River Street	7.318	Inline Box Culvert	Roaring Brook Channel	0.014	$770,000	[illegible]	11.5	[illegible]
B	9	#071	[illegible] Street	7.615	Replace Regulator	Roaring Brook Channel	N/A	[illegible]	[illegible]	0	
C	10	#037	Washington Locust	8.384	Offline Box Culvert	Lackawanna River Lower	0.211	$2,790,000	5.294	11.5	[illegible]
C	10	[illegible]	Broadway Street	7.061	Inline Box Culvert	Lackawanna River Lower	0.013	[illegible]	0.345	11.5	[illegible]
C	10	#068	S [illegible] Avenue	6.156	Offline Box Culvert	Lackawanna River Lower	0.020	$1,140,000	1.521	11.5	[illegible]
C	10	[illegible]	[illegible] Avenue	[illegible]	Replace Regulator	Stafford Meadow Brook	N/A	[illegible]	[illegible]	0	
C	10	[illegible]	[illegible] - Cedar	[illegible]	Inline Box Culvert	Stafford Meadow Brook	[illegible]	[illegible]	[illegible]	11	[illegible]
C	11	#086	#14 Maple St	6.610	Replace Regulator	Stafford Meadow Brook	N/A	$30,000	0.178	0	
C	11	#004	[illegible] Street	15.590	Offline Box Culvert	Lackawanna River Upper	0.492	$3,690,000	7.467	[illegible]	[illegible]
C	11	#081	Leggetts Creek	11.690	Combined With Other	Lackawanna River Upper	N/A	$120,000	1.112	0	
C	12	#006	Gardner Avenue	9.471	Offline Box Culvert	Lackawanna River Upper	0.796	$3,190,000	9.905	10.5	[illegible]
C	13	#013	Poplar Street 24-inch	8.849	Offline Box Culvert	Lackawanna River Upper	1.844	$7,820,000	[illegible]	10.5	[illegible]
C	13	#014	Poplar Street 80-inch	8.862	Combined With Other	Lackawanna River Upper	N/A	$130,000	[illegible]	0	
C	14	#015	[illegible] Avenue [illegible]	8.271	Process, Post Treatment Tank	Lackawanna River Lower	1.268	$10,967,000	15.574	[illegible]	[illegible]
D	15	#033	[illegible] Street	6.776	Offline Box Culvert	Lackawanna River Lower	0.444	$3,620,000	[illegible]	[illegible]	[illegible]
D	16	#028	[illegible] Street	6.874	Offline Box Culvert	Lackawanna River Lower	0.847	$8,090,000	18.074	[illegible]	[illegible]
D	17	[illegible]	WWTP Overflow	5.574	Process, Post Treatment Tank	Lackawanna River Lower	8.880	$37,793,000	[illegible]	[illegible]	[illegible]
E	19	#045	[illegible] Street	7.321	Inline Box Culvert	Lackawanna River Lower	0.004	$1,110,000	[illegible]	10.5	[illegible]
E	19	#048	Washington Avenue	6.840	Inline Box Culvert	Lackawanna River Lower	0.014	$760,000	0.376	10.5	[illegible]
E	20	#051	Birch Street	6.915	Inline Box Culvert	Lackawanna River Lower	0.017	$860,000	0.14	10.5	[illegible]
E	20	#005	[illegible] Place	5.916	Offline Box Culvert	Lackawanna River Upper	0.085	$1,850,000	2.441	9.5	[illegible]
E	21	#043	Olive Street	6.119	Offline Box Culvert	Lackawanna River Upper	0.061	$1,790,000	1.319	9.5	[illegible]
E	21	#076	Fig Street	6.395	Offline Box Culvert	Lackawanna River Lower	0.075	$1,800,000	3.611	[illegible]	[illegible]
E	22	#016	[illegible] Street	8.136	Offline Box Culvert	Lackawanna River Lower	[illegible]	$4,300,000	17.8	8.5	44
E	22	#007	[illegible] Street	5.443	Offline Box Culvert	Lackawanna River Upper	0.686	$3,770,000	4.541	8.5	[illegible]
E	23	#008	[illegible] Street	9.379	Combined With Other	Lackawanna River Upper	N/A	$130,000	14.281	0	
E	23	#026	N Elm Street	6.549	Offline Box Culvert	Lackawanna River Lower	0.785	$3,740,000	1.624	[illegible]	[illegible]
E	24	[illegible]	[illegible] Place	[illegible]	Offline Box Culvert	Lackawanna River Upper	[illegible]	$7,670,000	[illegible]	[illegible]	47
E	24	[illegible]	[illegible] Avenue	[illegible]	Combined With Other	Lackawanna River Upper	N/A	[illegible]	[illegible]	0	
E	24	[illegible]	[illegible] Street	[illegible]	Combined With Other	Lackawanna River Upper	N/A	[illegible]	[illegible]	0	
E	24	[illegible]	[illegible] Street	[illegible]	Combined With Other	Lackawanna River Upper	N/A	[illegible]	[illegible]	0	
E	24	[illegible]	[illegible] Street	[illegible]	Combined With Other	Lackawanna River Upper	N/A	[illegible]	[illegible]	0	
E	24	[illegible]	Park Avenue	[illegible]	Combined With Other	Lackawanna River Upper	N/A	$130,000	[illegible]	0	
E	24	[illegible]	[illegible] Street	[illegible]	None	Lackawanna River Upper	N/A	$0	0	0	
E	24	#063	[illegible] Street	[illegible]	Combined With Other	Lackawanna River Upper	N/A	$120,000	[illegible]	0	
E	24	[illegible]	[illegible]	[illegible]	Combined With Other	Lackawanna River Upper	N/A	$130,000	[illegible]	0	
E	24	[illegible]	[illegible]	[illegible]	None	Lackawanna River Upper	N/A	$0	0	0	
E	25	#075	[illegible] Avenue	9.770	Offline Box Culvert	Meadow Brook Channel	0.158	$2,010,000	[illegible]	[illegible]	[illegible]
E	25	#032	[illegible] Street	12.674	Replace Regulator	Lackawanna River Upper	N/A	$40,000	0.06	[illegible]	
E	25	#034	E Parker Street	11.768	Replace Regulator	Lackawanna River Upper	N/A	$40,000	0.175	[illegible]	
E	25	#036	Tioga Street	10.858	Replace Regulator	Lackawanna River Upper	N/A	$40,000	0.575	[illegible]	
E	25	#089	[illegible] Street	4.348	Replace Regulator	Lackawanna River Lower	N/A	$90,000	0.485	[illegible]	
E	25	#074	[illegible] Street	9.597	Replace Regulator	Meadow Brook Channel	N/A	$80,000	[illegible]	[illegible]	
E	25	#073	[illegible] Manor	9.516	Replace Regulator	Meadow Brook Channel	N/A	$100,000	[illegible]	[illegible]	
						Total	17.038	$139,600,000	[illegible]		

*Note: the Scoring and Ranking columns and the color coding indicate how the projects were evaluated and grouped by the SSA in developing the LTCP.

IMPLEMENTATION OF APPENDIX B PROJECTS

The projects in Appendix B shall be implemented in accordance with the following schedule:

All of the projects in Phase A shall be complete by December 1, 2016.

All of the projects in Phase B shall be complete by December 1, 2021. Moreover, as interim milestones:

- at least 5 of the projects in this phase will be complete by December 1, 2017;
- at least 7 of the projects in this phase will be complete by December 1, 2018;
- at least 9 of the projects in this phase will be complete by December 1, 2019; and
- at least 12 of the projects in this phase will be complete by December 1, 2020.

All of the projects in Phase C shall be complete by December 1, 2026. Moreover, as interim milestones:

- at least 4 of the projects in this phase will be complete by December 1, 2022;
- at least 7 of the projects in this phase will be complete by December 1, 2023;
- at least 9 of the projects in this phase will be complete by December 1, 2024; and
- at least 11 of the projects in this phase will be complete by December 1, 2025.

All of the projects in Phase D shall be complete by December 1, 2029. Moreover, as interim milestones:

- at least 1 of the projects in this phase will be complete by December 1, 2027; and
- at least 2 of the projects in this phase will be complete by December 1, 2028.

All of the projects in Phase E shall be complete by December 1, 2037. Moreover, as an interim milestone, at least 13 of the projects in this phase will be complete by December 1, 2033.

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA,

Plaintiff, and,

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION,

Plaintiff-Intervenor,

v.

SCRANTON SEWER AUTHORITY,

Defendant,

Case No. 3:09-cv-1873
(Hon. John E. Jones III)

NOTICE OF NON-MATERIAL MODIFICATION OF CONSENT DECREE

(No Action Required)

Plaintiff, the United States of America, on behalf of the United States Environmental Protection Agency, and with the consent of Plaintiff-Intervenor, the Commonwealth of Pennsylvania Department of Environmental Protection, and Defendant Sewer Authority of the City of Scranton (the "Scranton Sewer Authority") respectfully files with the Court an Agreed Non-Material Modification of the Consent Decree that the Court entered on January 31, 2013(ECF No. 167). This modification, which was executed by the Parties in November 2015, was made pursuant to Paragraph 88 of the Consent Decree, which allows non-material modifications without Court approval.

This Agreement is filed for notice purposes only. No action is requested of the Court.

Respectfully Submitted,

NATHANIEL DOUGLAS
Deputy Chief
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice

Dated: December 18, 2015

/s/ Daniel S. Smith

DANIEL S. SMITH
Senior Counsel
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
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Of Counsel:

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Fax: (717) 221-2246

CERTIFICATE OF SERVICE

I hereby certify that on December 18, 2015, caused copies of the foregoing notice to be served by First Class Mail, postage prepaid, sent to the following addresses:

Jeffrey Belardi, Esq.
Belardi Law Offices
410 Spruce Street, 4th Floor
Scranton, PA 18503
Counsel for Scranton Sewer Authority

In addition, I have served the counsel listed below by ECF:

For the Pennsylvania Department of Environmental Protection:

Joseph S. Cigan, Esq. jcigan@state.pa.us

For the Sewer Authority of the City of Scranton:

Frank P. Calamita, Esq. paul@aqualaw.com
Lisa M. Ochsenhirt, Esq. lisa@aqualaw.com

/s/ Daniel S. Smith
DANIEL S. SMITH
Senior Counsel
U.S. Department of Justice

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA, Plaintiff, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, Plaintiff-Intervenor, v. SCRANTON SEWER AUTHORITY, Defendant.	CIVIL ACTION NO. 3:CV-09-1873 (Judge Jones)

AGREED NON-MATERIAL MODIFICATION OF CONSENT DECREE

WHEREAS, on January 31, 2013, the Court approved and entered a Consent Decree (ECF No. 167) between the Parties in the above-captioned case;

WHEREAS, the objectives of the Consent Decree are "for the Defendant to take the steps necessary to achieve full compliance with the [Clean Water Act, 33 U.S.C. §§ 1251–1387], the regulations promulgated thereunder, including, but not limited to, 33 U.S.C. § 1342(q) and the regulations promulgated thereunder, and the Clean Streams Law [35 Pa. Stat. Ann. §§ 691.1 *et seq.*] and the regulations promulgated thereunder." Consent Decree ¶ 7, Jan. 31, 2013, ECF No. 167.

WHEREAS, the Consent Decree required Defendant to submit, by December 1, 2012, a long-term control plan ("LTCP") for reducing discharges of untreated sewage from its publicly owned treatment works (*id.* ¶ 11);

WHEREAS, Defendant submitted an LTCP on December 1, 2012 and the EPA approved it with comments on February 19, 2013;

WHEREAS, the Consent Decree requires Defendant to "complete implementation of the LTCP as soon as practicable, but no later than December 1, 2037" (*id.* ¶ 12);

WHEREAS, the LTCP became incorporated into the Consent Decree upon its approval by the EPA (*see id.* ¶ 25 (stating that all plans are incorporated into the Consent Decree upon approval by the EPA));

WHEREAS, Appendix B of the Consent Decree specifies the types and sizes of sewage control structures that Defendant must construct, and the schedule by which Defendant must construct them;

WHEREAS, the Consent Decree states that the Parties may make non-material changes to the Consent Decree and the LTCP by written agreement signed by all of the Parties or their successors in interest (*id.* ¶ 88);

WHEREAS, Defendant has, based on new and refined information about its sewer system, proposed certain modifications to the size, location, and schedule of construction for several of the sewage control structures that it must build pursuant to the LTCP and Appendix B of the Consent Decree;

WHEREAS, the Parties agree that the changes proposed herein constitute non-material changes to the LTCP and Appendix B;

NOW, THEREFORE, the Parties agree to the following non-material modifications to the Consent Decree and to the LTCP and hereby provide notice to the Court:

I. MODIFICATIONS TO THE CONSENT DECREE

1. Appendix B to the Consent Decree shall be replaced with the document filed herewith as Exhibit 1.

II. MODIFICATIONS TO THE LTCP

2. The document filed herewith as Exhibit 2 is incorporated into the LTCP and shall modify it as stated.

III. GENERAL CONDITIONS

3. Except as expressly stated herein, no provisions of the Consent Decree are modified, superseded, or altered in any way by this Agreement.

4. This Agreement becomes effective upon filing with the Court after execution by each of the Parties.

5. This Agreement may be executed in counterparts.

THE UNDERSIGNED PARTIES enter into this Agreed Non-material Modification of Consent Decree in the matter of *United States v. Scranton Sewer Authority*.

FOR THE UNITED STATES OF AMERICA:

NATHANIEL DOUGLAS
Deputy Chief
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice

December 18, 2015
Dated

/s/ Daniel S. Smith
DANIEL S. SMITH
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U.S. Department of Justice
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Fax: (717) 221-2246

THE UNDERSIGNED PARTIES enter into this Agreed Non-material Modification of Consent Decree in the matter of *United States v. Scranton Sewer Authority*.

MARK POLLINS
Director, Water Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency

SUSHILA NANDA
Senior Attorney Advisor
Office of Civil Enforcement
U.S. Environmental Protection Agency

THE UNDERSIGNED PARTIES enter into this Agreed Non-material Modification of Consent Decree in the matter of *United States v. Scranton Sewer Authority*.

MARY B. COE
Regional Counsel
U.S. EPA Region III
1650 Arch Street
Philadelphia, **PA 19103-2029**

CHRISTOPHER DAY
Assistant Regional Counsel
Office of Regional Counsel
U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

THE UNDERSIGNED PARTIES enter into this Agreed Non-material Modification of Consent Decree in the matter of *United States v. Scranton Sewer Authority*.

FOR THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION:

BHARAT R. PATEL, P.E.
Program Manager
Clean Water Program
Department of Environmental Protection
Northeast Regional Office
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Wilkes-Barre, PA 18701-1915

12/7/15
Dated

JOSEPH S. CIGAN III
Assistant Counsel
Office of Chief Counsel
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PA 74927

THE UNDERSIGNED PARTIES enter into this Agreed Non-material Modification of Consent Decree in the matter of *United States v. Scranton Sewer Authority*.

FOR THE SEWER AUTHORITY OF THE CITY OF SCRANTON.

Nov. 24, 2015
Date

EUGENE P. BARRETT
Executive Director
Scranton Sewer Authority
312-314 North Adams Avenue
Scranton, PA 18503-1501

JEFFREY BELARDI, ESQ.
Belardi Law Offices
410 Spruce Street, 4th Floor
Scranton, PA 18503

Exhibit 1

SCRANTON SEWER AUTHORITY
CSO LONG TERM CONTROL PLAN
CSO CONTROL IMPROVEMENT SCHEDULE

PHASE	YEAR	OUTFALL #	LOCATION	DISTANCE FROM ORM (RIVER MILES)	CSO CONTROL TYPE	RECEIVING STREAM	STORAGE VOLUME, ESTIMATED (MG)	TOTAL CAPITAL COST, ESTIMATE	EXISTING OVERFLOW VOLUME (mg)	SCORING	
										Total Score	Ranking
A	1	#066	Burke Street	14.043	Offline Culvert	Roaring Brook-Natural	0.154	$1,740,000	1.841	18	2
A	1	#060	Keyser Valley PS	7.192	Concrete equalization tank	Keyser Creek	0.928	$790,000	0.801	16	3
A	1	#067	Keyser Creek	7.102	Combined With Other	Keyser Creek	N/A	$1,100,000	0.329	0	
A	1	#087	Leggetts-Kelly	12.881	Interceptor Upgrade	Leggetts Creek	N/A	$880,000	0.684	17	1
A	1	#072	Leggetts Street	12.805	Sewer Separation	Leggetts Creek	N/A	$2,340,000	4.711	15	5
A	1	#065	Drinker Street	11.705	Offline Culvert	Little Roaring Brook	0.023	$780,000	0.171	14	8
A	1	#035	Sanderson Avenue	10.786	Sewer Separation	Lackawanna River Upper	N/A	$190,000	1.475	15.5	4
A	1	#057	Brown Avenue	10.509	Offline Culvert	Lackawanna River Upper	0.017	$1,120,000	0.875	14.5	7
A	1	#011	Von Storch Avenue	9.360	Offline Culvert & Sewer Separation	Lackawanna River Upper	0.110	$2,760,000	8.782	11.5	9
A	1	#017	Pine Street	8.201	Regulator Improvements	Lackawanna River Lower	N/A	$1,490,000	1.282	13.5	10
A	1	#020	E Lackawanna Avenue	7.802	Concrete tank	Lackawanna River Lower	1.200	$2,870,000	8.813	13.5	11
A	1	#019	Linden Street	7.586	Offline Culvert	Lackawanna River Lower	0.897	$5,430,000	19.26	11.5	22
A	1	#051	Wyoming Avenue	6.394	Sewer Separation	Lackawanna River Lower	N/A	$790,000	0.472	13.5	12
A	1	#081	Preston - Brook	6.730	Offline Culvert	Stafford Meadow Brook	0.036	$1,020,000	0.934	15	6
A	1	#084	639 E Elm St	8.974	Replace Regulator & Sewer Improvements	Stafford Meadow Brook	N/A	$2,370,000	0.693	13	13
A	1	#083	Irving-Elm	8.186	Replace Regulator & Sewer Improvements	Stafford Meadow Brook	N/A	$590,000	0.684	0	
A	1	#085	644 E Elm St	8.971	Replace Regulator & Sewer Improvements	Stafford Meadow Brook	N/A	$80,000	1.39	0	
B	5	#079	Myrtle Street PS	9.516	Offline Culvert	Roaring Brook-Natural	0.182	$2,460,000	2.963	13	14
B	5	#033	W Parker Street	11.424	Inline Culvert	Lackawanna River-Upper	0.013	$740,000	0.324	12.5	15
B	5	#038	Wurtz Avenue	10.486	Offline Culvert	Lackawanna River-Upper	0.117	$1,590,000	4.017	12.5	16
B	5	#078	Shawnee Avenue PS	11.046	Inline Culvert	Lackawanna River-Upper	0.009	$720,000	0.44	12.5	17
B	5	#040	W Market Street	10.087	Inline Culvert	Lackawanna River-Upper	0.017	$870,000	0.81	11.5	19
B	5	#032	Grove Street	9.102	Offline Culvert	Lackawanna River-Upper	0.087	$3,640,000	2.234	11.5	20
B	5	#018	Love Road	8.087	Offline Culvert	Lackawanna River-Lower	0.180	$3,850,000	4.534	11.5	21
B	7	#028	W Scranton Street	7.823	Offline Culvert	Lackawanna River-Lower	0.710	$4,940,000	2.787	11.5	23
B	7	#039	Washburn Street	7.468	Combined With Other	Lackawanna River-Lower	N/A	$1,80,000	18.944	0	
B	8	#030	Prescott Avenue	8.095	Offline Culvert	Roaring Brook-Natural	1.357	$6,700,000	23.747	12	18
B	8	#024	Hickory Street	7.021	Offline Culvert	Lackawanna River-Lower	0.245	$2,430,000	4.157	11.5	24
B	9	#025	Willow Street	7.031	Offline Culvert	Roaring Brook-Channel	0.360	$3,740,000	6.049	11.5	25
B	9	#049	River Street	7.285	Inline Culvert	Roaring Brook-Channel	0.014	$770,000	0.291	11.5	28
B	9	#073	Front Street	7.835	Replace Regulator	Roaring Brook-Channel	N/A	$80,000	0.128	0	
C	10	#027	Washington-Locust	6.394	Offline Culvert	Lackawanna River-Lower	0.211	$2,090,000	5.254	11.5	26
C	10	#047	Broadway Street	7.063	Inline Culvert	Lackawanna River-Lower	0.013	$830,000	0.345	11.5	27
C	10	#068	S Sixth Avenue	6.156	Offline Culvert	Lackawanna River-Lower	0.020	$1,140,000	1.523	11.5	29
C	10	#083	Cedar Avenue	4.580	Replace Regulator	Stafford Meadow Brook	N/A	$80,000	3.145	0	
C	10	#081	Drexel - Cedar	6.806	Inline Culvert	Stafford Meadow Brook	0.048	$1,120,000	0.564	11	30
C	11	#086	414 Maple St	6.610	Replace Regulator	Stafford Meadow Brook	N/A	$80,000	0.278	0	
C	11	#004	Wells Street	11.590	Offline Culvert	Lackawanna River Upper	0.482	$3,690,000	7.457	10.5	31
C	11	#031	Leggetts Creek	11.690	Combined With Other	Lackawanna River Upper	N/A	$110,000	2.217	0	
C	12	#006	Gordon Avenue	9.479	Offline Culvert	Lackawanna River Upper	0.206	$2,390,000	3.901	10.5	32
C	13	#013	Poplar Street 24-inch	8.969	Offline Culvert	Lackawanna River-Upper	1.558	$7,520,000	3.45	10.5	33
C	13	#014	Poplar Street 90-inch	8.967	Combined With Other	Lackawanna River-Upper	N/A	$120,000	13.345	0	
C	14	#035	Gordon Avenue (Pinebrook)	8.279	Precast, Post Tensioned Tank	Lackawanna River-Lower	1.360	$10,967,000	16.524	10.5	34
D	15	#023	Luzerne Street	6.775	Offline Culvert	Lackawanna River Lower	2.496	$1,820,000	19.385	10.5	35
D	16	#029	Sweet Street	5.978	Offline Culvert	Lackawanna River-Lower	0.867	$5,690,000	19.074	10.5	39
D	17	#081A	WWTP Overflow	5.374	Precast, Post Tensioned Tank	Lackawanna River-Lower	2.880	$17,753,000	39.255	10.5	40
E	19	#045	Connors Street	7.131	Inline Culvert	Lackawanna River-Lower	0.058	$3,130,000	0.31	10.5	36
E	19	#048	Washington-Alder	6.940	Inline Culvert	Lackawanna River-Lower	0.014	$740,000	0.371	10.5	37
E	20	#052	Birch Street	6.915	Inline Culvert	Lackawanna River-Lower	0.017	$860,000	0.34	10.5	38
E	20	#005	Love Place	9.935	Offline Culvert	Lackawanna River-Upper	0.088	$1,850,000	2.48	9.5	41
E	21	#043	Olive Street	8.819	Offline Culvert	Lackawanna River-Upper	0.059	$1,390,000	1.215	9.5	42
E	21	#028	Fig Street	6.191	Offline Culvert	Lackawanna River-Lower	0.075	$1,800,000	2.611	9.5	43
E	23	#016	Hamilton Street	8.138	Offline Culvert	Lackawanna River-Lower	0.221	$4,700,000	17.86	9.5	44
E	23	#007	Main Street	9.441	Offline Culvert	Lackawanna River-Upper	0.688	$3,770,000	4.343	8.5	45
E	23	#008	Hawk Street	9.379	Combined With Other	Lackawanna River-Upper	N/A	$120,000	14.291	0	
E	23	#025	W Elm Street	6.549	Offline Culvert	Lackawanna River-Lower	0.263	$2,740,000	1.824	8.5	46
E	24	#055	Drinker Place	10.004	Offline Culvert	Lackawanna River-Upper	0.791	$7,670,000	3.393	8.5	47
E	24	#056	Boulevard Avenue	10.001	Combined With Other	Lackawanna River-Upper	N/A	$120,000	2.362	0	
E	24	#017	Rochester Street	10.007	Combined With Other	Lackawanna River-Upper	N/A	$120,000	0.015	0	
E	24	#053	Greenview Street	10.056	Combined With Other	Lackawanna River-Upper	N/A	$120,000	0.124	0	
E	24	#059	Woodlawn Street	10.028	Combined With Other	Lackawanna River-Upper	N/A	$120,000	1.287	0	
E	24	#060	Park Avenue	10.099	Combined With Other	Lackawanna River-Upper	N/A	$120,000	0.494	0	
E	24	#061	Morse Street	0.000	None	Lackawanna River-Upper	N/A	$0	0	0	
E	24	#062	Fig Street	10.000	Combined With Other	Lackawanna River-Upper	N/A	$120,000	0.248	0	
E	24	#063	Elephant South 24-inch	11.115	Combined With Other	Lackawanna River-Upper	N/A	$120,000	3.936	0	
E	24	#064	Elephant North 12-inch	11.148	None	Lackawanna River-Upper	N/A	$0	0	0	
F	25	#075	Capouse Avenue	9.730	Offline Culvert	Meadow Brook-Channel	0.158	$3,080,000	2.7	8.5	
F	25	#082	Wicklow Street	11.634	Replace Regulator	Lackawanna River Upper	N/A	$80,000	0.04	0	
F	25	#034	E Parker Street	11.288	Replace Regulator	Lackawanna River Upper	N/A	$80,000	0.171	0	
F	25	#036	Tioga Street	10.658	Replace Regulator	Lackawanna River Upper	N/A	$80,000	0.531	0	
F	25	#069	Crane Street	4.346	Replace Regulator	Lackawanna River-Lower	N/A	$80,000	0.441	0	
F	25	#074	Marion Street	9.597	Replace Regulator	Meadow Brook-Channel	N/A	$80,000	0.076	0	
F	25	#076	Sanderson-Marion	9.525	Replace Regulator	Meadow Brook-Channel	N/A	$100,000	0.09	0	
						Total	27.017	$139,302,000	401.784		48

*Note: the Scoring and Ranking columns and the color coding indicate how the projects were evaluated and grouped by the SSA in developing the LTCP.

IMPLEMENTATION OF APPENDIX B PROJECTS

The projects in Appendix B shall be implemented in accordance with the following schedule:

All of the projects in Phase A shall be complete by December 1, 2017.

All of the projects in Phase B shall be complete by December 1, 2021. Moreover, as interim milestones:

- at least 5 of the projects in this phase will be complete by December 1, 2017;
- at least 7 of the projects in this phase will be complete by December 1, 2018;
- at least 9 of the projects in this phase will be complete by December 1, 2019; and
- at least 12 of the projects in this phase will be complete by December 1, 2020.

All of the projects in Phase C shall be complete by December 1, 2026. Moreover, as interim milestones:

- at least 4 of the projects in this phase will be complete by December 1, 2022;
- at least 7 of the projects in this phase will be complete by December 1, 2023;
- at least 9 of the projects in this phase will be complete by December 1, 2024; and
- at least 11 of the projects in this phase will be complete by December 1, 2025.

All of the projects in Phase D shall be complete by December 1, 2029. Moreover, as interim milestones:

- at least 1 of the projects in this phase will be complete by December 1, 2027; and
- at least 2 of the projects in this phase will be complete by December 1, 2028.

All of the projects in Phase E shall be complete by December 1, 2037. Moreover, as an interim milestone, at least 13 of the projects in this phase will be complete by December 1, 2033.

Exhibit 2

SCRANTON SEWER AUTHORITY
CSO LONG TERM CONTROL PLAN
NOVEMBER 2015 SUPPLEMENT:
PHASE A CONSENT DECREE MODIFICATIONS

This supplement provides details for the minor modifications to Phase A of Appendix B of the Consent Decree and certain projects listed therein, and Table ES-3 of the Long Term Control Plan ("LTCP"). These refinements of the original projects result from more detailed analyses performed by SSA as they proceed to plan, design, and implement the projects. The modifications, which have been agreed to by all parties, are as follows:

I. Extend Phase A Completion Date from 2016 to 2017.

The parties have agreed to adjust an interim milestone in the CSO control implementation schedule. This adjustment does not affect the end date for the overall implementation program schedule. The schedule for completing Phase A projects will be extended one year, from December 1, 2016 to December 1, 2017. This change has been made to accommodate the acceleration of the completion date for Linden Street – CSO #019, which is now moved from Phase B to Phase A. The existing 2021 completion date for Phase B projects remains the same. Certain minor modifications of projects in other Phases are also noted, but none of these changes alter the completion date for any of the Phases or for the overall LTCP.

II. Phase A Project Changes.

A. Linden Street, CSO #019.

To accommodate the new intermodal facility in Scranton, SSA will accelerate the completion date of Linden Street – CSO #019 to no later than December 1, 2017. This project, with an estimated cost of $5.43 million, has been advanced from Phase B to Phase A.

B. Leggett Street, CSO #072.

The original model incorrectly identified the CSO #072 intercepting sewer as 8" at 1.0% slope. However, this sewer has been measured and is 12" at 3.1%. The increase in full-pipe capacity discharged to the interceptor is 2.5 mgd.

With this correction, the required storage would be reduced for CSO # 72 from the 300,000 gallons in the LTCP to 30,000 gallons.

An additional inaccuracy was discovered; the drainage area in the model was not correct. Approximately 78 acres was allocated to CSO #072 that is actually tributary to CSO #004 (Wells Street). This inaccuracy arose due to the presence of parallel sewers in Leggetts – one sewer

discharges to #072 and the other discharges to #004. With this correction, the Leggetts system only overflows 4 times per year, which meets the LTCP criteria for this overflow. As a significant portion of the sewers in the Leggetts #072 area are already separated, SSA will complete the sewer separation.

However, this shifts additional flows to CSO #004. In response, the Authority has made adjustments to the CSO #004 regulator which allows significantly more flow into the interceptor. The regulator modifications result in reducing the discharge volume and the volume for CSO #004 storage from 482,000 gallons to 179,000 gallons. However, the additional flow to the interceptor at #004 is expected to cause surcharging of the interceptor downstream. Reducing the sluice gate opening alleviates the downstream surcharging but increases the necessary storage volume for CSO #004 to 336,000 gallons. This does not impact the modification for CSO #072. CSO #004 regulator settings and downstream surcharging will be addressed during the design for the CSO #004 storage in Phase C.

C. Wyoming Avenue, CSO #052.

As the LTCP storage requirement at this outfall was only 23,000 gallons and would require pumping to empty, SSA looked at increasing the weir height in the regulator as well as sewer separation alternatives to storage.

Raising the weir height to the original model setting of 3.5" and performing sewer separation results in a reduction to two overflow events. Most of the buildings in this small drainage area already have separated roof drainage. The only roof runoff connected to the existing combined sewers is the old brick factory building. Accordingly, separation focused only on surface runoff. The overflow volume is estimated to be 10,000 gallons. There are only minimal effects on the hydraulic grade line and other CSOs.

D. Vine Street, CSO #017.

When the design engineer began survey work for this area, a junction chamber was discovered. Alternatives to use this chamber as part of the 42,000 gallons of storage anticipated for this CSO were evaluated. During the analysis of these alternatives, modifications to the regulator were also considered.

By making minor modifications to the regulator and using the existing junction chamber for storage, the need for any storage at this location can be eliminated. The junction chamber will be remediated by high pressure water jetting and the application of an epoxy coating (or equivalent coating with EPA's prior approval) to all interior surfaces of the chamber. The number of overflow events is reduced to four and the annual overflow volume is reduced to 370,000 gallons. The additional flow to the interceptor will require an additional 10,000 gallons of storage at the large facility planned for CSO #003A. Accordingly, the storage volume for CSO #003A will be increased from 2.85 million gallons to 2.86 million gallons. Further adjustments to the storage volume for CSO #003A may be necessary during the design of Phase D.

E. Kelly Street, CSO #087

The LTCP required a 47,000 gallon storage tank for this location to achieve a level of control of four events per year and an overflow volume of 330,000 gallons.

Based upon the recent survey data regarding the regulator and sewers, it appears the storage volume would need to be 49,000 gallons (compared to 47,000 gallons in the LTCP) and this CSO would overflow 10 times per year with a total overflow volume of 370,000 gallons.

Various alternatives of storage and sewer separation were examined. The recommendation is to increase the size of the intercepting sewers from 10" to 15" for about 410 feet and raising the regulator weir to 9". This reduces the annual overflow events to two and overflow volume to 110,000 gallons without any adverse impacts to other overflows.

F. Elm Street System; CSO 083, 084 and 085

SSA made improvements to the sewer system in this area after the model was developed. Recent field surveys were used to update the model. Also, CSO #081 is just downstream of the Elm Street system; an 80,000 gallon CSO storage facility is under design for this outfall and the model has incorporated this storage in the existing conditions.

The key finding is that the SSA improvements, coupled with several additional changes at the associated outfalls, will result in the outfalls achieving the four or fewer event performance criterion without installing storage at the Elm Street location. The LTCP assumed a 288,000 gallon storage facility in this approximate location.

The recommendations are to raise the weir elevations at CSO #084 and CSO #085 and upgrade an existing 20-inch sewer upstream of CSO #081 to a 24-inch line.

Also, these sewer system improvements are conveying more flow to the interceptor and will require the storage at CSO #028 to be increased. The original sewer network in the model estimated 82,500 gallons of storage to control events to six events per year at #028. With the modified sewer network conveying more flow to this location, the volume required is about 200,000 gallons. During Phase E this overflow will be more thoroughly evaluated to consider this and other modifications as system evaluations continue.

The net result of these changes is the elimination of one of the LTCP tanks (288,000 gallons at Elm Street), maintaining 80,000 gallons storage at Pittston Brook (CSO # 081) and increasing Fig Street (CSO # 028) to 200,000 gallons, all while meeting the required performance criteria. The estimated number of overflow events are:

- #081 – four events
- #083 – two events

- #084 – four events
- #085 – two events
- #028 – six events

G. Von Storch Street, CSO #011

The location of the 372,000-gallon Von Storch CSO storage facility presented in the LTCP was examined and eliminated from consideration because of its proximity to the flood control levee. The time and cost to permit and construct the necessary structures to protect the levee from the deep excavations was the major factor considered.

Several alternative locations upstream of the LTCP proposed location were evaluated. An available site at Lace and Glen Streets was selected. As this site is further upstream of the regulator, it is tributary to less flow. The SSA will complete the partial sewer separation on Von Storch downstream of the new site and construct a 110,000-gallon storage facility at Lace and Glen Streets. The gate opening at the regulator will be increased to allow more flow to the interceptor. At Von Storch, these recommendations will result in the same number of overflow events as in the LTCP – eight per year – and the annual volume of overflows will be reduced from 2.48 MG to 1.28 MG. Allowing more flow to the interceptor will require the Genet Street facility to add about 12,000 gallons of capacity. Accordingly, the storage volume for CSO #029 will be increased from 867,000 gallons to 879,000 gallons. Further adjustments to the storage volume for CSO #029 may be necessary during the design of Phase D.

H. Keyser Valley, CSO #080

The LTCP presented a 25,000-gallon inline box culvert for the Keyser Valley CSO. Upon further evaluation, SSA determined that it would be preferable to move the location of the planned inline storage to the property of the existing nearby pump station. Moving the storage location is advantageous because it will avoid deeper excavations in the roadway, provide better maintenance access to the tank because it will be on SSA property, and allow for increased inline storage volume.

This alternative utilizes a concrete equalization tank that acts as an extension of the wet well with internal dimensions of 16 feet by 22 feet, and a depth over 11 feet. This change increases inline storage at the outfall from 25,000 gallons to 29,000 gallons.

III. Changes Impact All Project Phases.

All project phases in the LTCP call for storage at various CSO outfalls. Most of that storage was initially described as being underground concrete box-like structures. As SSA moves into detailed planning and design for each of these locations, the shape and nature of the storage structure may change due to site considerations. SSA may change the shape/nature of any storage facility called for in the LTCP providing the revised facility will provide the same storage

volume and after providing written notice to Plaintiffs of the proposed refinement in the storage facility and certifying the equivalent volume will be provided.

PAWC STATEMENT NO. 4

DIRECT TESTIMONY
OF
JOHN R. COX

WITH REGARD TO
PENNSYLVANIA-AMERICAN WATER COMPANY'S CLAIMED RATE BASE, DEPRECIATION AND AMORTIZATION, TAXES OTHER THAN INCOME, REGULATORY AND RATE CASE EXPENSE, MISCELLANEOUS EXPENSE ADJUSTMENTS, UNCOLLECTIBLE ACCOUNTS EXPENSE AJDUSTMENT, COMPARISON OF CLAIMED RATE BASE AND EXPENSES FROM THE LAST BASE RATE CASE AND PROPOSED TARIFF CHANGES

DOCKET NO. R-2017-2595853

DATE: April 28, 2017

PENNSYLVANIA-AMERICAN WATER COMPANY

DIRECT TESTIMONY OF JOHN R. COX

Q. What is your name and business address?

A. My name is John R. Cox. My business address is 800 West Hersheypark Drive, Hershey, Pennsylvania 17033.

Q. By whom are you employed and in what capacity?

A. I am employed by American Water Works Service Company (the "Service Company") as Director of Rates and Regulations - Pennsylvania.

Q. Please summarize your educational background and professional experience.

A. I am a 1985 graduate of Shippensburg University of Pennsylvania with a Bachelor of Science degree in Business Administration, with a major in accounting. In 1999, I received my Masters Degree in Business Management from Lebanon Valley College. I have also completed the continuing education program sponsored by the National Association of Regulatory Utility Commissioners ("NARUC") and the University of Utah.

I have been employed by Pennsylvania-American Water Company ("PAWC") or the Service Company since June 1986. From 1986 through June 1988, I served as a staff accountant in the Accounting Department. In July 1988, I was transferred to the Rate Department, and, in July 1989, I was promoted to Senior Rate Analyst. In 1991, I was promoted to accounting supervisor and held that position until December 2000 when I was promoted to Fleet and Materials Management Superintendent. In July 2004 I was promoted to the position of Senior Financial Analyst assigned to the Finance Department.

In 2007, I was promoted to the position of Manager of Rates and Regulations and in 2016, I was promoted to my current position of Director of Rates and Regulations.

Q. What are your duties as Director of Rates and Regulations?

A. My duties include, principally, preparing and presenting rate applications for PAWC. In addition, I am responsible for certain aspects of the financial, budgeting and regulatory functions of the Company.

Q. Have you previously submitted testimony before the Pennsylvania Public Utility Commission (the "Commission" or "PUC")?

A. Yes. I have presented testimony on accounting and rate matters before this Commission on numerous occasions. I have also prepared water rate applications that were presented to the Maryland Public Service Commission and the Virginia State Corporation Commission by subsidiaries of the American Water Works Company that operate in those states.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to explain the portions of the Company's principal accounting exhibit, Exhibit No. 3-A, that I am sponsoring, which relate to the Company's claims for rate base, depreciation expense, taxes other than income, certain operating expenses for its water and wastewater operations and proposed tariff changes. In addition, I will provide an analysis, as required from the Company's last base rate case at Docket No. R-2013-2355276, of the comparison of actual rate base additions and expenses as of 2014 compared to what the Company claimed in that case.

The Development Of The Combined Water And Wastewater Revenue Requirement

Q. Please explain how the Company developed its revenue requirement in this case.

A. In this case, the Company is distributing a portion of the revenue requirements for its water operations to the revenue requirements of its water operations as shown on the first page of Exhibit 3-A. The total Company revenue requirement was developed based on three separate revenue requirement studies, for water revenue, wastewater excluding Scranton wastewater operations and finally Scranton wastewater. The allocation of a portion of wastewater revenue requirement to water revenue requirement by utilities that provide both forms of service was authorized by amendments to the Public Utility Code made by Act 11 of 2012. Those amendments provide the Commission a reasonable means of moderating the rate impact of significant investments needed to improve the service, reliability and environmental compliance of acquired wastewater systems. For example, in the Company's last base rate proceeding at Docket No. R-2013-2355276 the PUC approved a Settlement that allocated a portion of the wastewater revenue requirement totaling $5,411,134 to water customers.

For the Company's water operations, wastewater operations excluding Scranton wastewater and Scranton wastewater operations, the Company has prepared detailed revenue requirement studies that set forth its claims for rate base, depreciation, operating and maintenance expenses, taxes and pro forma revenues for historic, future and fully projected future test years ending December 31, 2016, 2017 and 2018, respectively.

Q. Why did the Company prepare a separate Scranton wastewater revenue requirement study?

A. As explained by Mr. Nevirauskas in PAWC Statement No. 1, the Commission's final Order at Docket No. P-2016-2537209 ("Acquisition Order") approving the Company's acquisition of the wastewater assets of the Sewer Authority of the City of Scranton ("SSA") included a directive that PAWC submit two additional studies in its next base rate proceeding. One of those studies is described as "a cost of service study that removes all costs and revenues associated with SSA operations" and develops rates that "exclude the impact of the SSA acquisition" (Acquisition Order, p. 87). The separate Scranton revenue requirement study was prepared and submitted in this case to fulfill the first part of that directive. The Company's cost of service witness, Mr. Herbert, used data from the Scranton revenue requirement study to calculate the rate effect of the SSA acquisition, as explained in PAWC Statement No. 12, to fulfill the other portion of the Commission's directive. The second study the Commission directed PAWC to submit is described as "a cost of service study that fully separates the costs of providing storm water service in the SSA service area" (Acquisition Order, p. 86). Mr. Herbert also prepared this cost of service study, based on data from the separate Scranton revenue requirement study, in fulfillment of the Commission's requirement. This study is also explained in PAWC Statement No. 12. While the Company has complied fully with the Commission's directives in the Acquisition Order, isolating costs that may be ascribed to "storm water" flows in a combined sewer system and characterizing such costs as something separate from "wastewater" service is not correct for a variety of reasons, including the fact that treating "storm water" as something different from "wastewater" contradicts a specific legislative determination to the contrary, as explained by Mr. Nevirauskas in PAWC Statement No. 1.

Rate Base

Q. What are the Company's rate base claims in this proceeding?

A. The Company's rate base claims are $2,877,035,202 for its water operations, $170,361,771 for wastewater operations excluding Scranton and $151,996,033 for Scranton wastewater operations. The calculations of these amounts are shown in Exhibit No. 3-A (Water Section, at page 21, Wastewater excluding Scranton Section at page 15, and Scranton Wastewater Section, at page 9).

Q. What are the elements of the Company's rate base claims?

A. PAWC's rate base claims consist of several elements. The first and largest element is the depreciated original cost of net plant in service. To this amount, three items have been added to each of the water, wastewater excluding Scranton and the Scranton wastewater rate base claims: (1) materials and supplies; (2) cash working capital; and (3) accrued taxes net of prepaid taxes.

For water, fourth and fifth items were added: the unamortized balance of (4) the Commission-approved acquisition adjustment associated with the Company's acquisition of the water assets of the former Pennsylvania Gas & Water Company ("PG&W"); and (5) the Commission-approved acquisition adjustments associated with the Company's acquisitions of the water assets of the Redstone Water Company, Three Lane Utilities, Inc., Saxonburg Area Authority, Birch Acres Waterworks, Inc., Lake Spangenberg Water Company, the Fernwood Community Water System, the Olwen Heights Water Service Company, Inc. and an acquisition adjustment that the Company is seeking to incorporate in this case associated with its acquisition of the water assets of Scott Township.

For the wastewater excluding Scranton rate base claim, fourth, fifth and sixth items were added: (4) the unrecovered reserve associated with the Coatesville original wastewater treatment plant as approved at Docket No. R-2008-2032689 (note that because this recovery expires in 2018, there is no pro forma claim for this item); (5) a prepaid deposit for nitrogen credits associated with the Fairview wastewater operations; and (6) the unamortized balances of the Commission-approved acquisition adjustment associated with the Company's acquisition of the wastewater assets of the Clean Treatment Sewage Company and acquisition adjustments that the Company is seeking to incorporate in this case associated with its acquisitions of the wastewater assets of Koppel Borough, Hamiltonban Township Municipal Authority, Shippenville Borough and the Borough of New Cumberland.

For Scranton wastewater a fourth item was added: (4) the acquisition adjustment associated with the Company's acquisition of the wastewater assets of the SSA that the Company is seeking to incorporate in this case**.** Mr. Nevirauskas (PAWC Statement No. 1) will discuss the Company's claim for the SSA acquisition adjustment.

Five items have been deducted in calculating the water rate base claim: (1) a net offset to cash working capital requirements to reflect the timing of the payment of interest and preferred dividends; (2) unamortized investment tax credits that were generated prior to 1971; (3) a thirteen-month average of extension deposits in suspense; (4) contributions-in-aid-of-construction ("CIAC") and customer advances for construction ("CAC") associated with its acquisition of the water assets of the former Citizens Utilities Water Company of Pennsylvania ("Citizens"); and (5) accumulated deferred taxes.

To calculate the Company's wastewater excluding Scranton rate base claim, three items are deducted: (1) a net offset to cash working capital requirements to reflect the timing of the payment of interest and preferred dividends; (2) a thirteen-month average of extension deposits in suspense, which represents prepaid capacity reservation fees recorded as extension deposits in suspense at the time of PAWC's acquisition of the wastewater assets of Fairview County; and (3) accumulated deferred taxes.

To calculate the Company's Scranton wastewater rate base claim, two items are deducted: (1) a net offset to cash working capital requirements to reflect the timing of the payment of interest and preferred dividends; and (2) accumulated deferred taxes.

Q. Please explain how the depreciated original cost of net plant as of the end the fully projected future test year (December 31, 2018) was determined.

A. Net plant is total plant in service less CIAC and CAC and excluded property. Depreciated original cost is original cost less accrued depreciation. The original cost of net utility plant as of the end of the fully projected future test year consists of the amount recorded in PAWC's plant accounts at December 31, 2016, plus projected additions, net of retirements, through December 31, 2018, less CIAC and CAC. The original cost of plant in service at December 31, 2016, and the original cost of claimed additions and retirements, shown by detailed plant account, are set forth in Exhibit No. 3-A, at page 22 for water, at page 16 for wastewater excluding Scranton, and at page 10 for Scranton wastewater. Mr. Kaufman discusses the more significant plant additions in his direct testimony (PAWC Statement No. 3).

I will address the water and wastewater acquisitions that the Company has consummated since the last base rate case exclusive of the SSA acquisition, and Mr. Nevirauskas discusses the SSA acquisition in PAWC Statement No. 1.

The accrued depreciation at December 31, 2018 related to net plant in service was determined by the Company's depreciation consultant, John J. Spanos, and is shown in Exhibit No. 3-A at page 21, line 10 for water, at page 15, line 10 for wastewater excluding Scranton, and at page 9, line 10 for Scranton wastewater.

Q. Do the continuing property records, as maintained by the Company and augmented by depreciated original cost studies conducted following acquisitions, accurately reflect additions and retirements to plant in service?

A. Yes, they do.

Q. Are the data shown on the Company's continuing property records an accurate basis for developing the original cost of property?

A. Yes, they are.

Q. Do the Company's rate base claims include the depreciated original cost of water and wastewater assets that were acquired since the Company's last base rate case?

A. Yes, the Company's rate base claims include the depreciated original cost of assets acquired since the last case from six water providers: (1) Pocono Mountain Lake Forrest Community Association; (2) Berry Hollow Water Company Inc.; (3) Scott Township; (4) Abbey Woods Home Owners Association; (5) Paint Township Municipal Water Authority; and (6) McEwensville Municipal Authority (water) and from nine wastewater systems: (1) Koppel Borough; (2) Franklin Township Municipal Sewer Authority; (3) Paint-Elk Joint Sewer Authority; (4) Hamiltonban Township Municipal Authority; (5)

Shippenville Borough; (6) McEwensville Municipal Authority (wastewater); (7) Fairview Township; (8) New Cumberland Borough and (9) Scranton Sewer Authority.

Exhibit 3-C includes a copy of the original cost study and the Commission Order approving each of the acquisitions listed above.

Q. Has the Company made any adjustments to its historic test year end CIAC and CAC balances?

A. Yes, it has made adjustments to those balances for its water operations and wastewater operations excluding Scranton. The December 31, 2016, CIAC balance for its water operations has been increased to reflect $7,755,046 of additional contributions projected to be received through December 31, 2018. The CAC balance has been adjusted to reflect $13,456,770 of additional advances projected to be received through December 31, 2018 and decreased for $9,000,000 of refunds anticipated to be paid during 2017 and 2018 with respect to customer advances received in prior years. These calculations are shown in Exhibit No. 3-A Water, at pages 23 and 24.

For the wastewater operations excluding Scranton the December 31, 2016, CIAC balance has been increased to reflect $745,246 of additional contributions projected to be received through December 31, 2018. The CAC balance has been adjusted to reflect $83,550 of additional advances projected to be received through December 31, 2018. These calculations are shown in Exhibit No. 3-A Wastewater excluding Scranton, at pages 17 and 18.

The Company does not anticipate any changes to the CIAC or CAC balances for its Scranton wastewater operations. Therefore, no adjustments to the December 31, 2016 balances for those operations are required.

Q. Has the Company excluded from its rate base certain property recorded in its utility plant accounts?

A. Yes. The amount of $1,558,014 has been excluded from the Company's rate base claim for water operations as shown in Exhibit No. 3-A Water, at page 25. For the most part, the excluded amount represents the original cost of utility plant in service for which the Company received relocation reimbursement payments from the Commonwealth of Pennsylvania. The remainder of the excluded amount consists of certain allowance for funds used during construction ("AFUDC") accruals that the Company agreed to remove from rate base pursuant to a stipulation approved in the Company's rate proceeding at Docket No. R-00932670.

Q. Please explain the addition to rate base for materials and supplies.

A. In accordance with procedures previously approved by the Commission, the Company's materials and supplies claims were determined by averaging the monthly balances of the materials and supplies account for the thirteen months ended December 31, 2016. The calculations of the materials and supplies claims are shown in Exhibit No. 3-A Water, at page 26 and for wastewater excluding Scranton, at page 19. The Company's materials and supplies claim for the Scranton wastewater operations was derived as follows: (1) monthly balances of the materials and supplies accounts for PAWC's other wastewater operations for the thirteen months ended December 31, 2016 were summed and the total divided by the number of customers in those wastewater districts to determine the average materials and supplies balance per customer and (2) the average materials and supplies balance per customer was multiplied by the total number of customers served by

the Scranton wastewater system. The calculation of this adjustment is shown on page 12 of Exhibit 3-A for Scranton Wastewater .

Q. Please explain the Company's claim for cash working capital.

A. The cash working capital requirement is calculated by multiplying the net lag days (revenue lag days less expense lag days) by the average operating expenses per day (total operating expenses / 365 days). All calculations have been made to one decimal place. In accordance with Commission policy, uncollectible accounts expense and amortizations were subtracted from total operating expenses before performing the calculation. The calculation of the gross cash working capital requirement is shown in Exhibit No. 3-A, at page 27 for Water, at page 20 for Wastewater excluding Scranton, and at page 13 for Scranton wastewater operations.

Q. How were the revenue and expense lags determined?

A. Revenue and expense lags were determined by a lead-lag study. The revenue lag consists of three components: (1) the lag from the midpoint of the service period to the end of the service period, i.e., the meter-read date; (2) the time required for bill preparation and mailing; and (3) the lag in receipt of payment. The first component is calculated as follows: the number of days in a standard calendar year (365) is first divided by the customer billings per year of 12. That figure is divided by two to determine the interval from the midpoint to the end of the service period. The final result of 15.2 days is the service period lag.

The second component is billing lag. The billing lag of two days used for this calculation was proposed by a witness for the Commission's Bureau of Investigation and

Enforcement and agreed to by the Company in its last base rate case at Docket No. R-2013-2355276.

The third component, the collection lag, requires a further calculation to determine the average length of time that revenues are outstanding before payment. This calculation was performed as follows: (1) daily accounts receivable balances for the twelve months ended December 31, 2016 were summed and the total divided by the number of days in 2016 to determine the average accounts receivable balance per day; (2) the Company's total revenue for the twelve months ended December 31, 2016 was divided by the number of days in 2016 to determine the average revenue billed per day; and (3) the average accounts receivable balance per day was divided by the average revenue billed per day. The result of the division in (3), above, yields the number of days on average that billed revenue was outstanding prior to receipt of payment which in the study was 32.18 days. This is a standard calculation that is used by other water utilities in Pennsylvania. Finally, 0.75 days of "Lockbox Collection Lag" was added to the revenue lag, which represents the time between the collection of customer remittances to a post office box and deposit of those funds into the Company's bank account. The total revenue lag for this study, when the items above are combined, is 50.1 days.

The expense lag was based upon a comprehensive lag study. Using procedures approved by the Commission in prior proceedings and data obtained from the Company's centralized accounts payable system, samples of expense vouchers for each category of expense were analyzed to determine the lag between the receipt of goods or services and the applicable payment due date. A summary of the expense lags by category is shown at page 28 for Water, at page 21 for Wastewater excluding Scranton, and at page 14 for

Scranton Wastewater. These lag calculations reflect an addition for "Check Float," which represents the average amount of time that it takes for a vendor to deposit a payment from the Company. For the Labor and Service Company calculations, an addition of 0.33 days was included, which has the same purpose as the "Check Float," but is instead calculated by taking a weighted average of direct deposit and check payments to employees. The detailed calculations of the revenue and expense lag days appear in the response to Question No. FR V. 8 of the Commission's Standard Filing Requirements.

Q. Please explain the addition to rate base for accrued and prepaid taxes.

A. This addition to rate base reflects the fact that, on balance, taxes are paid in advance. The lead/lag in payment of Pennsylvania corporate net income is based on four equal payments throughout the year. The General Assessment tax lead was calculated based upon actual payment dates in 2015. The lead/lag day calculations for the payment of taxes imposed by the Public Utility Realty Tax Act ("PURTA") and federal income tax were based upon statutory payment schedules. The lag for local property taxes was determined by using the regular expense lag calculation, which was discussed above. Payments are made by check, and the average payment was a lead of (70.75) days, adjusted to (64.51) when Check Float was accounted for. The calculations of the lead/lag days for all of the aforementioned taxes are set forth in Exhibit 3-A, at page 30 for Water, at page 23 for Wastewater excluding Scranton and at page 16 for Scranton Wastewater. The net lead/lag days for each tax are then applied to the pro forma tax amounts, as shown in the applicable pages of Exhibit No. 3-A, to calculate the overall working capital effect which, in this instance, is positive for all three operations. Thus, the average net

lead in payment of these taxes constitutes an addition to cash working capital requirements and, therefore, is reflected as a rate base addition.

Q. Please explain the addition to water rate base for the PG&W acquisition.

A. The fourth addition to the water rate base consists of the acquisition adjustment recorded by PAWC in connection with its acquisition of the water utility assets of PG&W. The recovery of a return on and of this acquisition adjustment was approved by the Commission in the Company's rate proceeding at Docket No. R-973944. As shown in Exhibit No. 3-A Water**,** at page 32, an adjustment was made to reflect the unamortized balance of the PG&W acquisition adjustment as an addition to rate base.

Q. What is the fifth addition to rate base for water?

A. The fifth addition to the water operations, shown on page 33 of Exhibit No. 3-A, consists of two items. The first item provides for the recovery of a return on and of utility plant acquisition adjustments ("UPAA") that were previously approved by the Commission in the Company's rate proceedings at Docket Nos. R-2009-2097323, R-2011-2232243 and R-2013-2355276. Second, the Company is requesting rate base recognition of the unamortized UPAA associated with its acquisition of the Scott Township system so that it can recover its investment in the UPPA over ten years and also recover a return on the unamortized balance. The acquisition of the Scott Township water system meets the criteria for recognition of positive acquisition adjustments set forth in Section 1327(a) of the Public Utility Code. The associated journal entries and the supporting documents for the acquisitions are provided in Exhibit 3-C, and are discussed by Mr. Grundusky (PAWC Statement No. 8).

Q. Please describe the fourth and fifth additions to rate base for wastewater operations excluding Scranton.

A. The fourth addition to rate base for wastewater operations excluding Scranton, shown at page 25 of Exhibit No. 3-A, is the unrecovered original cost of the existing Coatesville wastewater treatment plant property, which will be fully amortized by December 31, 2018 in accordance with the Commission's Order at Docket No. R-2008-2032689

The fifth addition, shown on page 26, represents the Fairview wastewater operation's deposit under an agreement with the Red Barn Trading Company ("Red Barn Nutrient Contract") for the purchase of nitrogen credits to comply with mass load limits set forth in the Fairview Township's North wastewater treatment plant's National Pollutant Discharge Elimination System permit No. PA0081868.

Q. What is the last addition to rate base for wastewater operations excluding Scranton?

A. The sixth addition, shown on page 27 of Exhibit No. 3-A, consists of two items. The first item provides for the recovery of a return on and of a UPAA for the Company's acquisition of the Clean Treatment Sewage Company that was previously approved by the Commission in the Company's rate proceeding at Docket No. R-2013-2355276. Second, the Company is requesting rate base recognition of the unamortized UPAA associated with its acquisition of the following wastewater systems: (1) Koppel Borough; (2) Hamiltonban Township Municipal Authority; (3) Shippenville Borough; and (4) New Cumberland Borough. The acquisition of the four systems listed above meet the criteria for recognition of positive acquisition adjustments set forth in Section 1327(a) of the Public Utility Code. The associated journal entries and the supporting documents for the

acquisitions are provided in Exhibit 3-C, and are discussed by Mr. Grundusky (PAWC Statement No. 8).

Q. Were any other acquisitions completed since the Company's last base rate filing that resulted in a utility plant acquisition adjustment?

A. Yes, there were nine acquisitions for which the Company paid less than depreciated original cost, resulting in negative UPAA, namely, PAWC's acquisitions of the water assets of Pocono Mountain Lake Forrest Community Association, Berry Hollow Water Company Inc., Abbey Woods Home Owners Association, Paint Township Municipal Water Authority and McEwensville Municipal Authority, as well as PAWC's acquisitions of the wastewater assets of Franklin Township Municipal Sewer Authority, Paint-Elk Joint Sewer Authority, McEwensville Municipal Authority and Fairview Township.

Each of these acquisitions involved matters of a substantial public interest, and as such, the Company is requesting that it not be required to amortize, as an offset to revenue requirement, the difference between depreciated original cost and purchase price. The associated journal entries and the supporting documents for the acquisitions are also provided in Exhibit 3-C and discussed by Mr. Grundusky.

Q. Please explain the items that were deducted from rate base for the Company's water and wastewater operations.

A. Two items were deducted from rate base for both the Company's water and wastewater operations. The first deduction, which offsets cash working capital requirements, relates to the average net lag in payment of interest on long-term debt and dividends on preferred stock. It was calculated using procedures previously approved by the Commission and is

set forth in Exhibit No. 3-A, at page 31 for Water, at page 24 for Wastewater excluding Scranton and at page 17 for Scranton wastewater.

The second deduction is for accumulated deferred taxes related to the normalization of the federal income tax effect of the Company's use of the Accelerated Cost Recovery System for post-1980 vintages of public utility property and the Modified Accelerated Cost Recovery System for post-1986 vintages of public utility property. Additionally, the Company has calculated the amount of deferred taxes originally deferred at the higher federal corporate income tax rate in effect prior to January 1, 1987 that may be flowed back to customers without violating the normalization requirements imposed by Section 168 of the Internal Revenue Code. Exhibit No. 3-A, page 37 for Water shows the balance of deferred income taxes at December 31, 2016 and as projected at December 31, 2017 and December 31, 2018. (None of the Company's wastewater operations have deferred taxes that were booked at pre-1987 tax rates.) The Company has calculated that flow-back using the so-called "Reverse South Georgia Method," which the IRS has held complies with applicable normalization requirements. In addition to the items listed above, the Company has included, as an increase to deferred taxes, the effects of electing the "Capitalized Repairs Deduction" for federal and state taxes, which is detailed in Filing Requirement IV.4.

Q. Were additional items deducted from rate base for the Company's water operations?

A. Yes. Three rate base deductions apply only to the Company's water operations. The first item is unamortized investment tax credits generated prior to 1971. These amounts are shown in Exhibit No. 3-A Water, page 34. Investment tax credits accrued in 1971 and

thereafter are amortized to income and are not permitted to be deducted from rate base under the requirements of Section 46 (f) of the Internal Revenue Code.

Another item deducted from rate base for water operations, shown in Exhibit No. 3-A Water at page 35, is a twelve-month average of extension deposits in suspense. The Company requires applicants for water service to advance a portion of the cost to construct main extensions needed to serve them under specified conditions, as more fully set forth in the Company's tariff. At the completion of the project, accounting entries are made to adjust estimated costs of construction to actual costs of construction. The difference is recorded in the extension deposit in suspense account until it is either refunded to the party that made the advance, or an additional amount owed is collected. In its final Order at Docket No. R-891208, the Commission agreed with the Office of Consumer Advocate ("OCA") that an average balance of such funds should be reflected in rate base, and the Company has made this adjustment, shown in Exhibit No. 3-A Water at page 35, to comply with that determination.

The final rate base offset for water operates comprises CIAC and CAC booked by Citizens prior to its acquisition by PAWC. The Joint Petition for Settlement at Docket No. R-2009-2097323, as approved by the Commission for ratemaking purposes, provided as follows:

> (i) $14,147,208, or 40%, of the December 31, 2009, balance of the net customer advances for which Citizens retained the refund liability upon the Company's acquisition of Citizens' water utility assets will be deemed deducted from the Company's rate base; (ii) $8,895,830 (100%) of the December 31, 2009 balance of the net contributions in aid of construction the OCA proposed to attribute to PAWC from its acquisition of Citizens' water assets will be deducted from PAWC's rate base; (iii) in future base rate cases, the foregoing balances, adjusted to reflect accumulated amortization, will be deducted for

ratemaking purposes until such balances are fully amortized; and (iv) the applicable depreciation rate for PAWC's transmission and distribution mains will be used to calculate the amortization of such balances for ratemaking purposes to offset the portion of depreciation expense on gross plant in service that is related to these advances and contributions.

The adjustments that were made to implement the terms of the Joint Petition for Settlement, set forth above, are detailed in Exhibit 3-A Water, at pages 36 and 59.

Q. Please explain the deduction from rate base of $521,925, shown on page 28 of the 3-A for Wastewater excluding Scranton.

A. Under its wastewater service tariff, the Company imposes a capacity reservation fee on applicants for wastewater service that do meet the criteria of a Bona Fide Service Applicant under Section 65.1 of the Commission's regulations (52 Pa. Code § 65.1). Those capacity reservation fees are not subject to refund and are recorded to the CIAC account for ratemaking purposes. PAWC's acquisition of the wastewater assets of Fairview Township, including reservation of capacity agreements with several developers, was approved by the Commission's Order entered December 17, 2015 at Docket No. A-2015-2486532. The fees paid by developers under those reservation of capacity agreements are subject to refund if the allocated capacity is not used by a date certain. PAWC recorded the capacity reservation fees collected by Fairview Township at the time of closing to the Company's deposit in suspense account until such fees are refunded to the developer under the terms of the reservation of capacity agreements or charged to the CIAC account. A twelve-month average amount of these capacity reservation fees is reflected as an offset to rate base for the Company's wastewater excluding Scranton operations.

Q. Do the adjustments explained above constitute all of the adjustments necessary to establish the Company's rate base?

A. Yes, they do.

Depreciation And Amortization Expense

Q. Have adjustments been made to the annual depreciation expense recorded on the Company's books at December 31, 2016?

A. Yes. Adjustments to booked amounts were made to a full annual amount of the depreciation accrual for the Company's plant in service as of December 31, 2016 and for plant to be added during 2017 and 2018. The annual accrual was determined largely on a Straight-Line Average Remaining Life basis. The adjustments to reflect the annual accrual for depreciation related to plant in service in the future test year and fully projected future test year are shown in Exhibit No. 3-A, at page 59 for Water, page 43 for Wastewater excluding Scranton, at page 35 for Scranton Wastewater, and, as noted previously, are explained and sponsored by Mr. Spanos.

Q. Please explain the Company's claim for "Amortizations" that appears in Exhibit No 3-A.

A. The amortization amount shown in Exhibit No. 3-A Water, at page 60, consists of the following items: (1) amortization of the UPAA for PG&W and for other UPAA amounts as previously approved by the Commission; (2) amortization of SFAS 109 regulatory assets – AFUDC, previously approved by the Commission; and (3) PAWC's claimed amortization of the Scott Township UPAA, as previously discussed in my testimony.

The amortization amount shown in Exhibit No. 3-A Wastewater excluding Scranton, at page 44, consists of the following items: (1) amortization of the UPAA

previously approved by the Commission for the Clean Treatment Sewage Company; and (2) PAWC's claimed amortization of the Koppel Borough, Hamiltonban Township Municipal Authority, Shippenville Borough and the Borough of New Cumberland UPAA, as previously discussed in my testimony.

The amortization amount shown in Exhibit No. 3-A Scranton wastewater, at page 36, consists of PAWC's claimed amortization of the SSA UPAA, as discussed in the testimony of Company witness Mr. Nevirauskas at PAWC Statement No. 1.

Property Taxes and General Assessments

Q. Please explain the adjustments to claims for property taxes.

A. PURTA tax is imposed on certain real property dedicated to utility water service in Pennsylvania based upon the fair market value of such property, as determined by applying per-county common level ratios to the assessed values of the property. Property taxes imposed on real property, not subject to PURTA, are administered at the county level in Pennsylvania. In every county, the sum of local tax rates (school taxes, municipal taxes and county taxes) is applied to the assessed value of each property. However, each county has its own system for determining assessed value. The Company's claims for its water and wastewater (excluding Scranton) operations were calculated based on the ratio of actual 2016 tax liability to tax base. This ratio was applied to the Company's pro forma claim for property tax eligible utility plant at December 31, 2017 and December 31, 2018. These calculations are detailed on page 61 of Exhibit No. 3-A for Water and page 45 for Wastewater excluding Scranton. The Company's claim for its Scranton wastewater operations, as detailed on page 37 of Exhibit 3-A for Scranton Wastewater, was calculated by applying the actual 2016

property tax to tax base ratio for the Company's other wastewater operations to the Company's pro forma claim for property tax eligible utility plant at December 31, 2017 and December 31, 2018.

Q. Please explain the adjustment for General Assessments.

A. The General Assessments are imposed on regulated utilities to provide funding for the Commission, the OCA and the Office of Small Business Advocate. The General Assessment rates are applied to a tax base consisting of revenue from water and wastewater service. To calculate pro forma General Assessments, the current assessment rates were applied to a tax base consisting of pro forma sales revenue under present and proposed rates as shown on page 63 of Exhibit No. 3-A for Water , page 47 for Wastewater excluding Scranton operations, and page 39 for Scranton Wastewater operations. The Company will update these adjustments with the new General Assessment rates once they are available. Backup for the calculation of these adjustments is provided in the Company's Exhibit No. 3-C.

Operating And Maintenance Expenses

Q. Please explain the development of pro forma operating and maintenance (O&M) expenses as set forth in Exhibit No. 3-A.

A. Pro forma O&M expenses have been developed in a manner consistent with previous filings. In general, data recorded on the Company's books of account for the historic test year were used as a starting point. Those data were then adjusted to reflect the effects of changes which have occurred or will occur by December 31, 2018. All adjustments that were made in developing pro forma expenses are summarized in Exhibit No. 3-A. The

details of each specific adjustment are set forth on separate pages following the summary page.

Q. What O&M expense adjustments are you addressing?

A. I will address the Company's claims for the following: (1) regulatory and rate case expense; (2) miscellaneous expenses and associated adjustments; and (3) uncollectible accounts expense. Ms. Hawn addresses labor and labor related and service company expenses in her direct testimony (PAWC Statement No. 6). Mr. Hunnell addresses production costs, insurance other group and various other expense claims in his testimony (PAWC Statement No. 7).

Q. Please explain the pro forma adjustment for regulatory and rate case expense.

A. Exhibit No. 3-A Water, at page 51, shows the development of the estimated costs of this rate case. Except for the Customer Class Demand Study performed in accordance with the Commission-approved settlement of PAWC's rate proceeding at Docket No. R-2011-2232243, the Company has normalized the estimated costs for the preparation and litigation of this case based on a 36-month expected interval between rate filings. With respect to the Scranton wastewater operations, the Company has also normalized the estimated cost of the additional cost of service study directed by the Acquisition Order noted earlier in my testimony based on a 36-month expected interval between rate filings.

Q. Please explain what is included in the Miscellaneous Expense Adjustment for water operations.

A. Exhibit 3-A Water, page 57, sets forth items that are being adjusted or eliminated from the Company's O&M claim in this proceeding.

First, I will discuss deductions reflected in the Miscellaneous Expense Adjustment. Donations, lobbying expenses, and fines incurred during the historic test year were removed. Costs in the amount of $633,762, associated with temporary employees, were excluded from the Company's claim because the need for these employees will be significantly reduced by the full-time staffing levels reflected in the salary and wage claim in this case. Naturally, this part of the adjustment assumes recognition in this proceeding of the requested staffing levels. The Company has reduced per book severance costs, as well as injuries and damages, to reflect a normalized level that is based on a three-year average. The costs for the write-off of the Kronos timekeeping system have been eliminated as a one-time cost. Finally, the Company has reduced O&M costs by $104,894 to reflect the savings associated with consolidating the Hershey Corporate Office into the new "Capital Campus" complex at the existing Mechanicsburg Operations Center site.

The Miscellaneous Expense Adjustment also includes three additions to the Company's O&M claim for water operations. First, the Company added monitoring and coordination fees of $13,775 imposed in 2017 by the Delaware River Basin Commission ("DRBC") based on PAWC's monthly water allocations under its DRBC permits . Second, the Company added fees of $819,250 that the Company anticipates will be imposed by Pennsylvania Department of Environmental Protection ("DEP") as part of its proposal to assess annual fees on public water systems to augment funding to administer DEP's Safe Drinking Water Program. Finally, the Company added costs associated with the Company's revolving line of credit because those costs were reclassified from interest

expense to operating costs. Documentation supporting the foregoing adjustments is contained in Exhibit No. 3-B.

Q. Please explain the Company's adjustment for miscellaneous items shown on page 41 for Wastewater excluding Scranton and page 33 for Scranton Wastewater.

A. The Company eliminated duplicative expense items such as pension and other post-employment benefits, insurance other than group and regulatory expense that have been included in the development of Company's claim for the ongoing water expense levels (Exhibit 3-A Water). Additionally, $500 in fines was eliminated. For the Company's Fairview wastewater operations, the Company made adjustments to remove $40,966 of 2016 Red Barn Nutrient Contract costs recorded in 2017 and to reflect contracted increases of $3,587 for 2017 and $3,690 for 2018. Finally, the Company made adjustments to annualize the O&M expenses not fully recognized in the historic test year for the Company's Borough of New Cumberland and SSA acquisitions that closed on October 31, 2016 and December 29, 2016, respectively. Details supporting these adjustments are provided in Exhibit No. 3-B.

Q. Please explain the Company's claim for uncollectible accounts expense.

A. The Company's claims for uncollectible accounts expense, shown on Exhibit No. 3-A at page 58 for Water, page 42 for Wastewater excluding Scranton and page 34 for Scranton Wastewater were developed by applying the three-year average ratio of net write-offs to fully projected future test year levels revenues.

Commitments From the Company's 2013 Rate Case Settlement

Q. Are you addressing any of the Company's commitments it made in the Joint Petition for Settlement at Docket No. R-2013-2355276 ("Joint Petition")?

A. Yes. In satisfaction of the Company's commitment set forth in Paragraph 8(n) of the Joint Petition, Schedule JRC-1 presents a comparison of its actual expenses and rate base additions for the twelve months ended December 31, 2014 to its projections for the same time period submitted in PAWC's 2013 base rate case proceeding.

Proposed Water and Wastewater Service Tariffs

Q. Is the Company proposing any changes to its existing water and wastewater tariffs in addition to increasing rates?

A. Yes. The Company is proposing new tariffs to replace its existing Commission-approved tariffs for water service and wastewater service.

Q. Why is the Company filing new tariffs rather than supplements to its existing water and wastewater tariffs?

A. The Company is proposing certain formatting changes to make its tariffs more user-friendly, as well as changes to clarify or update rules and regulations, and consolidate rate zones. It would have been administratively unwieldy and confusing for readers if the Company made those revisions by changing individual pages of its tariffs. The changes between the Company's existing and proposed tariffs are described on Schedule JRC-2 (Water) and Schedule JRC-3 (Wastewater). The Company is also providing a redlined version of its proposed tariffs showing changes made relative to its current water and wastewater tariffs. Ms. Lontz, in PAWC Statement No. 5, discusses the water and wastewater rate zones that the Company proposes to consolidate in this case.

Q. Does this conclude your direct testimony at this time?

A. Yes, it does.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
	:	
v.	:	**DOCKET NO. R-2017-2595853**
	:	
PENNSYLVANIA-AMERICAN WATER COMPANY	:	

VERIFICATION

I, **John R. Cox**, hereby state that the facts set forth in the pre-marked Statement No. 4 and accompanying exhibits, if any, are true and correct to the best of my knowledge information and belief. I understand that this verification is made subject to the provisions and penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: April 28, 2017

John R. Cox

Pennsylvania American Water Company
Comparison of Actual vs. Claimed Operating Expenses
For the 12 Months Ending December 31, 2014
R-2013-2355276 Exhibit 3-A Revised

DESCRIPTION	POCONO WW PROPOSED	CLARION WW PROPOSED	WATER PROPOSED	TOTAL PROPOSED	POCONO WW ACTUAL	CLARION WW ACTUAL	WATER ACTUAL	TOTAL ACTUAL	TOTAL VARIANCE
Purchased Water	$0	$0	$2,965,448	$2,965,448	$0	$0	$2,834,201	$2,834,201	($131,247)
Fuel And Power	103,025	110,045	12,968,825	13,181,895	88,766	103,619	12,906,834	13,099,219	(82,676)
Chemicals	56,331	9,380	8,387,070	8,452,781	68,471	7,597	8,362,055	8,438,123	(14,658)
Waste Disposal	67,957	54,952	1,905,084	2,027,993	60,516	46,676	1,864,241	1,971,433	(56,560)
Labor	184,032	250,156	54,386,743	54,820,931	190,631	248,242	46,150,347	46,589,220	(8,231,711)
Pensions	0	0	9,069,256	9,069,256	19,550	25,490	4,895,303	4,940,343	(4,128,913)
Group Insurance & Post Retirement Benefits	30,584	55,937	12,804,347	12,890,868	33,437	64,921	8,882,336	8,980,694	(3,910,174)
Other Employee Benefits	7,685	21,716	2,572,516	2,601,917	5,774	21,596	2,268,554	2,295,924	(305,993)
Support Services	0	0	46,988,270	46,988,270	0	0	43,072,883	43,072,883	(3,915,387)
Rents	885		955,933	956,818	8,822	0	616,426	625,248	(331,570)
Customer Accounting (Including Uncollectible Expense)	18,678	31,699	12,137,158	12,187,535	37,450	31,120	15,549,359	15,617,929	3,430,394
Regulatory Expense	0	0	672,707	672,707	0	0	427,709	427,709	(244,998)
Insurance Other Than Group	0	0	8,191,210	8,191,210	4,343	5,575	12,367,747	12,377,665	4,186,455
General And Miscellaneous Expense	95,281	155,443	22,469,068	22,719,792	76,186	114,976	24,799,673	24,990,835	2,271,043
Maintenance	23,562	50,784	9,930,444	10,004,790	40,673	34,887	9,828,687	9,904,247	(100,543)
TOTAL	$588,020	$740,112	$206,404,079	$207,732,211	$634,619	$704,699	$194,826,355	$196,165,673	($11,566,538)

Pennsylvania American Water Company
Comparison of Actual vs. Claimed Rate Base Additions
For the 12 Months Ending December 31, 2014
R-2013-2355276 Exhibit 3-C

PROPOSED

DESCRIPTION	POCONO WW PROPOSED	CLARION WW PROPOSED	CLAYSVILLE WW PROPOSED (EXH-3A)	WATER PROPOSED	TOTAL PROPOSED
2013 Additions	$296,155	$247,000	$0	$272,800,485	$273,343,640
2014 Additions	1,000,000	23,873,111	825,000	268,164,000	293,862,111
TOTAL	$1,296,155	$24,120,111	$825,000	$540,964,485	$567,205,751

ACTUAL

DESCRIPTION	POCONO WW ACTUAL	CLARION WW ACTUAL	CLAYSVILLE WW ACTUAL	WATER ACTUAL	TOTAL ACTUAL
2013 Additions	$714,711	$1,436,490	$0	$290,911,798	$293,062,999
2014 Additions	1,262,920	20,951,973	$1,562,641	253,381,733	277,159,267
TOTAL	$1,977,631	$22,388,463	$1,562,641	$544,293,531	$570,222,266

VARIANCE

DESCRIPTION	POCONO WW VARIANCE	CLARION WW ACTUAL	CLAYSVILLE WW ACTUAL	WATER ACTUAL	TOTAL ACTUAL
2013 Additions	$418,556	$1,189,490	$0	$18,111,313	$19,719,359
2014 Additions	262,920	(2,921,138)	737,641	(14,782,267)	(16,702,844)
TOTAL	$681,476	($1,731,648)	$737,641	$3,329,046	$3,016,515

PAWC Original Tariff Water-PA P.U.C. No. 4
PAWC Proposed Tariff Water-PA P.U.C. No. 5
List of Changes

Current Tariff Water-PA P.U.C. No. 4		Proposed Tariff Water-PA P.U.C. No. 5		Change Description
Tariff Section / Description	**Page No.**	**Tariff Section / Description**	**Page No.**	
Font Courier New 12 pt	--	Font Arial 11 pt	--	Font is changed throughout the tariff to make the tariff more readable and user-friendly. Various font and related formatting changes are not shown in redline.
Title Page	1		1	Updated to reflect new tariff number, issued date and effective date. (Changes not shown in redline.)
List of Changes Made by this Supplement	2, 2A	List of Changes Made by this Supplement	2-3	No change other than text added referring the reader to this document for a description of the changes.
Table of Contents	3, 3A, 4, 4A	Table of Contents	4-7	Pages renumbered and content updated to reflect changes detailed below. (Changes not shown in redline.)
----	--	Reserved Page for Future Use	8	New page. (Changes not shown in redline.)
Territories Served	5-7, 8, 8A, 8B	Territories Served	9-14	Updated the list of service territories based on PUC-granted certificate of public convenience authority. Deleted the headings appearing in center format because they were outdated references to previous operating district offices. The deleted headings include the following: Indiana, McMurrary, Mechanicsburg, Milton, New Castle, Norristown, Poconos, Pittsburgh, Scranton, Spring Brook, Coatesville, Reading Reorganized the appearance of the list of territories served to show the territories by state region, by company water district, in alphabetical order. Added county descriptions to each water district as needed. Add language to clarify that all territories are subject to Rate Zone 1 rates unless otherwise specified. (Changes not shown in redline)

--	--	This Page Held for Future Use	15	New page. (Changes not shown in redline.)
Schedule of Rates		**Schedule of Rates**		All substantive, non-formatting-related changes to the rate schedules are shown in redline.
Meter Rates – Rate Zone 1 (for service rendered Jan. 1, 2014 through Dec. 31, 2016)	9	Deleted	--	This page deleted because rate period is no longer effective.
Meter Rates – Rate Zone 1 (for service rendered beginning Jan. 1, 2017)	9.1	Rate Zone 1 – General Metered Service - All Classes Except Industrial	16.1	Updated heading. Updated to reflect increase in rates and effective period. Added text to clarify the Applicability and Availability of this rate schedule. Made other minor clean-up edits as shown in redline.
Meter Rates – Rate Zone 1 - Industrial	9A	Rate Zone 1 – General Metered Service – Industrial	16.2	Updated heading. Updated to reflect increase in rates and effective period. Added text to clarify the Applicability and Availability of this rate schedule. Made other minor clean-up edits as shown in redline.
Industrial Curtailment Rate	9A1,9A2,	Industrial Curtailment Rate	18-19	Added text to clarify the effective period.
Rate Zone 50 – Acquisitions	9A3	Deleted	--	This page deleted because Rate Zone 50 is no longer effective.
Rate Zone 50 – Industrial - Acquisitions	9A4	Deleted	--	This page deleted because Rate Zone 50 is no longer effective.
Rate Zone 40 – Nittany	9A5	Deleted	--	This page deleted because Rate Zone 40 is being rolled into Rate Zone 1 and is no longer effective.
Rate Zone 41 – Sutton Hills	9A6	Deleted	--	This page deleted because Rate Zone 41 is being rolled into Rate Zone 1 and is no longer effective.
Rate Zone 51 – Berry Hollow	9A7	Deleted	--	This page deleted because Rate Zone 51 is being rolled into Rate Zone 1 and is no longer effective.
Rate Zone 44 – Wildcat	9A8	Deleted	--	This page deleted because Rate Zone 44 is being rolled into Rate Zone 1 and is no longer effective.

Rate Zone 52 – McEwensville	9A9	Deleted	--	This page deleted because Rate Zone 52 is being rolled into Rate Zone 1 and is no longer effective.
Resale and Electric Generation Standby Rate	9B, 9B2	Resale and Electric Generation Standby Rate	23-24	Added text to the Applicability section to indicate that the rate applies on and after the Effective Date on the bottom of the page.
Industrial Standby Rate	9B3, 9B4, 9B5	Industrial Standby Rate	20-22	Added text to the Applicability section to indicate that the rate applies on and after the Effective Date on the bottom of the page.
Unmetered Rates – Rate Zone 1	9C	Rate Zone 1 –General Unmetered Service – Residential	16.3	Updated heading. Updated to reflect increase in rates and effective period. Added text to clarify the Applicability and Availability of this rate schedule and the terms of unmetered service. Made other minor clean-up edits as shown in redline.
(Not Applicable)	--	Phase-In Rider – Nittany	16.4	Pennsylvania American Water's filing with the PUC requests a two-year phase-in of its proposed rate increase for customers acquired through the Nittany Water Company system acquisition at Docket No. A-2009-2120358 and formerly subject to Rate Zone 40 rates. If approved, residential customers would see their water bill increase from $33.20 to $48.84 per month in year one, with the remaining increase to $65.12 per month in year two. This rider provides that the customer's service charge and water usage charge will be 75% of the rates charge under Rate Zone 1 for the service charge and water usage charges. The 25% discount from Rate Zone 1 rates will apply through and until December 31, 2018, and will appear on the customer's bill as a credit. Starting January 1, 2019, the rider will no longer be effective.
(Not Applicable)	--	Phase-In Rider – McEwensville	16.5	Pennsylvania American Water's filing with the PUC requests a two-year phase-in of its proposed water rate increase for customers acquired through the McEwensville Municipal Authority system acquisition at Docket No. A-2015-2460981 and formerly subject to Rate Zone 52 rates. If approved, residential customers would see their water bill increase from

				$21.78 to $45.58 per month in year one, with the remaining increase to $65.12 per month in year two. This rider provides that the customer's service charge and water usage charge will be 70% of the rates charge under Rate Zone 1 for the service charge and water usage. The 30% discount from Rate Zone 1 rates will apply through and until December 31, 2018, and will appear on the customer's bill as a credit. Starting January 1, 2019, the rider will no longer be effective.
Rate DIS – Demand Based Industrial Service	9D	Rider DIS – Demand Based Industrial Service	25	Added text to the Applicability section to indicate that the rate applies on and after the Effective Date and added text to the Availability section to clarify the Rider is available to qualifying Customers and Applicants.
Rate DRS – Demand Based Resale Water Service	9E	Rider DRS – Demand Based Resale Water Service	26	Added text to the Applicability section to indicate that the rate applies on and after the Effective Date and added text to the Availability section to clarify the Rider is available to qualifying Customers and Applicants.
Rate DMS – Demand Based Governmental Water Service	9E1	Rider DGS – Demand Based Governmental Water Service	27	Added text to the Applicability section to indicate that the rate applies on and after the Effective Date and added text to the Availability section to clarify the Rider is available to qualifying Customers and Applicants.
Rate EGS – Electric Generation Service	9F	Rider EGS – Electric Generation Service	28	Added text to the Applicability section to indicate that the rate applies on and after the Effective Date and added text to the Availability section to clarify the Rider is available to qualifying Customers and Applicants. Changed "Rate EGS" to "Rider EGS."
Low Income Rate	9G	Low Income Rider	17	Updated heading. Added text to clarify the Applicability and Availability of this rate schedule. Changed "service received" to "service rendered." Made other minor clean-up edits as shown in redline.

Rate Zone 47 - Balsinger	9H	Deleted	--	This page deleted because Rate Zone 47 is being rolled into Rate Zone 1 and is no longer effective.
This Page Held for Future Use	9I	Deleted	--	Deleted page.
Rate Zone 46 – All Seasons	9J	Deleted	--	This page deleted because Rate Zone 46 is being rolled into Rate Zone 1 and is no longer effective.
This Page Held for Future Use	9K, 9L, 9M, 9N, 9O, 9P	Deleted	--	Deleted pages.
Private Fire Service	10	Private Fire Service –Unmetered	29-30	Updated heading. Updated to reflect increase in rates and effective period. Added text to clarify the Applicability, Availability and Terms and Conditions of this rate schedule. Made other clean-up and clarifying edits as shown in redline.
Metered Private Fire	10A	Private Fire Service –Metered	31	Updated heading. Updated to reflect increase in rates and effective period. Added text to clarify the Applicability, Availability and Terms and Conditions of this rate schedule. Made other clean-up and clarifying edits as shown in redline.
Private Fire – Rate Zone 47 and 48	10B	Deleted	--	This page deleted because Private Fire – Rate Zone 47 and 48 is being rolled into Private Fire Service – Unmetered and Private Fire Service – Metered and therefore is no longer effective.
This Page Held for Future Use	10C, 10D, 10E, 10F	Deleted	--	Deleted pages.
Private Fire – Rate Zone 16	10G	Deleted	--	This page deleted because Private Fire – Rate Zone 16 is being rolled into Private Fire Service – Unmetered and Private Fire Service – Metered and therefore is no longer effective.

Private Fire – Rate Zone 17-20	10H	Deleted	--	This page deleted because Private Fire – Rate Zone 17-20 is being rolled into Private Fire Service – Unmetered and Private Fire Service – Metered and therefore is no longer effective.
This Page Held for Future Use	10I, 10J, 10K	Deleted	--	Deleted pages.
Private Fire – Rate Zone 21	10L	Deleted	--	This page deleted because Private Fire – Rate Zone 21 is being rolled into Private Fire Service – Unmetered and Private Fire Service – Metered and therefore is no longer effective.
Private Fire – Rate Zone 23	10M	Deleted	--	This page deleted because Private Fire – Rate Zone 23 is being rolled into Private Fire Service – Unmetered and Private Fire Service – Metered and therefore is no longer effective.
Public Fire Service	11	Public Fire Service	32	Updated heading. Updated to reflect increase in rates and effective period. Added text to clarify the Applicability and Availability of this rate schedule.
This Page Held for Future Use	11A, 11B	Deleted	__	Deleted pages.
State Tax Adjustment Surcharge	12	State Tax Adjustment Surcharge	33	STAS was reset to 0.00%. Updated heading to include "Schedule of Rates" and changed "Charge" to "Surcharge". Also changed the language to clarify that the STAS charge will apply on a bills rendered basis on and after the Effective Date.
PENNVEST Surcharge	12A	PENNVEST Surcharge	34	Updated heading to include "Schedule of Rates". No other changes.
Distribution System Improvement Charge	12B, 12B1, 12B2, 12B3, 12B4	Distribution System Improvement Charge	35-38	On page 29.1, the DSIC was reset to 0.00%. Clarifying language was inserted about the surcharge applying on a bills rendered basis on and after the Effective Date. Deleted language excluding Rate Zones 51 and 52 from DSIC application.

				The following language was deleted: "The above charges will be recomputed quarterly, using the elements prescribed by the Commission in its Order dated August 26, 1996 at Docket No. P-00961031." The following language was inserted: "The above charge will be recomputed quarterly using the elements prescribed by the Commission as shown on pages 29.2, 29.3 and 29.4 of this tariff."
Miscellaneous Fees	12C	Miscellaneous Fees	39	Inserted a new term of "Turn On Fee" to simplify the reference to Service Reconnection Fee and Discontinuance Fee. Inserted tariff cross-references for further description of the fees. Made other minor changes.
This Page Held for Future Use	12D	This Page Held for Future Use	40	No change.
This Page Held for Future Use	12E, 12F	Deleted	--	Deleted pages.
Rules and Regulations		**Rules and Regulations**		All substantive, non-formatting-related changes to the rules and regulations are shown in redline.
Rules and Regulations Table of Contents	13	Deleted	--	Deleted the duplicative table of contents.
1. The Water Tariff	14	1. The Water Tariff	41	In Section 1.3, language was added to clarify that the tariff applies to any party receiving service from the Company whether unlawfully or otherwise, including unauthorized use of service.
2. Definitions	15-17	2. Definitions	42-44	Definitions were rearranged in alphabetical order. New definitions were added for the following terms: Applicant (2.2), Customer (2.3), Creditworthiness (2.4) and Unauthorized Use of Service (2.20). The term "Applicant Other than Residential" was changed to "Non-Residential Applicant." The term "Customer Other than Residential" was changed to "Non-Residential Customer." The terms "Residential Applicant" and "Residential Customer" were updated consistent with Act 155 of 2014.

3. Application for Service and Street Service Connection	18	3. Application for Service and Street Service Connection	45	In Section 3.1, language was added to clarify how applications for service can be made by Applicants and the customer information the Company may require the Applicant to provide prior to rendering utility service. In Section 3.4, added "may" between "Company" and "require" in the second line. Added new Section 3.5 making express the right of the Company to limit or reject service and the grounds upon which it may exercise such right.
3.5 Customer Connection Loan Program	18.1	Deleted	--	The Customer Connection Loan Program was deleted from the tariff as there are no customers currently participating or requesting to participate in the program.
4. Service Pipes	19-20	4. Service Pipes	46-47	In Section 4.9, Customer Responsibility for Service Pipe, language was added that the failure of a Customer to properly install and maintain a Service Pipe, including replacement, shall constitute grounds for the Company to initiate action to terminate service to the Customer and seek recovery for any damage to the Company's facilities caused by an improperly functioning Service Pipe. In addition, language was added to make clear that the bill adjustment for discovered leaks will be provided only to the extent the Customer has not received a bill adjustment for an undetected, non-surfacing, underground leak at the same premises in the past five (5) years. Language was also added providing the Company the right to require documentation to establish, to the Company's satisfaction, the existence of such a leak at the Customer's premises.
5. Meters and Meter Installations	21-22	5. Meters and Meter Installations	48-49	In Section 5.1, Meter Installations, language was inserted to clarify that meters will be owned by and remain the property of the Company. In Section 5.2, Meter Location, language was

				added to address the location of meter box/vaults for new construction and location of meter for existing premises. In Section 5.4, Outside Meter Installations (Meter Box/Vaults), language was added to clarify that meter boxes/vaults shall be owned, furnished, installed and maintained by the Customer, at Customer's expense, unless otherwise agreed to by the Company, and that, at the Company's discretion the Company has the right to install the meter box/vault for a Customer's property. Language was added to address the size and dimension requirements and the requirements for concrete vaults. Language was added to authorize the Company to require the installation of meter box/vault prior to restoration of service where there has been termination of service due to Unauthorized Use of Service. In Section 5.7, Tampering with Meters or other Utility Equipment, language was added to authorize the Company to require the installation of meter box/vault prior to restoration of service where there has been termination of service due to tampering with a meter or other utility equipment.
6. Meter Tests	23	6. Meter Tests	50	No change.
7. Credit	24	7. Credit	51-52	In Section 7.2, language was added addressing prior company debts held by former Customers. Language was added to Section 7.3 (Customer Deposits), Section 7.4 (Deposit Amounts), Section 7.5 (Return of Deposits) and Section 7.6 (Interest on Deposits) in accordance with Act 155 of 2014. A new Section 7.7 (Payment Period for Deposits) was added in accordance with Act 155 of 2014.
8. Public Fire Hydrants	25-28	8. Public Fire Hydrants	53-56	In Section 8.5, Application for Public Fire Hydrant Service, Fourth paragraph inserted language incorporating limitation of liability language from Section 15.1 of the Tariff. In Fifth paragraph, third line, changed "installation to "use" and deleted "performance." In Fifth paragraph, end of paragraph, inserted language making explicit that the enforceability of an Applicant's indemnity obligation under the Fifth paragraph of

				the Application is only to the extent that the Applicant could be held directly liable under the Pennsylvania Political Subdivision Tort Claims Act set forth in 42 Pa.C.S. § 8541 et seq, and that nothing in this paragraph shall be deemed a waiver, contractual or otherwise, of the protections afforded the Applicant at 42 Pa. C.S. § 8541 et seq.
9. Sales for Resale	29	9. Sales for Resale	57	No change.
10. Payment Terms	30-31	10. Payment Terms	58	In Section 10.1, the heading and the language under the heading "Billing Period Prior to SAP CIS Implementation" was deleted because it is no longer applicable. "Billing Period After SAP CIS Implementation" was changed to "Billing Period". The sentence "All bills shall generally be rendered monthly" was deleted and replaced with "The Company shall render a bill once every billing period to every Customer in accordance with approved rate schedules." Other clean-up edits were made in Sections 10.1 and 10.5.
11. Service Reconnection and Discontinuance Fees	32	11. Turn-On Fee	59	Deleted the reference to Service Reconnection Fee and Discontinuance Fee and inserted a single term of "Turn-On Fee". Since the Service Reconnection Fee and Discontinuance Fee are both charged to the customer at the time of restoration, the language from Section 11.1 and 11.2 was collapsed into a new Section 11.1 and Section 11.2 was deleted and the terminology of this charge was changed to "Turn On Fee." Added language clarifying that for restoration of service performed during non-regularly-scheduled working hours, the Company reserves the right to bill the Customer for the cost incurred by the Company (relating to overtime and holiday hours) in addition to the Turn On Fee shown on the Miscellaneous Fees rate schedule. If the Company incurs out of the ordinary expense to affect termination of service for non-payment of bills or due to lack of access to the Company's facilities, the Customer must reimburse the Company for those

				expenses in addition to the Turn On Fee on prior to service reconnection.
12. Termination of Water Service	33	12. Termination and Discontinuance of Water Service	60-61	Heading was changed to include "Termination and Discontinuance of Water Service" Added clarifying language that terminations performed for reasons listed in Section 12.1 are to be performed upon prior notice to the Customer, while terminations performed for the reasons in Section 12.2 may be performed immediately and without prior notice. Relocated the language granting the Company's right to terminate for existence of a cross connection in violation of Rule 22 from Section 12.1 to Section 12.2. Added a new Section 12.1(F) clarifying the Company's right to terminate water service "for termination of wastewater service by Company in accordance with the Company's wastewater tariff on file with the Commission." Added new Sections 12.2(F) and 12.2(G) regarding Company's right to terminate service for Customer's tendering payment that is subsequently dishonored, revoked, canceled or otherwise not authorized, in accordance with Act 155 of 2014. In Section 12.3, made clarifying edits to heading and added language clarifying that all applicable arrearages, deposits and fees must be paid prior to restoration of service. Added new Section 12.4 relating to Discontinuance of Service by Customer consistent with the Company's wastewater tariff.
13. Abatements and Refunds	34	13. Abatements and Refunds	62	No change.
14. Service Continuity	35	14. Service Continuity	63	No change.
15. Liability of Company	36-37	15. Liability of Company	64	No change.

16. General	37	16. General	65	Added a new Section 16.4 to clarify the Company's right of access on customer premises for the purpose of inspecting, operating and maintaining Company facilities.
17. Multiple Meters	38	17. Multiple Meters	66	No change.
18. Separate Meter and Service Line	39	18. Separate Meter and Service Line	66	No change.
19. Lawn Sprinkler System	40	19. Lawn Sprinkler System	67	No change.
20. Termination of Free Service Under Certain Contracts and other Instruments	41	20. Termination of Free Service Under Certain Contracts and other Instruments	68	No change.
21. Qualified Private Fire Hydrant	41-48	21. Qualified Private Fire Hydrant	69-75	In Section 21.2, Application for Qualified Private Fire Hydrant, added language indicating that the Applicant agrees to be bound by the tariff as amended from time to time, to be consistent with the Public Fire Hydrant Application language. In the Fourth paragraph, inserted the following sentence to be consistent with public fire hydrant application: "The Water Company will undertake to use reasonable care and diligence in order to prevent and avoid interruptions and fluctuations in service, but it cannot and does not guarantee that such will not occur." Also made changes to reference to Section 15.1 of the tariff. Added a new Fifth paragraph related to customer's indemnity obligation consistent with the public fire hydrant application. Renumbered remaining paragraphs; made other minor clean-up edits.
22. Cross Connections	49	22. Cross Connections	76	No change.
23. Main Extensions	50-53	23. Main Extensions for Non Bona Fide Service Applicants	77-79	No change.
Page Left Intentionally Blank	54-64, 64A	Deleted	---	Deleted pages.

23.5 Offsite Development Marketing Contracts	65	23.2 Offsite Development Marketing Contracts	80	Renumbered 23.5 to 23.2
24. Water Conservation Contingency Plan	66-67	24. Water Conservation Contingency Plan	81-82	No change.
25. Residential Structure Equipped with Automatic Fire Protection Systems	68	25. Residential Structure Equipped with Automatic Fire Protection Systems	83	No change.
26. Classification of Revenue	69-70	26. Classification of Revenue	84-85	The heading for Section 26 was changed to include "(Classes of Service)" after "Classification of Revenue" to make consistent with terminology used in the rate schedules and throughout the tariff regarding customer classes. In Section 26.1, the Residential class was updated to include additional description of residential housing. In Section 26.5, Sales for Resale was updated to include the phrase "Other Water Utilities" to be consistent with use of term throughout rate schedules. Language was added to Section 26.6 Private Fire Protection to make clear that such customer class covers both unmetered and metered charges for private fire protection service including Qualified Private Fire Hydrants.
27. Main Extensions for Bonafide Service Applicants	71-86	27. Main Extensions for Bonafide Service Applicants	86-100	No change.
28. Flat Rate Service	87	28. Flat Rate Service	101	No change.

PAWC Original Tariff Wastewater PA P.U.C. No. 15
PAWC Proposed Tariff Wastewater PA P.U.C. No. 16
List of Changes

Current Tariff Water PA P.U.C. No. 15		**Proposed Tariff Water PA P.U.C. No. 16**		**Change Description**
Tariff Section / Description	**Page No.**	**Tariff Section / Description**	**Page No.**	
Font Courier New 12 pt	---	Font Arial 11 pt	---	Font is changed throughout the tariff to make the tariff more readable and user-friendly. Various font and related formatting changes are not shown in redline.
Title Page	1		1	Updated to reflect new tariff number, issued date and effective date. (Changes not shown in redline.)
List of Changes Made by this Supplement	2	List of Changes Made by this Supplement	2-3	Added a second page. (Changes not shown in redline.)
Table of Contents	3, 3A	Table of Contents	4-6	Pages renumbered and content updated to reflect changes detailed below. (Changes not shown in redline.)
----	--	Reserved Page for Future Use	7	New page. (Change not shown in redline.)
Territories Served	3B	Territories Served	8	Reorganized the appearance of the list of territories served to show the territories by state region, by company wastewater system district, in alphabetical order. Added language to clarify that all territories are subject to Rate Zone 1 rates unless otherwise specified. (Changes not shown in redline.)
--	--	This Page Held for Future Use	9-10	New page. (Changes not shown in redline.)
Schedule of Rates		**Schedule of Rates**		All substantive, non-formatting-related changes to the rate schedules are shown in redline.
Metered and Unmetered Charges Rate Zone 1	4, 4.1	Rate Zone 1 – Metered and Unmetered	11.1, 11.2	Updated heading. Updated to reflect proposed increase in rates. Added text to clarify the Applicability and Availability of this rate schedule.
Metered and Unmetered Charges Rate Zone 2	4.2	Deleted	--	This page deleted because Rate Zone 2 is being rolled into Rate Zone 1 and is no longer effective.

Metered and Unmetered Charges Rate Zone 3	4.3	Deleted	--	This page deleted because Rate Zone 3 is being rolled into Rate Zone 1 and is no longer effective.
Metered and Unmetered Charges Rate Zone 4	4.4	Deleted	--	This page deleted because Rate Zone 4 is being rolled into Rate Zone 1 and is no longer effective.
Metered and Unmetered Charges Rate Zone 5	4.5	Deleted	--	This page deleted because Rate Zone 5 is being rolled into Rate Zone 1 and is no longer effective.
Metered and Unmetered Charges Rate Zone 6	4.6	Deleted	--	This page deleted because Rate Zone 6 is being rolled into Rate Zone 1 and is no longer effective.
Metered and Unmetered Charges Rate Zone 7	4.7	Deleted	--	This page deleted because Rate Zone 7 is being rolled into Rate Zone 1 and is no longer effective.
Metered and Unmetered Charges Rate Zone 8	4.8	Deleted	--	This page deleted because Rate Zone 8 is being rolled into Rate Zone 1 and is no longer effective.
Metered and Unmetered Charges Rate Zone 9	4.9	Deleted	--	This page deleted because Rate Zone 9 is being rolled into Rate Zone 1 and is no longer effective.
Metered and Unmetered Charges Rate Zone 10	4.10	Deleted	--	This page deleted because Rate Zone 10 is being rolled into Rate Zone 1 and is no longer effective.
Metered and Unmetered Charges Rate Zone 11	4.11	Rate Zone 2 – Metered	11.3	Updated heading. Updated to reflect proposed increase in rates. Added text to clarify the Applicability and Availability of this rate schedule.
Metered and Unmetered Charges Rate Zone 12	4.12	Rate Zone 3 – Metered and Unmetered	11.4	Updated heading. Added text to clarify the Applicability and Availability of this rate schedule.
Schedule of Miscellaneous Fees and Charges	4A, 4B, 4C, 4D, 4E	Miscellaneous Fees and Charges	12-15	On page 12, updated heading. Deleted "(excluding clause (iii) of that definition)" from Rule A2. Deleted language regarding the "application of capacity reservation fee within the

				Company's Coatesville wastewater service territory." On page 13, updated heading. Deleted "(excluding clause (iii) of that definition)" from Rule 2. On pages 14 and 15, updated headings.
Low Income Tariff	4F	Low Income Rider	16	Updated heading.
State Tax Adjustment Surcharge	5	State Tax Adjustment Surcharge	17	Updated heading to include "Schedule of Rates". Also changed the language to clarify that the STAS charge will apply on a bills rendered basis on and after the Effective Date.
Customer Growth and Capacity Reservation Fee Credit Adjustment (Coatesville)	5A	Deleted	--	Deleted Pages
Customer Growth and Capacity Reservation Fee Credit Adjustment (Coatesville)	5B, 5C, 5D, 5E, 5F	Deleted	--	Deleted pages.
Distribution System Improvement Charge	5G, 5H, 5I, 5J, 5K	Distribution System Improvement Charge	18.1-18.4	On page 18.1, the DSIC was reset to 0.00%. Clarifying language was inserted about the surcharge applying on a bills rendered basis on and after the Effective Date. Deleted language regarding Rate Zones. The reference to the Commission Order dated December 4, 2014 at Docket No. P-2014-2431005 approving the DSIC was deleted. The following language was inserted: "The above charge will be recomputed quarterly using the elements prescribed by the Commission as shown on pages 18.2, 18.3 and 18.4 of this tariff."
-----	----	This Page Held for Future Use	19	New page added

Rules and Regulations		**Rules and Regulations**		All substantive, non-formatting-related changes to the rules and regulations are shown in redline.
Part II Definitions	6, 6A, 6B, 6C	Section A – Definitions	20-23	New definitions were added for the following terms: Residential Customer, Residential Applicant consistent with Act 155 of 2014. and Unauthorized Use of Service (2.20).
---	---	Section B – The Wastewater Tariff	24	New section added to make express that a copy of this Tariff, which is the rates, rules and regulations under which water service will be supplied by the Company to its Applicants and Customers in Pennsylvania, is on file with the Pennsylvania Public Utility Commission, and is available and open for inspection at the offices of the Company. Language was added to make express that the Tariff may be revised, amended, supplemented and otherwise changed from time to time in accordance with the Pennsylvania "Public Utility Code," and such changes, when effective, shall have the same force and effect as the present Tariff. Also language was added to make express that the Tariff provisions apply to any party or parties applying for or receiving service from the Company, including Unauthorized Use of Service.
Section A – Applications for Service	7	Section C – Applications for Service	25-26	In Rule 1, language was added to clarify how applications for service can be made by Applicants and the customer information the Company may require the Applicant to provide prior to rendering utility service. In Section 3.4, added “may” between “Company” and “require” in the second line. In Rule 3, language was added to this section clarifying the grounds for the Company’s ability to limit or reject service.
Section B – Construction and Maintenance of Facilities	8-9	Section D – Construction and Maintenance of Facilities	27-28	In Rule 3, Customer Responsibilities, language was added that the failure of a Customer to properly install and maintain a service line, including replacement, shall constitute grounds for the Company to initiate action to terminate service to the Customer and seek recovery for any damage to the Company’s facilities caused by an improperly functioning service line. In

				addition, language was added to make clear that for wastewater customers that are also water customers of the Company, where an undetected, non-surfacing, underground leak is found in a Customer's Service Pipe, the Company shall credit the Customer with a one-time bill adjustment for wastewater service equal to forty percent (40%) of that portion of one month's consumption that exceeds the average monthly usage, based on the prior twelve month period, upon proper verification that the leak has been repaired. The bill adjustment for discovered leaks will be provided only to the extent the Customer has not received a bill adjustment for an undetected, non-surfacing, underground leak at the same premises in the past five (5) years. Language was also added providing the Company the right to require documentation to establish, to the Company's satisfaction, the existence of such a leak at the Customer's premises.
Section C – Discontinuance, Termination and Restoration of Service	10-11	Section E – Discontinuance, Termination and Restoration of Service	29-30	In Rule 1, the language in subsection (b) was deleted. In Rule 2, cross-references were updated. Added a new subsection (o), clarifying the Company's right to terminate wastewater service "for termination of water service by Company in accordance with the Company's water tariff on file with the Commission." Added new subsections (p) and (q) regarding Company's right to terminate service for Customer's tendering payment that is subsequently dishonored, revoked, canceled or otherwise not authorized, in accordance with Act 155 of 2014. Added new Rule 4 providing that when wastewater service to any premise has been terminated by Company for any reason, it

				will be restored only after the conditions, circumstances, or practices which caused the wastewater service to be terminated are corrected and all applicable arrearages, deposits and fees paid.
Section D – Billing and Collection	12-13	Section F – Billing and Collection	31	In Rule 1, the heading and the language under the heading "Billing Period Prior to SAP CIS Implementation" was deleted because it is no longer applicable. "Billing Period After SAP CIS Implementation" was changed to "Billing Period". The sentence "All bills shall generally be rendered monthly" was deleted and replaced with "The Company shall render a bill once every billing period to every Customer in accordance with approved rate schedules." Other clean-up edits were made. In Rule 5, added language to section consistent with water tariff.
Section E – Deposits	14	Section G – Credit/Deposits	32-33	Rules 1 and 2 were added consistent with the water tariff (relating to customer's liability for wastewater service until customer notifies company to discontinuance service and relating to prior company debts of former customers). Language was added to Rule 3 addressing Residential Customer/Applicant deposits consistent with Act 155 of 2014.
Section F – Wastewater Control Regulations	15-19	Section R – Wastewater Control Regulations	53-55	Added a new "Applicability" subsection (new Rule 1) and deleted the subsection titled "Sampling and Analysis" (old Rule 2) as such subsection is a part of the Company's "Coatesville District Industrial Pretreatment Program Regulations" or "IPP-C", which is addressed in the new Section T of the tariff.
Section G – Line Extension	20	Section H – Line Extension	34	Updated headings.
Section H – Service Continuity	21	Section I – Service Continuity	35	Updated headings.
Section I – Waivers	22	Section J – Waivers	36	Updated heading.

Section J – Amendment of Commission Regulations	22	Section K – Amendment of Commission Regulations	36	Updated heading.
Section K – Industrial / Commercial Service Limitations	22-24	Deleted (See new Section T – Industrial Pretreatment Program (Coatesville District))	--	The section of the tariff governing "Industrial Commercial Service Limitations" is a part of the Company's "Coatesville District Industrial Pretreatment Program Regulations" or "IPP-C", which is a standalone document with which the Company and its customers located in the Coatesville District comply. A new Section, titled the "Industrial Pretreatment Program (Coatesville District)", has been added to the tariff and this Section cross-references the IPP-C and makes it clear that Commercial and Industrial customer compliance with these regulations is mandatory. The IPP-C may be amended from time to time by the Company or the PA DEP; thus, the Company added a sentence stating that the currently-effective IPP-C will be made available on the Company's website.
Section L – Privilege to Investigate / Rights of Access	25	Section L – Privilege to Investigate / Rights of Access	37	Updated heading and strengthened language regarding Company's right of access on customer premises for the purpose of replacing, maintaining, operating and repair Company's facilities.
Section M – Main Extensions for Bona Fide Service Applicants	26-30	Section M – Main Extensions for Bona Fide Service Applicants	38-41	Updated headings. Clean up edits in subsection (F).
Section N – Extension Deposit Agreements for Bona Fide Service Applicants, Preliminary Memorandum, Final Memorandum	31-36	Section N – Extension Deposit Agreements for Bona Fide Service Applicants	42-46	Updated headings. Clean up edits in Ninth paragraph.
Section O – Special Utilities Service, Preliminary Memorandum, Final Memorandum	37-40	Section O – Special Utility Service	47-50	Updated heading. Updated tariff cross reference in introduction paragraph.

Section P – Customer Connection Loan Program	41-43	Deleted	---	The Customer Connection Loan Program was deleted from the tariff as there are no customers currently participating or requesting to participate in the program.
Section Q – Sewer Capacity Allocation Policy for Clarion Wastewater Operations	44-45	Deleted	---	This section was removed as it is no longer applicable.
Section R – Grinder Pumps for Paint-Elk Wastewater	46	Section P – Grinder Pumps for Paint-Elk Wastewater	51	Updated heading.
---	---	Section Q – Liability of Company (General)	52	New section added consistent with Section 15.1 of the Company's water tariff.
[Section F – Wastewater Control Regulations]		Section R – Wastewater Control Regulations	53-55	See above.
---	---	Section S – Stormwater Connection to Sanitary or Combined Sewer System	56	This new section addressing the storm water discharges into its Sanitary or Combined Sewer Systems was added to be in compliance with the Company's Amended Consent Decree.
---	--	Section T – Industrial Pretreatment Program (Coatesville)	57-59	A new Section, titled the "Industrial Pretreatment Program (Coatesville District)", has been added to the tariff and this Section cross-references the IPP-C and makes it clear that Commercial and Industrial customer compliance with these regulations is mandatory. The IPP-C incorporates, in part, the subsection of "Sampling and Analysis" proposed for deletion from the Wastewater Control Regulations" and the entire "Section K – Industrial / Commercial Service Limitations. The IPP-C may be amended from time to time by the Company or the PA DEP. The Company added a sentence stating that the currently-effective IPP-C will be made available on the Company's website. In addition, language was added stating that such customers will be responsible for the charges and fees related to the implementation, administration, and enforcement of the IPP-C, and for the additional costs for treatment of wastewaters from

				such customers who have excess loadings and characteristics. Fees under this Section are separate from and in addition to all other rates chargeable by the Company under this tariff. A fee Schedule IPP-C-1 was added to the tariff, setting for the General Fees and Specific Fees, which are a part of the IPP-C.
Section S – Ind. Pretreatment Program (Scranton Area)	47-49	Section U – Industrial Pretreatment Program (Scranton Area) (All Service Areas under Rate Zones 1 (Except Coatesville), 2 and 3)	60-62	Updated the heading and the first sentence of this Section to clarify that compliance with these regulations is mandatory for Commercial and Industrial Customers served throughout its service territory under Rate Zone 1, except for the customers subject to the IPP-C, and Rate Zones 2 and 3 of this tariff,

PAWC STATEMENT NO. 5

DIRECT TESTIMONY
OF
JO ANNE LONTZ

WITH REGARD TO
PENNSYLVANIA-AMERICAN WATER COMPANY'S
REVENUES AND RATE STRUCTURE PROPOSAL

DOCKET NO. R-2017-2595853

DATE: April 28, 2017

PENNSYLVANIA-AMERICAN WATER COMPANY

DIRECT TESTIMONY OF JO ANNE LONTZ

Q. What is your name and address?

A. My name is Jo Anne Lontz and my business address is 800 West Hersheypark Drive, Hershey, Pennsylvania 17033.

Q. By whom are you employed and in what capacity?

A. I am employed by American Water Works Service Company (the "Service Company") as a Senior Financial Analyst in the Hershey office of Pennsylvania-American Water Company ("PAWC" or "the Company").

Q. Please state your education and experience in the waterworks business.

A. I am a 1984 graduate of Pennsylvania State University with a Bachelor of Science degree in Business Administration, with a major in accounting. In May 2003, I was awarded a Masters in Business Administration from Desales University. I have also completed the continuing education program sponsored by the National Association of Regulatory Utility Commissioners ("NARUC") at the University of Utah.

I have been employed by the Service Company or one of its affiliates since April 1985. At that time, I was hired by the Service Company as a Junior Accountant in the Accounting Department. In April 1986, I was promoted to Rate Analyst, and, in July 1990, I was promoted to Senior Rate Analyst in the Rates and Revenue Department. In May 2003 I was promoted to Financial Analyst Intermediate, and in April 2006 I was promoted to Senior Financial Analyst.

Q. What are your duties as a Senior Financial Analyst?

A. I prepare and assist in the preparation of supporting data submitted to the Pennsylvania Public Utility Commission (the "Commission") for the rate filings made on behalf of PAWC. I also assist in preparing responses to data requests and interrogatories from the Commission's Bureau of Investigation and Enforcement ("I&E"), the Office of Consumer Advocate ("OCA") and other parties. I am also responsible for calculating changes to the State Tax Adjustment Surcharge ("STAS"), preparing annual reports to the Commission, maintaining the Company's tariffs, preparing tariff revisions, and assisting in the budgeting function.

Q. Have you testified previously in proceedings before the Commission?

A. Yes, I provided testimony in support of PAWC's rate filings at Docket Nos. R-2013-2355276, R-2011-2232243, R-2010-2166208, R-2010-2166210, R-2010-2166212, R-20102166214, R-2009-2097323, R-2008-2032689, R-00072229, R-00038304, R-00016339, R-994638, R-973973, R-973944, R-943231, R-932670, R-922428, R-911909, R-901652 and R-891208. I also assisted in the preparation of supporting data for the Western Pennsylvania Water Company's filings at Docket Nos. R-860397 and R-870825 and for the former Pennsylvania-American Water Company's rate filing at Docket No. R-880916.

Revenues

Q. Please refer to PAWC Exhibit No. 3-A and explain your area of responsibility with respect to that exhibit.

A. I am sponsoring the Company's revenue claim.

Q. Please explain the development of pro forma revenues as set forth in Exhibit No. 3-A.

A. The process of developing the Company's revenue claim begins with revenues recorded on the Company's books of account at December 31, 2016, to which various adjustments were made. A summary of the development of pro forma revenues for the Company's water operations under present and proposed rates is set forth on pages 2 and 3 of Exhibit No. 3-A (Water Operations), which shows operating revenues by customer classification for the twelve months ending December 31, 2016, December 31, 2017 and December 31, 2018. Page 4 is a summary of the various adjustments made to book operating revenues to arrive at pro forma operating revenues under present rates for the twelve months ending December 31, 2016, December 31, 2017, and December 31, 2018 for the Company's water operations. Similar data for the Company's wastewater operations exclusive of Scranton and Scranton wastewater are also provided in Exhibit No. 3-A (Wastewater Operations excluding Scranton Wastewater) and Exhibit No. 3-A (Scranton Wastewater Operations), respectively.

Q. Please explain the various adjustments to the Company's book revenues from water sales that were made to develop pro forma water sales revenues under present and proposed rates for the Company's water operations.

A. In total, six adjustments were made to the Company's water sales revenues booked during the twelve months ended December 31, 2016, which relate to: (1) unbilled revenue; (2) annualization of private fire protection charges; (3) annualization of public fire protection charges; (4) the state tax adjustment surcharge; (5) changes in the

numbers of residential and commercial customers; and (6) changes affecting specific large customers.

Q. Please explain the adjustment to eliminate unbilled revenue.

A. An adjustment was made to reflect the fact that PAWC records per-book revenues on an accrual basis. This adjustment, consistent with prior practice, eliminates the effect of revenue accrued per books but not billed during the twelve months ended December 31, 2016. Such unbilled revenue is recorded per books pursuant to accepted accrual-accounting procedures to reflect revenues for service rendered but not billed as of the end of an accounting period. Items that produce unbilled revenue include such things as increases in rates and increases in the number of customers. Reflecting such unbilled revenue per books is a normal and correct accounting procedure. In developing pro forma revenues for ratemaking purposes, separate adjustments were made to annualize the revenue effect of such factors as increases in the number of customers and increases in rates that became effective during the historic test year. Therefore, in order to eliminate any duplication of revenue for ratemaking purposes, unbilled revenue accrued per books must be removed. A detailed breakdown of this adjustment by customer class is shown on page 5 of Exhibit No. 3-A (Water Operations).

Q. Please continue with your explanation of the development of the Company's pro forma revenue.

A. **Annualization of Private and Public Fire Protection Charges**. An adjustment was made to historic test year revenues to annualize private fire protection charges based on the number of fire services at December 31, 2016. This adjustment is set forth on page 8 of Exhibit No. 3-A (Water Operations), and further detail is provided in the response to

Question No. FR II.10 of the Standard Filing Requirements. Likewise, adjustments were made to annualize public fire protection revenues based on the number of hydrants and the applicable charges for those hydrants at December 31, 2016, December 31, 2017 and December 31, 2018. These adjustments are shown on page 9 of Exhibit No. 3-A (Water Operations), and further detail is provided in response to Question No. FR II.10 of the Standard Filing Requirements.

State Tax Adjustment Surcharge (STAS). In the Company's last base rate filing, the Capital Stock tax was calculated at a rate of 0.67 mills. The actual Capital Stock Tax rate for 2016 was zero. The difference was refunded to customers as a negative surcharge. An adjustment was made to remove the effect of the actual decrease that was reflected in the STAS revenues, which will be rolled into the Company's proposed base rates. Please refer to page 6 of Exhibit 3-A (Water Operations).

Changes in Number of Residential and Commercial Customers. As shown on page 16 of Exhibit No. 3-A (Water Operations), adjustments were made to annualize historic test year revenues based on the number of residential and commercial customers at December 31, 2016. This adjustment annualizes the revenue effect of additions, losses and reclassifications of residential and commercial customers during the historic test year. In addition, as shown on pages17 and 18 of Exhibit No. 3-A (Water Operations), adjustments were made to increase or decrease future test year revenues to reflect a full year's revenue for projected changes in the number of residential and commercial customers during the twelve months ending December 31, 2017 and December 31, 2018. Detailed calculations for these adjustments appear in response to Question No. FR II.2 of the Standard Filing Requirements. As explained below, specific customer adjustments

were made for changes affecting customers other than those related to projected changes in growth for the residential and commercial classes.

Q. Please explain the adjustments that were made to reflect changes in consumption by specific customers.

A. Adjustments to pro forma revenues were made to reflect changes in revenue by individual customers as shown on page 11 of Exhibit No. 3-A (Water Operations). Each of these adjustments is required to reflect the changed circumstances specific to each customer.

Thirteen adjustments relate to changes that affected specific customers during the historic test year, as listed below:

(1) During 2016, Hershey Foods and ConAgra, which are served under Rider DIS, and Newtown Artesian and Oakdale Borough, which are served under Rider DRS, received increases. An adjustment was made to annualize the rate changes for these customers.

(2) In 2009, the Company began selling water to gas drillers. Because the annual usage for this type of operation fluctuates from year to year, an adjustment was made to reflect revenue from these customers at present rates for 2016 based on three-year average of usage.

(3) In 2015 and 2016, Hershey Entertainment and Resorts experienced multiple meter reading errors; the errors were corrected in 2016. An adjustment was made to bring 2016 usage and revenues to normal levels.

(4) In June of 2016, Consolidated Auto was back billed for usage due to a stuck meter for the period of February 24, 2015 through March 8, 2016. An adjustment was made to remove usage revenues for the prior period back billing.

(5) Between July through November of 2016, United Refining used large amounts of water for maintenance activity. An adjustment was made to bring 2016 usage and revenues to normal levels.

(6) In the first quarter of 2016, World Color Atglen ceased their operations. Their water consumption was drastically reduced. An adjustment was made to annualize usage and revenues for the lower consumption levels.

(7) In March and April of 2016, the Capital City Airport experienced a large leak. An adjustment was made to annualize usage and revenues to normal levels.

(8) During the summer of 2016, Farmington Township experienced a leak. An adjustment was made to annualize usage and revenues to normal levels.

(9) From October 2015 through May 2016, Quarryville Borough did not take any water due to a slip lining repair project. An adjustment was made to bring usage and revenues to more normal levels.

In addition, four adjustments were made to reflect changes that affect specific customers during the future test year, as explained below:

(1) On February 11, 2017, Western Allegheny County Municipal Authority, which is a Rider DRS customer, received an increase. An adjustment was made to reflect this increase on an annualized basis.

(2) On January 1, 2017, Evans City Water and Sewer Authority, which is also a Rider DRS customer, received an increase. An adjustment was similarly made to reflect this increase on an annualized basis.

(3) The Company is in the process of installing a water line to serve the Susquehanna County Prison. The prison is expected to be on line by the second quarter of 2017. An adjustment was made to annualize the prison's usage and revenue for present rates 2017.

(4) During 2017, the Company will install a main line extension that will service two schools, an Elementary School and a Private Academy. An adjustment was made to annualize usage and revenues for both of the schools.

The detailed calculations for all of the specific customer adjustments described above are set forth in the Company's response to Question No. FR II.2 of the Standard Filing Requirements.

Q. Please continue with the various adjustments to the Company's book revenues from water sales that were made to develop pro forma water sales revenues under present and proposed rates for the Company's water operations.

A. In total, three adjustments were made to the Company's water sales revenues booked during the twelve months ending December 31, 2017, other than specific customer adjustments as reflected above, relating to: (1) the annualization of Distribution System Improvement Charge ("DSIC") revenues; (2) declining residential usage; and (3) the Rate Zone 1 decrease. Each of these adjustments is described below:

DSIC. An adjustment was made to annualize the Company's DSIC revenue based on the Company's pro forma level of non-DSIC revenue at December 31, 2017 and the DSIC

rate of 7.50% which became effective on January 1, 2017. This adjustment is shown on page 7 of Exhibit No. 3-A (Water Operations). A detailed calculation of this adjustment appears in the response to Question No. FR II.2 of the Standard Filing Requirements.

Declining Residential Usage. Residential water usage has been declining for many years, and that trend is expected to continue. The Company has made an adjustment to reflect the declining trend on page 10 of Exhibit No. 3-A (Water Operations) for revenue at present rates at December 31, 2017 and December 31, 2018. A detailed calculation of this adjustment appears in the response to Question No. FR II.2 of the Standard Filing Requirements. Company witness Gregory Roach explains the reasons for this trend, and how it was quantified, in PAWC Statement No. 9.

Rate Zone 1 Decrease. The Commission previously approved wastewater rate increases to become effective on January 1, 2011, 2012, 2013, and 2014 for the Company's Coatesville wastewater operations (Docket No. 2010-2166212), Claysville wastewater operations (Docket No. R-2010-2166210) and Northeast wastewater operations (Docket No. R-2010-2166214), as part of a rate phase-in. The rates to become effective on January 1, 2014 were to remain in effect through the years, 2014, 2015, and 2016. On January 1, 2017, the aforementioned wastewater rates were to be reduced to those in effect on January 1, 2013. As a result of the combination of the water and wastewater revenue requirements reflected in the Settlement of the Company's last base rate filing (Docket No. R-2013-2355276), water customers were allocated $7.8 million of the deferred increases to the Coatesville, Claysville, and Northeast wastewater customers, to be recovered by an increase in the water revenue requirement of $2.6 million per year in each of the years 2014, 2015, and 2016. On January 1, 2017, Rate Zone 1 water rates

were reduced to remove the $2.6 million from rates. Please refer to page 12 of Exhibit 3-A (Water Operations) and the bill analysis.

Q. Please describe the various adjustments to the Company's book revenues from wastewater sales exclusive of Scranton that were made to develop pro forma wastewater sales revenues under present and proposed rates for the Company's wastewater operations.

A. In total, six adjustments were made to the Company's wastewater sales revenues (exclusive of Scranton) booked during the twelve months ended December 31, 2016, which relate to: (1) unbilled revenue; (2) annualization of the Borough of New Cumberland Wastewater acquisition; (3) annualization of Fairview Township Wastewater acquisition; (4) elimination of the Coatesville Wastewater Customer Growth and Capacity Reservation Fee (CGCR) ; (5) changes in the numbers of residential customers; and (6) changes affecting specific large customers.

Q. Please explain the adjustment to eliminate unbilled revenue.

A. As in the case of its water sales, an adjustment was made to reflect the fact that PAWC records per-book revenues on an accrual basis. This adjustment, consistent with prior practice, eliminates the effect of revenue accrued per books but not billed during the twelve months ended December 31, 2016. A detailed breakdown of this adjustment by customer class is shown on page 5 of Exhibit No. 3-A (Wastewater Operations excluding Scranton Wastewater).

Q. Please continue with your explanation of the development of the Company's pro forma wastewater revenues.

A. **New Cumberland Acquisition.** On October 31, 2016, the Company closed on the acquisition of the wastewater utility property of the Borough of New Cumberland and began providing services to that company's former customers. An adjustment was made to annualize the usage and revenues associated with this acquisition. A detailed breakdown of this adjustment by customer class is shown on page 7 of Exhibit No. 3-A (Wastewater Operations (excluding Scranton Wastewater)). A detailed calculation of this adjustment appears in the response to Question No. Fr. II.2 of the Standard Filing Requirements.

Fairview Township Acquisition. On December 22, 2015, the Company closed on the acquisition of the wastewater utility property of Fairview Township and began providing services to that company's former customers. In January 2016, the Company did not bill a full month of revenue. An adjustment was made to annualize the usage and revenues associated with this acquisition. In addition, a journal entry was booked in March 2016, for December 22, 2015 through December 31, 2015 revenue. This adjustment also removes the effect of the journal entry pertaining to the 2015 revenues. A detailed breakdown of this adjustment by customer class is shown on page 8 of Exhibit No. 3-A (Wastewater Operations excluding Scranton Wastewater). A detailed calculation of this adjustment appears in the response to Question No. FR. II.2 of the Standard Filing Requirements.

Customer Growth and Capacity Reservation Fee. In the Company's base rate filing at Docket Number R-2010-2166212, the Commission authorized the Company to institute a Customer Growth and Capacity Reservation Fee (CGCR) for customers in the Coatesville Wastewater service area. The CGCR was designed to credit all customers'

bills with revenue from customers added and Capacity Reservation Fees received on and after January 1, 2011. The CGCR on January 1, 2017 will remain in effect until the effective date of new base rates as established in this base rate proceeding. An adjustment was made to remove the effect of the actual fees reflected in the Company's per book revenues at December 31, 2016. A detailed breakdown of this adjustment by customer class is shown on page 6 of Exhibit No. 3-A (Wastewater Operations excluding Scranton Wastewater).

Q. Please explain the adjustments that were made to reflect changes in consumption by specific customers.

A. Adjustments to pro forma revenues were made to reflect changes in revenue by individual customers as shown on page 9 of Exhibit No. 3-A (Wastewater Operations excluding Scranton Wastewater). Each of these adjustments is required to reflect the changed circumstances specific to each customer.

Two adjustments relate to changes that affected specific customers during the historic test year, as listed below:

(1) In the first quarter of 2016, World Color Atglen ceased their operations. Their water consumption was drastically reduced. An adjustment was made to annualize usage and revenues for the lower consumption levels.

(2) In March and April of 2016, the Capital City Airport experienced a large leak. An adjustment was made to annualize usage and revenues to normal levels.

The detailed calculations for all of the specific customer adjustments described above are set forth and explained in the Company's response to Question No. FR II.2 of the Standard Filing Requirements.

Q. Please continue with your discussion of revenue adjustments.

A. Changes in Number of Residential Customers. As shown on page 10 of Exhibit No. 3-A (Wastewater Operations excluding Scranton Wastewater), adjustments were made to annualize historic test year revenues based on the number of residential customers at December 31, 2016. In addition, as shown on pages 11 and 12 of Exhibit No. 3-A, adjustments were made to increase future test year and fully projected future test year revenues to reflect a full year's revenue for projected increases in the number of residential customers during the twelve months ending December 31, 2017 and December 31, 2018. Detailed calculations for these adjustments appear in response to Question No. FR II.2 of the Standard Filing Requirements.

Q. Please explain the various adjustments to the Company's book revenues for the Scranton wastewater service area that were made to develop pro forma wastewater sales revenues under present and proposed rates.

A. In total, three adjustments were made to the Company's Scranton area wastewater sales revenues booked during the twelve months ended December 31, 2016, for: (1) unbilled revenue; (2) annualization of the Scranton Sewer Authority acquisition; and (3) annualization of the low income discount.

Q. Please explain the adjustment to eliminate unbilled revenue.

A. An adjustment was made to eliminate the effect of revenue accrued per books but not billed during the twelve months ended December 31, 2016. A detailed breakdown of this adjustment by customer class is shown on page 4 of Exhibit No. 3-A (Scranton Wastewater Operations).

Q. Please continue with your explanation of the revenue adjustments for the Scranton wastewater service area.

A. **Scranton Sewer Authority Acquisition.** On December 29, 2016, the Company closed on the acquisition of the wastewater utility property of the Scranton Sewer Authority and began providing service to that Company's former customers. An adjustment was made to annualize the revenues associated with this acquisition. Please refer to page 5 of Exhibit 3-A (Scranton Wastewater Operations) and the Company's bill analysis.

Low Income Discount. At the time of acquisition, any wastewater customers acquired from the Scranton Sewer Authority acquisition that received the low income discount on their water bill as PAWC customers were also to receive the low income discount on their wastewater bill. An adjustment was made to annualize the low income discounts that will be given to the customers of the former Scranton Sewer Authority. Please refer to page 6 of Exhibit 3-A (Scranton Wastewater Operations).

Q. Were any adjustments made to the Company's Other Operating Revenue for water and wastewater operations?

A. Yes, adjustments were made to Other Operating Revenue with respect to: (1) the late payment charge; (2) usage data; (3) rental income from cell towers; and (4) rent received from the American Water Works Service Company for office space and equipment. Each adjustment is explained below.

Late Payment Fees. Adjustments were made to increase late payment charge revenue based on: (1) the annualized effect of changes to water and wastewater sales at December 31, 2016, December 31, 2017 and December 31, 2018; and (2) the annualized effect of the rate increases proposed by this rate filing. These adjustments are shown on page 20

of Exhibit No. 3-A (Water Operations), page 14 of Exhibit No. 3-A (Wastewater Operations excluding Scranton Wastewater), and page 8 of Exhibit No. 3-A (Scranton Wastewater Operations). The late payment charge is 1½% of delinquent billings. Consequently, as the Company's billed revenue increases due to rate increases, late payment charge revenue increases correspondingly. Therefore, the Company calculated a two-year average of late payment charges as a percentage of total water sales. That percentage was applied to pro forma revenue at present and proposed rates to calculate the corresponding adjustments to late payment charge revenue. Because the Company is claiming a level of late payment charge revenue based upon a percentage of pro forma water and wastewater sales, any change to water and wastewater sales revenue under present or proposed rates requires a concomitant adjustment to late payment charge revenue.

Usage Data – Water Only. During 2016, the Company acquired the wastewater properties of the Scranton Sewer Authority and the Borough of New Cumberland. Prior to the acquisitions, the Company provided both operations with usage data. Since the acquisition, the Company no longer supplies them with usage data. An adjustment was made to eliminate all revenues associated with their 2016 usage data fees. In addition, in 2017, the Company increased the fees charged to municipalities for usage data by 2.07%. An adjustment was made to add the increase in usage data fees. Please refer to page 15 of Exhibit 3-A (Water Operations).

Rental Income for Cell Towers – Water Only. The Company receives money from cellular phone providers for the lease of space on top of its water towers for the placement of antennas. An adjustment was made to adjust for the difference between the

revenues that were recorded in 2016 that included prior period adjustments, and the revenue that is expected to be recorded as cell tower rental income in 2017. Please refer to page 14 of Exhibit 3-A (Water Operations).

Office Rental Income – Water only. PAWC collects office rent for the Service Company portion of the Wilkes-Barre Scranton office. An adjustment was made to annualize office rent income at present rate as of December 31, 2018 for this office. PAWC also collects Service Company rent for the lease of equipment and office space by the National Data Center and other Service Company employees of American Water in the Pennsylvania American Water Hershey office. PAWC is in the process of building a new Corporate Center in Mechanicsburg and will sell the Hershey office. The new Corporate Center is scheduled to be completed in December 2018. The Service Company employees will be moving to the new Corporate Center, however, the National Data Center will be relocated to the new American Water Corporate Center in Camden, New Jersey, which is also scheduled to be completed in December 2018. An adjustment was made to annualize the Service Company office rent income at present rates as of December 31, 2018 for the new Mechanicsburg Corporate Center. Please refer to page 13 of Exhibit 3-A (Water Operations).

Q. Were the pro forma revenues under present and proposed rates for the water operations, the wastewater operations excluding of Scranton wastewater and the Scranton wastewater operations, as reflected in each Exhibit No. 3-A, verified by applying present rates and proposed rates to an analysis of customers' bills?

A. Yes, all pro forma revenues were verified by a bill analysis.

Q. Does Exhibit No. 3-A set forth the number of customers served by the Company by customer class?

A. Yes, it does. The actual number of customers served at December 31, 2015, and December 31, 2016, and the projected number of customers to be served at December 31, 2017, and December 31, 2018 are shown on page 19 of Exhibit No. 3-A (Water Operations), page 13 of Exhibit No. 3-A (Wastewater Operations (excluding Scranton Wastewater), and page 7 of Exhibit No. 3-A (Scranton Wastewater Operations) .

Rate Design Proposal

Q. How is the Company proposing to recover its cost of service in this proceeding for its water operations?

A. At the conclusion of the Company's last base rate case, the Commission-approved water rates achieved a consolidation of the Company's rate zones such that a large majority of its customers are now being billed under the same set of rates for metered service. This consolidation represented the continued implementation of the Commission-approved concept of Single Tariff Pricing. However, Rate Zones 40, 41, 44 and 46 continued to have separate rates. In addition, since the last case, Rate Zone 51 was created for the Berry Hollow Water Company acquisition and Rate Zone 52 was created for the McEwensville Municipal Authority acquisition. In this filing, the Company proposes to consolidate all of the remaining rate zones identified above into Rate Zone 1. The Company is also proposing two Phase-In Riders for customers that will be consolidated into Rate Zone 1 over a two-year period. Phase-In Rider Nittany will apply to those customers acquired through the Company's acquisition of the Nittany water system approved by the Commission at Docket No. A-2009-2120357 and formerly subject to

Rate Zone 40 rates prior to the effective date of new rates from this filing. These customers will receive a 25% discount from the Rate Zone 1 service charge and water usage charges. The discount will appear as a credit on the customer's bill. Phase-In Rider McEwensville will apply to those customers acquired through the Company's acquisition of the McEwensville system approved at Docket No. A-2015-2460981 and formerly subject to Rate Zone 52 rates prior to the effective date of new rates from this filing. These customers will receive a 30% discount from the Rate Zone 1 service charge and water usage charges. The discount will appear as a credit on the customer's bill. Both riders will be effective for service rendered on and after the effective date of new rates through and until December 31, 2018. Starting January 1, 2019, the riders will no longer be effective and customers will be charged the full Rate Zone 1 service charge and water usage charge.

For the consolidated Rate Zone 1, PAWC proposes to increase the service charge to $18.50 per month. Private fire rates were equalized to Rate Zone 1 in the prior rate case and will be increased as indicated by the cost of service study. In addition, for Rate Zone 1, consistent with the terms of the Commission-approved settlement of the Company's rate case at Docket No. R-996438, hydrants that were placed in service after January 1, 2000 will have their applicable charges increased to 25% of cost of service, or $17.11 per month.

Q. Did the Company employ any of the authority provided by amendments to the Public Utility Code made by Act 11 of 2012 in developing its rate design in this case?

A Yes, in this case the Company is proposing to incorporate wastewater revenue requirements into its water revenue requirement. Combining water and wastewater

revenue requirement and the resulting rate design are discussed in the direct testimony of Rod Nevirauskas (PAWC Statement No. 1) and the direct testimony of Paul Herbert (PAWC Statement No. 11).

Q. How is the Company proposing to recover its cost of service in this proceeding for its Wastewater operations.

A. The Company currently has twelve rate zones for its Wastewater operations. Rate Zone 1 for all Coatesville, Claysville and Clean Treatment wastewater customers; Rate Zone 2 for all Clarion and Pocono wastewater customers; Rate Zone 3 for all Lehman Pike, Winona Lakes and Blue Mountain wastewater customers; Rate Zone 4 for all Koppel Borough wastewater customers; Rate Zone 5 for all Franklin Township wastewater customers; Rate zone 6 for all Paint-Elk wastewater customers; Rate Zone 7 for all former Hamiltonban Township Municipal Authority customers; Rate Zone 8 for all Shippenville wastewater customers; Rate Zone 9 for all former McEwensville Municipal Authority customers; Rate Zone 10 for Fairview Township wastewater customers; Rate Zone 11 for all Borough of New Cumberland wastewater customers; and Rate Zone 12 for Scranton wastewater customers. In this filing, the Company proposes to consolidate all of the rate zones identified above into Rate Zone 1 except for Rate Zone 11, which will receive a 2.50% increase as specified in the purchase agreement between the Company and the Borough of New Cumberland, and Rate Zone 12 for Scranton, which will not receive any increase.

For the consolidated wastewater Rate Zone 1, PAWC proposes to change the residential service charge to $10.00 per month.

Q. Did you participate in the decision-making process concerning the rates proposed in this case?

A. Yes. I consulted with Rod Nevirauskas, PAWC's Senior Director of Rates and Regulation, and Paul Herbert of Gannet Fleming on several occasions concerning tariff design policies. During this process, Mr. Herbert was provided the guidance necessary to develop the various rates proposed in this case.

Q. What rate design guidelines were provided to Mr. Herbert?

A. Mr. Herbert was requested to design rates consistent with the goal of Single Tariff Pricing for both the Company's water and wastewater operations, to increase customer service charges for water service to a level more in line with the cost of providing service for the water operations, to adjust public and private fire protection in the manner I previously described and to increase rates by customer class to recover the proposed revenue increase taking into account the results of the cost of service study for the water and wastewater operations, and the combining of wastewater and water revenue requirements.

Q. Does this conclude your testimony at this time?

A. Yes, it does.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
	:	
v.	:	**DOCKET NO. R-2017-2595853**
	:	
PENNSYLVANIA-AMERICAN WATER COMPANY	:	

VERIFICATION

I, **Jo Anne Lontz**, hereby state that the facts set forth in the pre-marked Statement No. 5 and accompanying exhibits, if any, are true and correct to the best of my knowledge information and belief. I understand that this verification is made subject to the provisions and penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: April 28, 2017

Jo Anne Lontz

PAWC STATEMENT NO. 6

DIRECT TESTIMONY

OF

JAMIE D. HAWN

WITH REGARD TO

PENNSYLVANIA-AMERICAN WATER COMPANY

LABOR AND LABOR-RELATED AND SERVICE COMPANY

EXPENSES

DOCKET NO. R-2017-2595853

DATE: April 28, 2017

PENNSYLVANIA-AMERICAN WATER COMPANY

DIRECT TESTIMONY OF JAMIE D. HAWN

Q. What is your name and business address?

A. My name is Jamie D. Hawn, and my business address is 131 Woodcrest Road, Cherry Hill, New Jersey 08003.

Q. By whom are you employed and in what capacity?

A. I am employed by American Water Works Service Company, Inc. ("AWWSC" or the "Service Company") as a Senior Manager for Regulatory Services.

Q. Please describe your educational background.

A. I am a 2001 graduate of Rowan University with a Bachelor of Science Degree in Business Administration with a specialization in Accounting. I have also attended the Utility Rate School sponsored by the National Association of Regulatory Utility Commissioners ("NARUC").

Q. What has been your business experience?

A. Prior to my employment with AWWSC, my work history included an accounting internship with Alloy, Silverstein, Shapiro, Adams, Mulford & Co., in Cherry Hill, NJ, an audit position with M.D. Oppenheim & Co, PC, in Cherry Hill, NJ and a staff accountant position with A.C. Moore Arts and Crafts, Inc., in Berlin, NJ. I began my employment with the AWWSC in September 2006 as General Tax Accountant in the General Tax Department. My duties included developing, preparing and maintaining the general tax account reconciliations for all American Water Works Company, Inc. ("AWW") affiliates, developing general tax SOX practices and policies, and making monthly closing journal entries. In June 2007, I transferred to the role of Accountant in the General

Accounting/Financial Reporting Department. My duties included the preparation of quarterly and annual financial reports, the preparation of monthly closing financials, and monthly account reconciliations for multiple regulated companies of AWW. My responsibilities also included external audit coordination and internal controls task management. In October 2010, I transferred to the role of Supervisor in the Accounts Payable Department and was responsible for overseeing the end to end operations and transaction processing of accounts payable for multiple regulated companies of AWW. In October 2011, I transferred to the position of Financial Analyst II in Rates and Regulation. In July 2013, I was promoted to Financial Analyst III. Effective January 2017, I was promoted to Senior Manager Regulatory Services.

Q. What are your duties as Senior Manager?

A. My duties include the preparation and presentation of rate and rate-related applications for AWW' s regulated subsidiaries in Pennsylvania and West Virginia, also known as the Mid-Atlantic Division ("MAD").

Q. Have you previously submitted testimony before the Pennsylvania Public Utility Commission?

A. No, however I have submitted testimony and support exhibits in New York.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to explain the portions of Exhibit No. 3-A that I am sponsoring, which relate to Pennsylvania-American Water Company's ("PAWC" or the "Company") labor and labor-related expenses and Support Services expenses.

Compensation Expense

Q. Please explain the Company's compensation expense adjustment.

A. The Company's compensation expense adjustment, shown in Exhibit No. 3-A, reflects known or anticipated changes to the Company's complement of unionized, non-unionized hourly, and salaried employees as of the end of the fully projected future test year.

The fully projected future test year compensation expense reflects a full complement of 1,004 employees for water operations, 29 employees for wastewater operations (excluding Scranton), and 83 employees for Scranton wastewater. The Company's future test year reflects the actual salary increases for salaried and non-unionized hourly employees granted in March 2017 and any wage increases scheduled to become effective through December 31, 2017 for unionized employees. The Company's fully projected future test year reflects the annualized effects of compensation increases known or anticipated through December 31, 2018. The details of these calculations are set forth in Exhibit No. 3-B.

Q. What was the basis for the increases in compensation used in developing the Company's compensation expense?

A. For most of the Company's unionized employees, compensation expense is based on the actual wage rates set forth in collective bargaining agreements, including changes in hourly rates that will become effective in accordance with such agreements. For non-unionized hourly employees and salaried employees, compensation expense was annualized based on the actual wage rates and salaries that became effective in March

2017 and an increase of 3.45% projected to become effective in March 2018 to calculate the fully projected future test year level of expense.

Q. How did the Company determine the portion of total compensation to be charged to expense?

A. Labor costs are charged directly to the appropriate account category, such as investment, retirement, jobbing or operation and maintenance (O&M) expense accounts, based on actual hours worked. The Company has used a three-year average (2014-2016) of the actual labor costs not charged to O&M expense to develop the capitalization rate of 33.19% for water operations and 8.72% for wastewater operations. The three-year average wastewater capitalization rate of 8.72% was also used for Scranton wastewater in the calculations of pro forma expense.

Q. Did the Company include performance pay in its compensation expense?

A. Yes, the Company has two performance compensation plans: the Annual Performance Plan ("APP") which is paid in cash annually according to the prior year's performance, and Long Term Performance Plan ("LTPP") which provides designated employees with the opportunity to receive grants of stock units. The Company calculated the APP and LTPP expense by using the pro forma salary of each eligible non-unionized hourly and salaried employee times the salary level target percentage assigned to the employee. This amount was included in the Company's pro forma compensation expense, and the Company removed the applicable capitalized amount. Mr. James Sheridan provides additional information regarding the Company's performance compensation plan program in his testimony (PAWC Statement No. 2).

Group Insurance and Other Payroll-Related Expenses

Q. Please explain the development of the adjustment for group insurance.

A. Group insurance includes medical, dental, prescription and vision coverage plus basic life, short and long term disability, and accidental death and disability ("AD&D"). The annualized employee group insurance expense for the twelve months ended December 31, 2017 was calculated by first determining the annualized group insurance cost per employee position at January 1, 2017. An inflation factor of 2.18 % (developed on the basis of the 2018 Blue Chip average of projected annual GDP Price Index) was then applied to both the various insurance rates and the employee contribution amounts to calculate the fully forecasted annualized group insurance cost. The amount representing the employee contribution for healthcare coverage was subtracted from the annualized group insurance cost. Because group insurance is an employee cost, it is charged to O&M expense in proportion to direct labor charges. The same capitalization rates were used to remove the applicable amount. The adjustment for group insurance is shown in Exhibit 3-A. Details of these adjustments are contained in Exhibit No. 3-B.

Q. Please describe the adjustment for other post-employment benefits ("OPEB") expense and Retiree Medical expense.

A. The pro forma level of OPEB expense reflects the current scheduled contribution level. The annualized OPEB expense is PAWC's allocable share of the total American Water system OPEB expense. The Retiree Medical (VEBA) expense reflects the Company's contribution of $500 per union employee per year to help pay for retiree medical costs. The Retiree Medical Reimbursement benefit is in lieu of eligibility for OPEB for this group of employees. The applicable capitalized amount has been removed. The

adjustments for OPEB and VEBA are shown in Exhibit 3-A. Details of this adjustment are contained in Exhibit No. 3-B.

Q. Please describe the adjustment for pension expense.

A. The Company is proposing a pro forma pension expense based on accrual accounting, according to FASB Accounting Standards Codification Topic 715 or "ASC 715", (formerly Statement of Financial Accounting Standards 87). With the proposal in this case, the Company will shift from calculating pension expense based on cash contributions to an accrual accounting of pension expense as a long-term measure that can mitigate pension expense fluctuations from year to year. In addition, the Company is requesting a 10-year amortization of its deferred pension liabilities on its books at December 2017. These liabilities reflect the net amount by which the cash contributions have exceeded the accruals to date. The amortization is a reduction to the pro forma expense. The adjustment for pension expense is shown in Exhibit 3-A. Details of this adjustment are contained in Exhibit No. 3-B.

Q. Please describe the adjustments for 401K, Defined Contribution Plan (DCP), Employee Stock Purchase Plan (ESPP), and payroll taxes.

A. The Company's payroll tax expense level is based on historic, future test year and fully projected test year compensation expense, along with the applicable payroll tax rates. The Company's 401K and DCP costs were calculated using the number of employees projected to be on the payroll at the end of 2018. The applicable capitalized amount has been removed from both expense levels. The Company offers its union and non-union employees the ability to participate in an ESPP which allows employees to purchase AWW stock with 1% to 10% of their base wages on an after-tax basis. The Company

offers a 10% discount in the price of the stock through this program, which encourages employees to have a vested interest in the Company and its operational and financial performance. The adjustment for 401K, DCP, ESPP and payroll taxes is shown in Exhibit 3-A. Detailed calculations of these adjustments are contained in Exhibit No. 3-B.

Service Company Costs

Q. What level of Service Company expense is included in this case?

A. As set forth in Exhibit No. 3-A Water, PAWC's Service Company cost is $ 44 million. This represents a decrease in cost, approximately $2 million, from the Company's 2013 filing.

Q. Please describe the support services provided to the Company by the Service Company.

A. The Service Company provides a number of services that enable PAWC to fulfill its public utility obligations. Examples include services related to the customer care function, water quality testing, innovation and environmental stewardship, human resources, communications, information technology, finance, accounting, tax, legal, engineering, supply chain, and insurance/risk management. The employees of the Service Company are uniquely qualified to advise and assist PAWC and are available to PAWC as needed under the terms of the Service Company Agreement between PAWC and the Service Company, which has been previously approved by the Commission. (A copy of the Service Company Agreement with PAWC has been provided in response to a Filing Requirement III.6.) Because of the resources provided by the Service Company, PAWC does not need to separately staff, on a stand-alone basis, the functions performed by the Service Company.

Q. How does the Service Company charge PAWC for its services?

A. The Service Company provides its services to PAWC at cost. The Service Company issues invoices on a monthly basis to PAWC for the services it provides, which are broken down by function into the categories such as labor and benefits, and other, which includes administrative overhead support service, depreciation, and general and office related expenses.

Q. Does this conclude your testimony at this time?

A. Yes, it does.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
v.	:	**DOCKET NO. R-2017-2595853**
PENNSYLVANIA-AMERICAN WATER COMPANY	:	

VERIFICATION

I, **Jamie D. Hawn**, hereby state that the facts set forth in the pre-marked Statement No. 6 and accompanying exhibits, if any, are true and correct to the best of my knowledge information and belief. I understand that this verification is made subject to the provisions and penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: April 28, 2017

Jamie D. Hawn

PAWC STATEMENT NO. 7

DIRECT TESTIMONY

OF

DANIEL P. HUNNELL II

WITH REGARD TO

PENNSYLVANIA-AMERICAN WATER COMPANY'S

O&M EXPENSES INCLUDING:

INFLATION, PURCHASED POWER, PURCHASED WATER, CHEMICALS, WASTE DISPOSAL, CHANGE IN WATER CONSUMPTION, TRANSPORTATION, INSURANCE OTHER THAN GROUP, POSTAGE AND RENT

DOCKET NO. R-2017-2595853

DATE: April 28, 2017

PENNSYLVANIA-AMERICAN WATER COMPANY

DIRECT TESTIMONY OF DANIEL P. HUNNELL II

Q. What is your name and business address?

A. My name is Daniel P. Hunnell II. My business address is 1600 Pennsylvania Ave. Charleston, West Virginia 25302.

Q. By whom are you employed and in what capacity?

A. I am employed by American Water Works Service Company as a Principal Financial Analyst for the Mid-Atlantic Region.

Q. Please summarize your educational background and professional experience.

A. I am a graduate of DeVry University of Columbus, Ohio, with a Bachelor of Science Degree in Business Operations, with a minor in accounting. I have also completed the continuing education program sponsored by the National Association of Regulatory Utility Commissioners ("NARUC") and Michigan State University.

I have been employed by Pennsylvania-American Water Company ("PAWC" or the "Company") or the American Water Works Service Company since June 1995. From 1995 through 1999, I served as a Collection and Billing Representative. In 1999, I participated on a project team which facilitated the implementation of a new customer service software program. In 2000, I was promoted to Billing Supervisor. In this position, I managed a team of employees that conducted the customer billing and billing-related functions for the eastern districts of Pennsylvania. In 2001, I was promoted to the Compliance Department as a Compliance Specialist. In this position, I acted as a point of contact for the Pennsylvania Public Utility Commission's (the "Commission's" Bureau of Consumer Services ("BCS") by investigating and responding to informal and mediation

complaints filed with the BCS. In 2008, I was assigned to the rates and regulation function and promoted to Financial Analyst II. In 2014, I was promoted to a Financial Analyst III, and, in 2016, I was promoted to my current position as a Principal Regulatory Analyst.

Q. What are your duties as Principal Regulatory Analyst?

A. My duties include the preparation and presentation of rate and rate related applications for regulated subsidiaries of American Water Works Company, Inc. ("American Water") in Pennsylvania and West Virginia.

Q. Have you previously submitted testimony before the Commission?

A. Yes, I submitted direct testimony in four PAWC base rate cases at Docket Nos. R-2010-2166212, R-2010-2166214, R-2011-2232243 and 2013-2232243. In addition, I have assisted in the preparation of rate and rate-related applications presented to the Maryland Public Service Commission, the Virginia State Corporation Commission, the Kentucky Public Service Commission, the New Jersey Board of Public Utilities, the New York Department of Public Service and the West Virginia Public Service Commission.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to explain the portions of Exhibit No. 3-A that I am sponsoring, which relate to the Company's claims for certain operating expenses.

Operating and Maintenance Expenses

Q. Please explain the development of pro forma operating and maintenance ("O&M") expenses as set forth in Exhibit No. 3-A that you sponsoring.

A. Pro forma O&M expenses for the future test year ("FTY") and the fully projected future test year ("FPFTY") have been developed in a manner consistent with previous filings and with Section 315(e) of the Pennsylvania Public Utility Code. In general, booked data

for the historic test year ("HTY") were used as a starting point and were then adjusted to reflect the effects of known and measurable changes that will occur by the end of the FPFTY (i.e., December 31, 2018). For certain O&M expense adjustments, inflation factor adjustments of 2.03% and 2.18% (developed on the basis of the 2017 and 2018 Blue Chip average of projected annual GDP Price Indices) were made to derive the FTY and FPFTY cost levels, respectively.

Q. Please explain the adjustment to purchased power expense.

A. Purchased power expenses were adjusted to reflect changes in usage and applicable electric rates. Usage was adjusted to reflect the following:

(1) The annualization of changes in electricity usage that occurred during the HTY, including annualizing the usage of the New Cumberland and Scranton wastewater treatment systems, which were acquired in 2016.

(2) The annualization of changes in electricity usage that occurred and are projected to occur in the FTY. Notably, electric power usage for the Scranton wastewater treatment plant reflects an approximate 20% increase in the FTY and FPFTY as compared to the HTY because of conditions added to that system's new National Pollution Discharge Elimination System ("NPSED") permit issued in 2016. Specifically, the 2016 NPDES permit imposes additional restrictions on discharges of untreated wastewater flows to the receiving stream. As a result, a larger portion of the wastewater system's total flow must be processed through the Scranton wastewater treatment plant. Because more wastewater will be treated at the plant, the electric usage of the plant has increased and will remain at that higher level.

(3) The annualization of changes in electric usage that are projected to occur in the FPFTY.

For the HTY, annualized usage was priced at the applicable electric rates in effect as of the end of the HTY. The Company has contracted with four electric generation suppliers (Constellation New Energy, Champion, Engie and Talen Energy) to supply all of the Company's electric generation through and beyond 2018. The contracts with these suppliers provide a fixed annual price for each of the FTY and FPFTY. Accordingly, I used the fixed annual price under those contracts to calculate annualized electric expense for the FTY and FPFTY. For the distribution and transmission portions of the Company's bills; the applicable utility's distribution and transmission rates plus its applicable riders and surcharges/credits that were in effect as of 12/31/2016. The purchased power adjustments are summarized in Exhibit No. 3-A ,Water Operations, page 45; Wastewater Operations Excluding Scranton Wastewater, page 35; and Scranton Wastewater Operations, page 26). Supporting workpapers are contained in Exhibit No. 3-B.

Q. Please describe the adjustment to purchased water expense.

A. As shown on page 36 of Exhibit No. 3-A (Water Operations), adjustments were made to reduce purchased water expense by $125,000 and $150,000 for the FTY and FPFTY, respectively. For the FTY, I used the same volumes of water purchased in 2016, subject to three changes. First, in March 2017, the Company ceased purchasing water from various points of interconnection with the North Fayette County Municipal Authority ("North Fayette") and began to purchase water from the Municipal Authority of Westmoreland County ("Westmoreland") at Westmoreland's Indian Creek interconnection with PAWC. Anticipated purchases from Westmoreland were increased from HTY levels by 68,129,000 gallons to bring total usage up to the

minimum purchase level required under the Company's purchased water contract with Westmoreland. In addition, the Company eliminated 183,000 gallons of water usage from the Sensus-Gallatin Avenue connection with North Fayette because PAWC discontinued purchases from, and closed, that interconnection in January 2016. Usage was increased by 15,625,000 at the West Penn Avenue interconnection with Westmoreland to annualize usage from that connection, which was initiated in March 2016. In addition, the adjustment reflects increased volumes PAWC expects to purchase at the West Penn Avenue connection in 2017. The annualized usage levels from all suppliers were priced at the applicable supplier's rates that became effective in HTY, and those rates were used to annualize purchased water expense for 2017. For the FPFTY, all of the annualized FTY purchased water expense was increased by the inflation factor of 2.18%, except for projected purchases from Westmoreland. Because the Company's contract with Westmoreland provides that rates will increase by 1% from the FTY to the FPFTY, a 1% increase was reflected for the FPFTY for those purchases. Details of the purchased water adjustment are included in Exhibit No. 3-B (Water Operations).

Q. Please explain the Company's adjustment to chemical expense.

A. PAWC uses various chemicals for water and wastewater treatment. In order to obtain the best available pricing, the Company participates in American Water's system-wide competitive bidding process and enters into unit-price contracts with the successful bidders for the chemicals needed at its water and wastewater treatment facilities throughout the Pennsylvania. Usage levels were adjusted in three respects. First, adjustments were made to eliminate the chemicals that are no longer being used as of

January 2017 and to add the chemicals that the Company began using for the first time in 2017. Second, usage was increased to reflect the chemicals that are needed at the wastewater treatment plants of the New Cumberland and Scranton wastewater systems, which were acquired in 2016. Third, chemical usage for the Scranton wastewater treatment plant was increased by approximately 20% for the FTY and FPFTY to reflect the increased level of wastewater treatment, over the 2016 level, that is required to meet the new NPDES permit requirements that I previously explained. To the adjusted levels of chemical usage, I applied the contract prices in effect at January 1, 2017, to project the level of expense for the FTY. FTY chemical costs were increased by the 2.18% inflation factor to project FPFTY cost levels. If the Company enters into new unit-price chemical contracts before the close of the record in this case, , it will update its claims to reflect any material price changes. The adjustments to chemical expenses are summarized in Exhibit No. 3-A, Water Operations, page 47; Wastewater Operations (excluding Scranton Wastewater), page 37; and Scranton Wastewater Operations, page 28. Supporting workpapers are included in Exhibit No. 3-B.

Q. Please explain the Company's adjustments to waste disposal expense.

A. The Company's claims for waste disposal expenses are based on the HTY level of expense, increased by the FTY (2.03%) and FPFTY (2.18%) inflation factors and adjusted to reflect the increased usage attributable to the acquisition of the New Cumberland and Scranton wastewater systems in 2016. FTY wastewater expense was increased to reflect the actual wastewater expense incurred by New Cumberland, with the addition of 6% sales tax because PAWC, unlike New Cumberland Borough, is subject to state sales tax. The 2017 amount was increased by the applicable inflation factor to

derive the FPFTY amount. FTY wastewater expense was also increased to reflect the projected levels of waste disposal needed for the Scranton wastewater treatment plant in 2017, which includes an approximate 20% increase over historic levels because of increased waste product produced from processing higher volumes of flow to comply with the Scranton treatment plant's 2016 NPDES permit, which I previously explained. Applicable contract prices for waste disposal and applicable grit removal fees were used to calculate the expense level for the Scranton plant for the FTY. That amount was increased by the applicable inflation factor to derive the FPFTY waste disposal cost for the Scranton plant. The waste disposal adjustments are summarized in Exhibit No. 3-A, Wastewater Operations (excluding Scranton Wastewater),page 36; and Scranton Wastewater Operations, page 27. Supporting workpapers are included in Exhibit No. 3-B.

Q. Please explain the adjustment necessary to account for changes in customer water consumption.

A. Exhibit No. 3-A Water, page 48, sets forth an adjustment to operating expenses to reflect changes in power and chemical costs due to changes in pro forma water consumption, including the decline in residential usage discussed in detail by Mr. Roach in PAWC Statement No. 9. The adjustment was calculated by computing the ratio of HTY power and chemical costs to actual HTY consumption. This ratio was then applied to the projected change in consumption between the HTY and FTY and the FTY and FPFTY.

Q. Please explain the Company's adjustment to transportation expense.

A. The Company developed its claim based on the actual number of vehicles in the HTY and made adjustments to the FTY and the FPFTY to reflect the number of vehicles claimed including the applicable cost for fleet management per vehicle at December 31,

2017 and December 31, 2018. Additional amounts for the fuel expense, titling and registration fees, maintenance expense and reimbursement for personal use of company vehicles were also included. A portion of the cost is capitalized and, therefore, excluded from the expense adjustment. The Company's adjustments to transportation expense are shown in Exhibit No. 3-A Water Operations, page 49, Wastewater Operations (excluding Scranton Wastewater) page 38, and Scranton Wastewater Operations, page 29. Detailed supporting calculations are provided in Exhibit No. 3-B.

Q. Please describe the adjustment to annualize premiums for insurance other than group insurance, as shown in Exhibit No. 3-A (Water Operations), page 50.

A. The FTY claim was based upon insurance premiums actually incurred, and projected to occur, during the twelve months ending December 31, 2017, adjusted by the five-year average of actual retroactive adjustments. The amount thus calculated was reduced by the appropriate amounts not charged to operating expense. The FTY expenses were adjusted by the 2.18% inflation factor to arrive at FPFTY costs Detailed calculations are provided in Exhibit No. 3-B.

Q. Please explain the adjustment required to properly reflect postage expense.

A. As shown in Exhibit No. 3-A (Water Operations), page 53, the postal increase that went into effect on January 22, 201**7** was annualized. The present rates December 31, 2018 amount was calculated by increasing the 2017 postage rates effective January 22, 2017 by the 12-month average change in the Consumer Price Index for All Urban Customers ("CPI-U") for the most recent twelve-month period ending January 2017 of 1.36%. Although the Company believes that its FPFTY inflation factor is appropriate for adjusting FTY postal expense to the FPFTY level, the Bureau of Investigation and Enforcement's witness, Ms. Lisa Boyd, proposed the use of the CPI-U specifically for

postal expense in the Company's 2013 base rate case. In order to preempt a dispute over the inflation factor for this expense, I have simply used the same index Ms. Boyd recommended for this expense in the Company's last case. Supporting workpapers are provided in Exhibit 3-B (Water Operations).

Q. Please explain the Company's adjustment to rent expense.

A. The Company's adjustment to rent expense is shown in Exhibit No. 3-A, Water Operations, page 56, and Scranton Wastewater Operations, page 32. Detailed supporting calculations are provided in Exhibit No. 3-B. The pro forma FTY expense was calculated by adding the rental expense for the Scranton wastewater office and leased parking space using the contract rates, which run through 2019 to the HTY expense. The FPFTY expense was calculated by excluding the Warren district's storage unit rentals from the FTY expense. These storage units will no longer be needed as of December 2018 due to the construction of the new Warren Operations Center. A portion of the rent expense is capitalized and, therefore, was excluded from rent expense.

Q. Does this conclude your direct testimony at this time?

A. Yes, it does.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
	:	
v.	:	**DOCKET NO. R-2017-2595853**
	:	
PENNSYLVANIA-AMERICAN WATER COMPANY	:	

VERIFICATION

I, **Daniel P. Hunnell, II**, hereby state that the facts set forth in the pre-marked Statement No. 7 and accompanying exhibits, if any, are true and correct to the best of my knowledge information and belief. I understand that this verification is made subject to the provisions and penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: April 28, 2017

Daniel P. Hunnell, II

PAWC STATEMENT NO. 8

DIRECT TESTIMONY
OF
BERNARD J. GRUNDUSKY, JR

WITH REGARD TO
PENNSYLVANIA AMERICAN WATER COMPANY'S
ACQUISITIONS

DOCKET NO. R-2017-2595853

DATE: April 28, 2017

PENNSYLVANIA-AMERICAN WATER COMPANY

DIRECT TESTIMONY OF BERNARD J. GRUNDUSKY, JR

Q. What is your name and business address?

A. My name is Bernard J. Grundusky, Jr and my business address is 852 Wesley Drive, Mechanicsburg, Pennsylvania 17011.

Q. By whom are you employed and in what capacity?

A. I am employed by Pennsylvania-American Water Company ("PAWC" or the "Company") as Director of Business Development.

Q. Please summarize your educational background and professional experience.

A. I received a Bachelor of Science (B.S.) degree in Accounting from Pennsylvania State University in August of 1990 and a Master of Business Administration degree (MBA) from Lebanon Valley College in 1995. My experience in the waterworks industry began in March 1991 when I was employed as a Rate Analyst in the Rates and Revenue Department of the American Water Works Service Company ("Service Company"). As a Rate Analyst, I was responsible for preparing financial analysis and written testimony to support PAWC rate increase requests. On January 1, 1993, I was transferred from the Service Company to PAWC. On July 1, 1995, I was promoted to Senior Rate Analyst. On October 16, 1996, I was promoted to Financial Analyst in PAWC's Administration Department. My principal duties in that capacity included the preparation and administration of the revenue, operating and maintenance budgets and assistance in the preparation of the capital budgets; the review of results of operations by budget categories; and, annual review and

refinement of budgeting techniques. On July 1, 1997, I was promoted to Intermediate Financial Analyst, and, on July 1, 1998, I was promoted to Senior Financial Analyst. On January 1, 1999, I transferred to PAWC's Business Development Department. On July 1, 2000, I was promoted to Manager of Business Development. On April 1, 2009, I was promoted to the position of Senior Manager of Business Development for PAWC. On September 30, 2013, I was promoted to the position of Director of Business Development for PAWC. I have been in that position since then.

Q. What are your duties as Director of Business Development?

A. I develop and maintain necessary contacts to stay abreast of new business opportunities. In addition, I direct the business development team in the preparation of proposals, policies and strategies for acquisitions, and other related business ventures. Finally, I participate in developing PAWC's short and long-range plans. These responsibilities necessitate that I maintain a working knowledge of regulatory and technical developments, new technologies and current trends as they affect the water utility industry, and that I be familiar with legislation, regulation and public policy affecting business opportunities.

Q. What is the scope of your testimony?

A. I will discuss the fourteen water and wastewater system acquisitions and one line extension project that PAWC has completed since its last base rate case (2013). Mr. Nevirauskas addresses the Scranton Sewer Authority acquisition in his direct testimony (PAWC Statement No. 1).

Q. What are the fourteen water and wastewater system acquisitions that PAWC has completed since its last base rate case?

A. PAWC has purchased the following water and wastewater systems since the last case: (1) Koppel Borough (wastewater); (2) Pocono Mountain Lake Forrest Community Association (water); (3) Franklin Township Municipal Sewer Authority (wastewater); (4) Berry Hollow Water Company Inc. (water); (5) Scott Township (water); (6) Paint-Elk Joint Sewer Authority (wastewater); (7) Hamiltonban Township Municipal Authority (wastewater); (8) Abbey Woods Homeowners Association (water); (9) Shippenville Borough (wastewater); (10) Paint Township Municipal Water Authority; (11) McEwensville Municipal Authority (water); (12) McEwensville Municipal Authority (wastewater); (13) Fairview Township (wastewater) and (14) New Cumberland Borough (wastewater).

Q. Please provide a more detailed description of the foregoing fourteen completed acquisitions.

A. Koppel Borough (Koppel) - The Koppel Borough wastewater system was acquired on May 31, 2013. The system is located in Koppel Borough, Beaver County and serves 343 customers. The wastewater collection system is a sanitary sewer system with approximately 4.5 miles of gravity sewer lines ranging from five to 15-inches in diameter. The sewer lines are largely of clay pipe that is susceptible to infiltration, which increases the hydraulic loading of the wastewater plant. The collection system does not contain any pumping stations. The sanitary sewer system conveys wastewater to a single wastewater treatment facility that collects and treats wastewater. The treatment facility is a 0.240 million gallon per day ("MGD")

Intermittent Extended Aeration System. Koppel Borough officials desired to exit the wastewater business due to the small size of the system and the associated regulatory expense and costs. PAWC provides the water service to Koppel Borough. The geographic overlap between the Koppel Borough's corporate boundaries and PAWC's existing water operations created opportunities for functional and operational consolidation, and associated efficiencies and cost savings.

Pocono Mountain Lake Forest Community Association (PMLFCA) – The PMLFCA water system was acquired on July 22, 2013. PMLFCA is a Pennsylvania Community Association. The system is located in Delaware Township, Pike County, and furnishes water service to 63 residential customers. PMLFCA's water system consists of two wells, a treatment building with an emergency generator, a 55,000-gallon storage tank and a water distribution system consisting of 4-inch pipe installed in the 1970's. The PMLFCA system, which is located approximately 200 feet from PAWC's Silver-Marcel Lake water system, was unmetered when acquired. PAWC installed 63 customer radio frequency meters and outside meter pits. PAWC also installed remote telemetry equipment, well pump soft starts, alarms, security improvement, chlorine analyzers, and conducted leak surveys. PMLFCA sold its system because its board felt a professional water company capable of providing full time service and making investments to ensure reliability and the economies of scale of an expanded customer base would better serve the customers.

Franklin Township Municipal Sewer Authority (FTMSA) – PAWC purchased the FTMSA wastewater system on August 29, 2013. FTMSA provides wastewater service in a territory encompassing a portion of Franklin Township, Adams County,

PA. FTMSA furnished wastewater service to 297 customers (274 residential, 17 commercial and 6 municipal). FTMSA also owned a separate sand mound system serving 14 residences in an area within Franklin Township, Adams County Pa known locally as Poplar Springs. The sanitary wastewater system went into service in 2009 and conveys wastewater via gravity to the Franklin Township Treatment Plant (FTTP). There are no pumping stations. The FTTP uses the sequential batch reactor (SBR) treatment process with a design (and permitted) capacity of 200,000 gpd. The Poplar Springs sand mound system serves 14 homes and consists of two 1,500-gallon septic tanks with a 1,800-gallon final settling tank, pump station and 10,000 square foot sand mound. The sand mound system was installed in late 2003. PAWC operates FTMSA using the existing treatment facilities and collection system to handle wastewater service for FTMSA customers. PAWC completed various improvements including the installation of remote monitoring, chemical room improvements, an eyewash station, effluent chlorine analyzers, and chemical containment facilities. PAWC has interconnected the FTMSA with the Hamiltonban Township (Hamiltonban) wastewater system (see Hamiltonban Township acquisition testimony). The Hamiltonban treatment plant had no provision for storage of effluent and, therefore, discharges to a spray field. However, the Department of Environmental Protection (DEP) found that runoff from the spray field, following a heavy rain or ground freeze, was entering an unnamed tributary of Little Marsh Creek, constituting a violation of the Clean Streams Law --- and/or its operating permit. DEP has drafted a Consent Order and Agreement (CO&A) to address these violations. PAWC regionalized the FTMSA and Hamiltonban systems via an

interconnection to FTMSA utilizing the existing capacity and eliminating the need for Hamiltonban to construct a new wastewater treatment plant within a few miles of the FTMSA system. FTMSA sold its system to PAWC due to affordability issues for its customers.

Berry Hollow Water Company Inc. (Berry Hollow) – The Berry Hollow water system was acquired on April 3, 2014. The system is located in Lower Mount Bethel Township, Northampton County, and provided water service to approximately 29 residential customers located in a community known as Berry Hollow Estates. The system's source of supply consists of two wells. Distribution storage is provided by a 2,000 gallon storage tank. The distribution system consists of approximately 3,436 feet of plastic pipe with a diameter of 4" or less. Customer service lines consist of 1" diameter pipe, curb stops and curb boxes. All of the customers are metered. The water system does not provide fire protection. There was an outstanding DEP Compliance Order against Berry Hollow for its failure to obtain a public water system operation permit for well #2 and its failure to provide treatment capable for 4-log inactivation of viruses. Berry Hollow was therefore considered a small, troubled water company by the Commission. Also, at the date of acquisition Berry Hollow was under a boil water advisory order. The boil water advisory order was lifted 8 days after PAWC ownership based on immediate improvements that were made to the system.

Scott Township (Scott Township) – The Scott Township water system was acquired on May 22, 2014. The system is located in Scott Township, Lackawanna County, and provides water service to approximately 4 commercial customers, 1 industrial

customer, and 2 public customers. The system's source of supply consists of two wells. Distribution storage is provided by an above-ground storage tank with a capacity of 565,000 gallons. The distribution system consists of approximately 12,495 linear feet of ductile iron and plastic main of various sizes. The water system provides fire protection. The Scott Townships total available capacity was 64,800 gpd, or considerably less than the maximum day demand of approximately 100,000 gpd. Therefore, the system was not considered to have an adequate source of supply. Following its acquisition, the Scott Township system was interconnected to PAWC's water distribution system. As a result, there is now an adequate source of supply.

Paint-Elk Joint Sewer Authority (PEJSA) – The PEJSA wastewater system was acquired on July 31, 2014. The system is located within portions of Paint and Elk Townships, Clarion County, and served 459 customers of which 367 were residential and 92 were commercial at the time of closing. The system was comprised of 11 miles of gravity and a half mile of force mains, as well as three duplex sewage lift stations, 219 manholes, a 0.6 million gallon per day aerobic lagoon sewage treatment facility ("WWTP") and related discharge facilities that operated under National Pollutant Discharge Elimination System Permit No. PA0034924. The collection system consisted of 4 to 8-inch vitrified clay or polyvinyl chloride pipe. PEJSA elected to sell its system to the Company as it desired to exit the wastewater business and because PAWC owned and operated both community water and wastewater systems in nearby Clarion Borough and the surrounding areas. PAWC also was the water provider to a small portion of PEJSA's customers. The Pennsylvania Department of Environmental

Protection ("DEP") found sludge levels in PEJSA's lagoon ponds exceeding allowable limits causing the facility to be in violation of its permit. In addition, DEP had recommended that PEJSA install a head-works to protect the facilities' aerators from hair and other debris. Lastly, DEP had expressed a concern that a single operator was not able to perform all associated responsibilities at the PEJSA WWTP. These issues contributed towards PEJSA seeking to exit the wastewater business as PEJSA's rates were already higher than PAWC's Clarion District base rates. In preparation of closing, PEJSA dredged the lagoon ponds to a level such that the remaining sludge volume in each lagoon did not exceed 9% of the total lagoon capacity. PAWC intends to complete head-works screening and de-gritting as part of its capital improvements within the PEJSA system; this work is tentatively under design and expected to be completed in 2018. PEJSA's operator continues to work at the PEJSA WWTP along with the support of PAWC's Clarion District staff in the day-to-day management of the PEJSA WWTP, collection system and related facilities.

Hamiltonban Township Municipal Authority (HTMA) – The HTMA wastewater system was acquired on November 3, 2014. The system is located in portions of Hamiltonban Township, Adams County, and furnishes wastewater service to approximately 158 equivalent dwelling units (68 residential, 14 commercial and 76 industrial). HTMA's sanitary wastewater system conveys wastewater via gravity to a single wastewater treatment facility. The collection system and treatment facility were constructed in the mid-1970s. HTMA's collection system consists of approximately 5,550 feet of 8-inch gravity wastewater mains and approximately 1,000 feet of 2-inch low-pressure wastewater mains. HTMA's treatment plant

includes influent grinding, biological treatment using two lagoons in series, chlorination, and spray field disposal. Waste sludge is removed from the lagoons as required and disposed by a private hauler.

As previously discussed, PAWC interconnected the HTMA's wastewater system with its Franklin Township Municipal Sewer Authority (System).

Abbey Woods Homeowners Association (Abbey Woods) – The Abbey Woods water system was acquired on July 14, 2015. The system is located in Jackson Township, Butler County, and provides water service to approximately 54 residential customers and 1 commercial customer located in a community known as The Abbey Woods Development. The distribution system, which was connected to PAWC's Ellwood system prior to closing, consists of approximately 6,920 feet of ductile iron and plastic pipe. All of the customers were metered with the exception of the one commercial customer. Abbey Woods had six fire hydrants that were used for flushing the system, but did not provide fire protection service. Prior to the interconnection, the Abbey Woods system utilized four ground water wells for its supply. The homeowners were required to conserve water at all times due to well production limits. In addition, one well had iron bacteria issues. Once the system was interconnected, the six fire hydrants became public fire hydrants capable of providing fire protection.

Shippenville Borough Wastewater (Shippenville Borough) – The Shippenville wastewater system was acquired on August 4, 2015. The system is located within Shippenville Borough and a portion of Elk Township, Clarion County, and served 245 customers of which 226 were residential, 17 were commercial and 2 were municipal.

The system was comprised of 21,300 linear feet of gravity mains consisting of 12,500 feet of 6-inch diameter PVC pipe; 7,700 linear feet of 8-inch diameter PVC sewer pipe; 1,100 linear feet of 1-1/4-inch diameter force main and related appurtenances; and one lift station. The system also included a 50,000 gallon per day 1980 vintage WWTP and related discharge facilities. The WWTP utilized an oxidation-ditch-treatment-process, clarifier, chlorine contact tank with liquid sodium hypochlorite feed system, aerated sludge holding tank and sludge drying beds. Shippenville's system was the subject of a Pennsylvania DEP Consent Order and Agreement, dated November 4, 2010, which required that a new WWTP be in service by October 31, 2015. To resolve its treatment deficiencies, PAWC intends to interconnect the Shippenville system with its PEJSA system in the Third Quarter of 2017 and decommission Shippenville's WWTP at that time.

Paint Township Municipal Water Authority ("PTMWA") – The PTMWA water system was acquired on October 15, 2015. The system is located within a portion of Paint Township, Clarion County, and served 34 customers of which 19 were residential, 13 were commercial and two were municipal at the time of Closing. The system was comprised of 27,280 linear feet of ductile iron main, valves, fire hydrants, service lines, meters, interconnect/meter vault and related real estate rights. The source of supply for the PTMWA is PAWC's Clarion District water system. PAWC's Clarion District staff operates the PTMWA system as part of their day-to-day management of the Clarion District water system and related facilities.

McEwensville Municipal Authority ("McEwensville") – The McEwensville water system was acquired on October 21, 2015. The system is located within McEwensville

Borough and a portion of Delaware Township, Northumberland County, and served 135 customers, of which 125 were residential, 9 were commercial and 1 was municipal at the time of Closing. The system was comprised of two groundwater wells, each with a treatment facility; a 100,000 gallon steel water storage tank; a water distribution system. The distribution system included approximately 10,000 linear feet of 4-inch and 6-inch ductile iron pipe and 2,000 linear feet of 4-inch plastic pipe, 34 gate valves, 16 blow-off/air release valves, 9 fire hydrants, and a minimum of 135 company service lines and water meters. McEwensville sold its system to exit the utility business due to lack of scale and the retirement of staff. PAWC's Milton District staff operate the McEwensville system as part of their day-to-day management of the Milton District water system and related facilities, which are located approximately 2.6 miles southwest of McEwensville Borough.

The McEwensville wastewater system was also acquired on October 21, 2015. The system is located within McEwensville Borough and a portion of Delaware Township, Northumberland County, and served 139 customers, of which 129 were residential, 9 were commercial and 1 was municipal at the time of Closing. The system was comprised of one 45,000 gallon per day wastewater treatment facility and collection system. The WWTP is a lagoon-type system placed into service in 1984 and included two 110,000 gallon aerated lagoons and related discharge facilities. The collection system was comprised of five pump stations, 56 manholes, four cleanouts, a minimum of 140 company service laterals and the following plastic pipe ranging between 1.5-inch to 10-inch in diameter. McEwensville sold its system primarily to exit the utility business due to lack of scale and the retiring of staff. PAWC's Milton District staff

operate the McEwensville system as part of their day-to-day management of the Milton District system.

Fairview Township (Fairview Township) – The Fairview Township wastewater system was acquired on December 22, 2015. The system is located in Fairview Township, York County, and furnishes wastewater service to approximately 3,900 customers. Fairview Township's wastewater system consists of three separate systems. Two of Fairview's wastewater systems, the North and South, provide collection, conveyance, treatment and disposal services to approximately 3,300 customers while its third system provides wastewater collection and conveyance services to approximately 600 customers with treatment and disposal provided by Lower Allen Township Authority's wastewater treatment facility. These systems include approximately 360,600 feet of wastewater pipe ranging from 2" (force mains), with the majority of the gravity sewer systems being 8" – 16", supported by 12 pump stations. In addition, Fairview Township entered into discussions with the Pennsylvania DEP in 2011, followed by updates to their Act 537 Sewage Facilities Plan, to include providing sewer service to approximately 300 residents of the Township who had failing on-lot sewer systems. The construction of the new collection system was planned in two phases. Phase 1 was completed in 2014 and included approximately 15,000 feet of sewer mains and one pump station. Phase 2 includes the installation of approximately 21,425 feet of gravity sewer pipe, 9,110 feet of force sewer pipe, 735 feet of low pressure sewer pipe and four pump stations including a 100-unit module home community. In 2012, Fairview Township requested PAWC consider installing new waterlines in conjunction with the

Township's Phase 1 and 2-wastewater collection system project. PAWC and Fairview Township executed a Public-Private-Partnership (PPP) agreement for PAWC to extend water into the same area with poor on-lot sewer systems realizing construction synergies, costs savings and minimal homeowner construction disruption. Phase 1 was completed. At or about the time Phase 2 was being designed, Fairview Township approached PAWC to inquire if PAWC would be interested in purchasing its wastewater treatment and collection systems. Fairview Township was seeking a strong managerial, technical and financially stable organization to operate its sewer system in compliance with all Public Utility Codes, the Clean Streams Treatment Law and other regulatory requirements, as well as to make both short- and long-term wastewater system improvements providing excellent wastewater service now and in the future. For all those reasons, Fairview Township's Board unanimously voted to sell its wastewater treatment and collection system to PAWC.

New Cumberland Borough (NCB) – The NCB wastewater system was acquired on October 31, 2016. The system is located in New Cumberland Borough and portions of Lower Allen Township, Cumberland County, and furnishes wastewater service to approximately 3,100 customers. The acquisition included a wastewater treatment plant, approximately 144,500 feet of collection system pipe ranging from 4" – 21", and three pump stations. NCB had made significant investments in its wastewater facilities, including major upgrades to its wastewater treatment plant, which reduced the amounts of nutrients (nitrogen and phosphorus) discharged into the Susquehanna River and resolved collection system overflows caused by infiltration and inflow during excessive rain events. NCB sought a professional, reputable organization that

would manage and invest in both short and long-term sewer system improvements while maintaining reasonable and affordable rates for the Borough's constituents. For those reasons, NCB voted to sell its sewer treatment and collection system to PAWC.

Q. Did PAWC perform any line extension projects that affected an existing water system?

A. Yes. PAWC constructed a water line extension to the Meadows of Watsontown Water System.

Q. Please describe that project.

A. The Meadows of Watsontown (Meadows) is modular home community located in Delaware Township, Northumberland County. The Meadows was regulated by the Commission which considered it a small, troubled water and sewer company because the Meadows experienced frequent outages, poor pressure, and, at times, poor water quality. PAWC was approached by Delaware Township officials to solve the Meadows' service problems. PAWC evaluated several options and concluded that extending approximately 11,500 feet of 8" and 12" waterlines from its Watsontown (Milton area) water distribution system was the best option to provide customers the best and most reliable water service. In short, PAWC collaborated with Delaware Township officials and residents, identified customer needs, and developed and implemented a plan for PAWC to extend public water service and resolve the Meadows' water needs. On May 16, 2016, the Meadows, through Commission Order, abandoned water service to the modular homes and The Crest communities. PAWC received very favorable response from customers, Delaware Township, local legislature and the Commission.

Q. Does this conclude your direct testimony?

A. Yes it does.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
	:	
v.	:	**DOCKET NO. R-2017-2595853**
	:	
PENNSYLVANIA-AMERICAN WATER COMPANY	:	

VERIFICATION

I, **Bernard J. Grundusky, Jr.**, hereby state that the facts set forth in the pre-marked Statement No. 8 and accompanying exhibits, if any, are true and correct to the best of my knowledge information and belief. I understand that this verification is made subject to the provisions and penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: April 28, 2017

Bernard J. Grundusky, Jr.

PAWC STATEMENT NO. 9

DIRECT TESTIMONY

OF

GREGORY P. ROACH

DESCRIBING
PENNSYLVANIA-AMERICAN WATER COMPANY'S

RESIDENTIAL CUSTOMER WATER CONSUMPTION TRENDS

DOCKET NO. R-2017-2595853

DATE: April 28, 2017

PENNSYLVANIA-AMERICAN WATER COMPANY

DIRECT TESTIMONY OF GREGORY P. ROACH

Q. What is your name and business address?

A. My name is Gregory P. Roach. My business address is 555 East County Line Road, Suite 201, Greenwood, Indiana 46143.

Q. By whom are you employed and in what capacity?

A. I am employed by American Water Works Service Company (the "Service Company") as Manager of Revenue Analytics. My responsibilities include leading the Revenue Analytics group, whose main area of focus is the analysis and forecasting of system delivery, customer usage and revenue for the Service Company affiliates, including Pennsylvania-American Water Company ("PAWC").

Q. Please summarize your educational background and professional experience.

A. I graduated from Indiana University in 1980 with a Bachelor of Arts degree in Economics and Political Science. I graduated from Butler University in 1982 with a Master's Degree in Economics.

I have over 25 years of experience working in the electric, gas and water utility sectors as both a consultant and utility employee. I began my career with Public Service Indiana (PSI, now Duke Energy) in January of 1980, where my responsibilities included transforming PSI's load forecasting processes from time series to econometric-based models. In May 1982, I accepted the position of Senior Economist with the management consulting firm R.W. Beck and Associates (now part of Science Applications International Corporation), where I was ultimately promoted to Principal Economist. During my career at Beck, I was responsible for the management of all rates and regulatory matters, load

forecasting, and financing feasibility client engagements managed by the firm's Indianapolis office. In May 1991, I took the position of Principal Economist with the regulatory management consulting firm SVBK Consulting Group. There, I was responsible for all consulting engagements executed from the Indianapolis regional office on behalf of SVBK's national utility clients. From July 1993 to November 1998, I was owner and president of a retail operations holding company with three franchise store outlets, and was responsible for all management, operation, sales and financial functions of the firm. In November 1998, I started the Roach Consulting Group, Ltd. As Principal Consultant, I advised industrial and utility clients related to business intelligence systems, enterprise and manufacturing resource planning systems, customer information systems, and general accounting systems. In July 2011, I joined the Service Company as Manager of Rates and Regulation. In August 2014, I accepted my current position of Manager of Revenue Analytics.

Q. What are your duties as Manager of Revenue Analytics?

A. I manage and direct a team of financial and regulatory analysts to analyze and project customer water usage, system delivery, customer counts and water and sewer sales revenues for each of the American Water affiliate companies. As such, our group supports both the regulatory and financial functions of the Service Company organization and the affiliated American Water companies.

Q. Have you previously submitted testimony before the Pennsylvania Public Utility Commission?

A. No. This is my first opportunity to testify before the Pennsylvania Public Utility Commission (the "Commission"). However, I have provided testimony in numerous

regulatory proceedings before the Indiana Utility Regulatory Commission, the Missouri Public Service Commission, the Public Utilities Commission of Ohio, the Iowa Utilities Board, the Public Service Commission of West Virginia, the Public Service Commission of Louisiana, the Council of the City of New Orleans, the Virginia State Corporation Commission, the Public Utility Commission of Texas, the Arkansas Public Service Commission, the Common Pleas Court of Ohio, the Illinois Commerce Commission and the Federal Energy Regulatory Commission.

Q. What is the purpose of your testimony?

A. My direct testimony supports the direct testimony of Jo Anne Lontz (PAWC Statement No. 5) and Daniel P. Hunnell II (PAWC Statement No. 7) regarding PAWC's test year revenue and expense normalizations. PAWC has experienced declining usage per customer since the early 1990's and my analysis indicates it will continue to experience declining usage per customer for the foreseeable future. My testimony discusses the analyses we have performed that identify and define this declining usage historically and demonstrate that the trend of declining usage will continue beyond the test year. These analyses show there is a continuing annual decline in water use among residential and commercial customers across all PAWC districts averaging a combined 920 gallons per customer per year ("gpcy"), or approximately 2.5 gallons per customer per day ("gpcd").

Q. Have you prepared, or caused to be prepared, exhibits in support of the Company's application to increase rates?

A. Yes, I am sponsoring the following exhibits:

- Exhibit GPR-1: PAWC Residential Usage Trend 2006-2015;
- Exhibit GPR-2: AWC Residential Usage Trend 2006-2015;
- Exhibit GPR-3: US Water Fixture Specifications;

- Exhibit GPR-4: State of Pennsylvania & Allegheny County - Housing Stock Vintage;
- Exhibit GPR-5: Authorized and Actual Revenue & Water Sales
- Exhibit GPR-6: Household of 4 Theoretical Water Reduction; and
- Exhibit GPR-7: Effect of Tornado Rebuild on Water Usage.

The Current Trend of Declining Customer Usage

Q. Please describe the water use trend among PAWC's residential customers.

A. Since the early 1990s, residential usage has declined on a per-customer basis in the PAWC service territory. However, the slope, or change rate, of residential decline has accelerated since the passage of more stringent water fixture and appliance usage regulations in the 2000s. This decline can be attributed to several key factors, including but not limited to: increasing prevalence of low flow (water efficient) plumbing fixtures and appliances in residential households, customers' conservation efforts, conservation programs implemented by the federal government, state government, PAWC and other entities, and price elasticity.

Q. How did you arrive at your conclusions regarding the current downward trend in usage for PAWC's customers?

A. Our conclusions were derived through a rigorous analysis of monthly customer consumption by PAWC residential customers over the past ten years. For purposes of this analysis we have divided total residential customer monthly usage into its base non-weather sensitive usage and non-base weather sensitive usage components. We analyzed base usage by applying regression analysis using time as a proxy variable for the ever-increasing penetration of regulatory mandated usage reductions occurring by reason of water fixture and water appliances installed by the PAWC residential customer base over

time. We derived the annual non-base usage by calculating the mean annual non-base usage over the period of 2007 through 2016 and profiling each month using the mean monthly contribution to the mean annual total over that same period. Discrete monthly non-base usage was estimated using the 10-year average allocation of non-base usage for each month to the 10-year average annual total.

In summary, the per customer trend of base usage was developed as illustrated by the three-step process outlined below. To further illustrate this process, I have attached graphs of the calculations described below as Exhibit GPR-1, pages 1-3.

1) Monthly residential water sales data over the period of January 2007 to December 2016 were summed, and then divided by the number of customers to yield the average usage per customer. For analysis purposes, we plotted average per-customer monthly usage over the period of January 2007 to December 2016. In this instance, the time variable (months) was plotted on the x-axis, and the consumption per customer variable was plotted on the y-axis. (Note that water sales data lag behind actual consumption by approximately one month for customers on a monthly meter reading cycle). *See* Exhibit GPR-1, page 1.

2) Average annual residential base consumption, expressed in gallons per customer, was calculated for each year from 2006 through 2015 based on the average of the months December through April. A single point representing the annual average monthly non-discretionary base (total usage less seasonal discretionary outdoor usage) usage was estimated and is plotted for illustrative purposes on Exhibit GPR-1, page 2.

3) We then applied a linear regression analysis to the resulting annual base usage data to derive a trend line employing the 10-year annual average non-discretionary usage per residential customer as a function of time that stands as a proxy for the ever-increasing saturation of more water efficient fixtures and appliances. The resulting regression model has a good statistical fit with an R-Square of .988 (meaning the resulting regression model explains nearly 99% of the variance in annual customer usage over the period estimated) and the time variable is very significant in explaining usage per customer with a t-statistic of -23.21. *See* Exhibit GPR-1, Page 3.

Q. What are the results of your analysis for residential customers?

A. The results of our analysis indicate that PAWC has experienced a substantial and continuing decline in residential water consumption over the period covered by the historical data set, January 2007 to December 2016. The regression analysis projects a continuing annual decline of -920 gallons per customer year; this is equal to an annual decrease of -2.14% per year, or approximately -2.5 gallons per customer day.

Q. Is residential usage affected by seasonal factors?

A. Yes. Outdoor usage by most customers is seasonal. For instance, for the residential customer class, outdoor usage during the summer season includes discretionary usage such as lawn and landscape irrigation, car washing, filling swimming pools, and similar such activities. Short-term summer weather patterns will influence outdoor water use; for instance, lawn irrigation decreases during a rainy period and increases during a dry period. These weather-related fluctuations in usage can mask underlying trends that occur on a monthly basis to non-weather sensitive base usage.

Q. How does your analysis account for weather-related changes to usage?

A. I conducted a regression analysis that trends "base usage" over time without attempting to normalize for weather. As delineated above, base usage is defined as the residential average usage per customer measured over the period of December through April of each year, a period in which there is no appreciable outdoor usage of water. In other words, our methodology studies the trending decline of base usage over time having removed the effects of weather by excluding non-base usage from the data set and hence the analysis. Because it is not weather sensitive, base usage is a more appropriate metric for studying the trend of residential usage as opposed to some methodology for creating "weather-normalized usage" because in the water industry, there has never been a consistent definition of "weather" for weather normalization purposes, or a generally accepted weather normalization adjustment methodology.[1] To date, weather has never been satisfactorily addressed through existing ratemaking models for water companies because, even if weather is "normalized" for analysis purposes, actual weather is never "normal." Therefore, base water usage is a more reliable metric for analyzing the long-term declining usage trend I have described.

Q. Given that you have separated water usage into base usage and seasonal usage, and given that you do not believe that there is a way effectively to normalize usage for weather, how did you address variations in seasonal usage to arrive at non-base usage?

1 By contrast, degree-days have been determined to be a reasonable measure of 'weather' for the gas and electric industry. In the water industry, the interplay between precipitation and temperature are as important as degree-days in the measurement of water usage.

A. Because outdoor, seasonable usage is affected by temperature, rainfall, cloud cover and other factors such as the duration of dry weather conditions, I used an average of the non-base weather sensitive outdoor usage for the last ten years. Ten years is a long enough period to capture the seasonal variations in non-base weather sensitive usage year over year without being unduly influenced by a singularly abnormal year. That, combined with the trend of declining base usage operate in tandem to produce the best forecast of likely usage in the first year that rates will be in effect.

Q. You mentioned that the declining usage per customer experience of PAWC is not unique among the companies of the American Water system. Have you studied water consumption trends for other American Water subsidiaries?

A. Yes, I have.

Q. Are the results of your analysis of PAWC customers' usage consistent with the results of your analyses in other states?

A. Yes, they are consistent. We have studied the residential consumption patterns for other American Water state operating systems located in climates and geographies similar to Pennsylvania. The trend experienced by PAWC is very similar to the trends experienced in other states. The results of my analysis are shown on Exhibit GPR-2, which illustrates that states in the American Water footprint have experienced a decline in residential consumption per customer averaging -2.0% per year over the last 10 years. The estimated PAWC system-wide reduction in residential customer usage per year of -2.14% falls close to the mean, appears reasonable, and is well within the bounds of the comparable rates of decline experienced by similar states in the American Water footprint.

Q. Is this trend being observed across the industry, beyond PAWC and other American Water companies?

A. Yes. According to the 2010 Water Research Foundation ("WRF") report, "many water utilities across the United States and elsewhere are experiencing declining water sales among households."[2] The report further states: "A pervasive decline in household consumption has been determined at the national and regional levels.[3]

Q. What is causing the decline in residential customers' usage?

A. A number of factors drive the decline in residential customers' usage, including the prevalence of low-flow fixtures and appliances, new regulations that lead to further reductions in fixture flow-rates, conservation programs and public initiatives that have led to greater consumer water conservation awareness, consumers' response to price increases for water service or competing products, and consumers' responses to changes in income or employment.

Q. Please explain what you mean by the prevalence of low flow fixtures and appliances.

A. Plumbing fixtures such as toilets, showerheads, and faucets available to consumers today are more water-efficient than those manufactured in the past. Similarly, appliances such as dishwashers and washing machines are also more water-efficient. When a customer replaces an older toilet, washing machine, or dishwasher with a new unit, the new unit will almost certainly use less water than the one it replaced. When new homes or business establishments are built, they include water efficient fixtures, and every time a customer

2 Coomes, Paul et al., North America Residential Water Usage Trends Since 1992 – Project #4031, page 1 (Water Research Foundation, 2010).
3 WRF Report, page xxviii.

remodels or installs new appliances in his or her kitchen, bathroom or laundry room, he or she will consume less water in the future.

Q. How much water do the new fixtures and appliances save?

A. The Energy Policy and Conservation Acts of 1992 and 2005 ("EPAct92" and "EPAct05," respectively) mandated the manufacture of water-efficient toilets, showerheads and faucet fixtures. For example, a toilet manufactured after 1994 must use no more than 1.6 gallons per flush, compared to a pre-1994 toilet, which typically used from 3.5 to 7 gallons per flush. In fact, toilets using only 1.28 gallons per flush or less are becoming more prevalent in the marketplace. Replacing an old toilet with a new one, therefore, can save from 2 to nearly 6 gallons per flush. The United States Environmental Protection Agency ("USEPA") estimates that there are more than 220 million toilets in the United States, and that approximately 10 million new toilets are sold each year for installation in new homes and businesses or replacement of aging fixtures in existing homes and businesses

The Energy Independence & Security Act of 2007 ("EISA"), which established stringent efficiency standards for dishwashers and washing machines has further reduced indoor water consumption. Dishwashers manufactured after 2009 and washing machines manufactured after 2010 must use 54% and 30% less water, respectively. All other factors being equal, a typical residential household in a new home constructed in 2015, with water efficient toilets, washing machines, dishwashers and other fixtures, uses approximately 35% less water for indoor purposes than a non-retrofitted home built prior to 1994. Exhibit GPR-3, pages 1-3 provides additional detail about the expected impact of water efficiency measures on residential water consumption.

Q. Haven't new federal regulations related to efficiency standards for water-using fixtures and appliances already had their full impact on PAWC residential customer usage?

A. No, not at all. Due to the age of the Pennsylvania residential housing stock, these water efficiency standards have only just begun to have an impact on Pennsylvania residential usage. The potential impact of replacing these fixtures is significant as, according to the 2015 American Housing Survey, 90% of the homes in the Commonwealth of Pennsylvania were built prior to the year 2000 (80% of homes prior to 1990)[4]. Further, making the same housing stock comparison for Alleghany County where the Pittsburgh SMA is centered, we find that 94% of homes were built prior to the year 2000 and 89% prior to the year 1990. These data are detailed in Exhibit GPR-4 and summarized in Table GPR-1 below.

Table GPR-1
Pennsylvania American Water Company
Housing Stock Vintage
Commonwealth of Pennsylvania

Year Structure Built	Pennsylvania Units	Pennsylvania % Total	Allegheny County Units	Allegheny County % Total
Built 2014 or later	3,179	0.06%	313	0.05%
Built 2010 to 2013	48,649	0.87%	3,710	0.63%
Built 2000 to 2009	469,837	8.41%	29,998	5.09%
Built 1990 to 1999	528,589	9.46%	32,993	5.59%
Built 1980 to 1989	540,741	9.68%	39,496	6.70%
Built 1970 to 1979	705,633	12.63%	63,493	10.77%
Built 1960 to 1969	571,635	10.23%	68,620	11.64%
Built 1950 to 1959	772,429	13.83%	110,551	18.75%
Built 1940 to 1949	450,017	8.06%	60,082	10.19%
Built 1939 or earlier	1,495,002	26.76%	180,496	30.61%
Total housing units	5,585,711	100.00%	589,752	100.00%
Percentage Prior to 00		90.66%		94.23%

4 U.S. Census Bureau, Selected Housing Characteristics. 2014 American Community Survey 10-Year Estimates (1990-1999), *available at h*ttp://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml.

Both the state-wide level and Allegheny County data illustrate that 80% or more of the housing stock was constructed with toilets, washing machines, and dishwashers that are much more water-intensive than newer fixtures and appliances now on the market which will eventually replace this existing fixture and appliance stock.

Q. Please elaborate on other factors contributing to the continued decline in residential water consumption patterns.

A. Programs to raise customer awareness and interest in the benefits of conserving water and energy continue to increase. For example, WaterSense is a USEPA voluntary partnership program that seeks to protect the future of our water supply by offering people a simple way to use less water with water-efficient products, new homes, and services. These programs' specifications, as well as others, are detailed in Exhibit GPR-3, pages 4-12. This listing is a reproduction of the Alliance for Water Efficiency Water Products Standard Matrix, which was updated in March 2010. In addition, as PAWC witness James Sheridan describes, PAWC offers programs that encourage customers to use water efficiently. As awareness of water efficiency increases, customers may decide to replace a fixture or appliance even before it has broken. Additionally, customers may further reduce consumption by changing their household water use habits in various ways. PAWC's residential customers have reduced their base usage by approximately 2.5 gpcd on average, since 2007. A 2.5 gallon per day decrease can be achieved by subtle changes in customer behavior. For instance, here are some ways a customer can reduce his or her usage by 2.5 gallons per day:

- Taking a shower that is 1 minute shorter per day;

- Two flushes per day with a newer replacement low-flow toilet fixture vs. an older toilet;
- Running the dishwasher 5 times per week instead of 7; or
- Turning off the water for approximately 1 minute while brushing your teeth.

In addition, negative price elasticity can contribute to a reduction in usage. As the price of water has increased over time with successive rate increases, as with typical consumer price responsive behavior, water consumers reduce their usage in response to those successive price increases.

Q. The historic test year in this case ends December 31, 2016. Given that the declining use trend has been progressing for over two decades, weren't the majority of non-efficient fixtures and appliances already replaced by the end of the historic test year?

A. No, as illustrated above, it will take many years to achieve complete implementation and saturation of fixtures and appliances consistent with current efficiency standards because the full implementation of the new standards only occurs as older fixtures are replaced. This occurs over a very long period of time as housing stocks are remodeled and appliances and fixtures wear out, break or become obsolete. As explained later in my testimony, the decline in usage for the theoretical family of four indicates a 59-year term to reach total implementation of the current fixture standards and realize the total impact in reduced water usage. As mentioned earlier in my testimony, to date, we have observed an increasing trend of declining residential usage on the PAWC system for approximately 15 years, leaving another 44 years for further reductions.

Q. You've explained the laws and programs that drive the water conservation trend. Can you point to a "real world" example of how these laws and programs actually

affect usage per customer?

A. Yes, as a matter of fact, there was a situation in the American Water footprint that demonstrates this phenomenon in a rather dramatic fashion.

Q. Please describe it.

A. This phenomenon is illustrated by analyzing usage per customer in the Missouri-American Water Company ("MAWC") Joplin district, before and after the devastating EF5 tornado of May 22, 2011 ("Joplin Tornado"). Although this tornado impacted the MAWC service area, the results of my analysis would be applicable to Pennsylvania and PAWC.

Q. How does the Joplin tornado provide evidence of future declining water use for PAWC?

A. The impact of the Joplin Tornado was an immediate reduction of customer connections in the Joplin district by approximately 3,060 (14.4% of the May 2011 Joplin residential total). Given that the devastation caused by an EF5 tornado to residential housing is nearly absolute, it follows that the 14.4% of the Joplin district residential housing stock would have to be completely rebuilt before being inhabited again. Such rebuilding would, in turn, be required to conform to the water use standards discussed earlier in my testimony and detailed in Exhibit GPR-7. Hence, this event has implications for the potential future usage decline due to fixture replacement for the entire American Water affiliate system, including but not limited to PAWC**.**

Q. Please describe your analysis of the pre- and post-2011 Joplin tornado residential customer usage.

A. I developed and compared the results of two regression models: the first estimates the trend in base residential usage per Joplin customer for the 10 years leading up to and including

2011; the second model estimates the trend in base residential usage per Joplin customer for the period 2012-2015. By comparing the results of those two regression models, we can see the impact on average residential customer usage due to the rebuilding of housing stock in Joplin to the enhanced water use standards.

Q. Please describe the statistical results of your analysis of the pre- and post-2011 Joplin tornado residential customer usage?

A. The results of the analysis are provided in the table below:

Table GPR-2
Joplin Declining Use Analysis
Usage Trend Pre / Post-2011 Tornado

Measure	Prior to 2011	Post 2011
R-Square	0.855	0.987
Usage Trend	-2.02%	-2.77%

Table GPR-2 illustrates the results of the regression analysis of average base usage per customer both before and after the Joplin Tornado. It is clear from the statistical results of that regression analysis that the Joplin district's declining usage per customer trend has accelerated because residential customers have rebuilt using water use fixtures that meet or exceed the contemporary water efficiency standards and have replaced older less efficient fixtures as part of the rebuilding process. The results show that the decline in the base residential usage per customer has increased from an annual rate of approximately -2.0% to approximately -2.8% due to the reconstruction of approximately 2,500 (13.8% of that system) residential dwellings since May 2011 in the Joplin district. This is an

approximate 37% acceleration of the rate of decline in Joplin post May 2011. This acceleration of the trend is illustrated graphically in Exhibit GPR-7.

Q. What do the results of the pre- and post-2011 Joplin Tornado usage reveal about residential customers' usage and what do the data imply about future water usage declines?

A. The statistical results from the Joplin Tornado analysis, when combined with the results of the theoretical family of four usage analysis outlined in Exhibit GPR-7, offer compelling empirical evidence as to the potential scope and duration of continued reductions in customer water use patterns. First, as discussed, the rebuilding of homes in the Joplin district resulted in a 37% acceleration of the annual usage per customer reduction from approximately -2.0% to approximately -2.8%. Second, those 2,500 rebuilt customer dwellings experienced an annual usage reduction of approximately 3,200 gallons, or roughly an 8.4% reduction in usage, from their 2011 pre-Joplin tornado levels. That 3,200-gallon average residential usage reduction by the rebuilt customers is nearly equal to the loss of an entire month's worth of water sales to a typical Joplin residential customer (based on average usage in Joplin post-2011).

Q. What is your conclusion related to the continuation of reductions in residential water usage on the PAWC system?

A. Typically, households replace appliances on a sporadic basis, as they break or become obsolete. The replacement appliances are more efficient, but because they are installed over time, the reductions in usage due to increased efficiency are spread out over time and it is difficult to isolate the impact of any increase in the efficiency of a single appliance on overall water usage. In contrast, households affected by the Joplin Tornado replaced all of

their appliances at a single point in time. Therefore, by analyzing the decline in usage in Joplin after the tornado, we can assess the total impact that installation of the most recent, efficient, available technology will have on usage over time. In other words, as PAWC customers replace their appliances, usage on the PAWC system is likely to decline at a similar rate as usage in Joplin declined after the tornado. On this basis, and in conjunction with the results of the theoretical family of four analysis, I conclude that residential water use reductions will continue to be significant well into the near future for the PAWC system.

Q Have you analyzed the impact of reduced water usage on PAWC's actual water sales and revenues, as compared to levels authorized for the Company since 2008?

A. Yes, I have. PAWC Exhibit GPR-5, and summarized in Table GPR-3 below, illustrates that PAWC has collected revenue that is less than the revenue levels used to set revenue requirements in rate cases since 2008 for each post-case year of those proceedings from 2008 to 2016 except for 2012 when sales were driven by the historic drought. More specifically, for the period of 2008 through 2016, PAWC was under its authorized revenue for the period by approximately $72.4 million. Similarly, for that same period, PAWC was under its authorized total water sales by approximately 7,671 billion gallons. The inability of PAWC to collect its allowed revenue over the period of 2008-2016 is linked directly to water usage reductions attributed to the 7,671 billion-gallon short fall in total sales levels set in the PAWC cases over the period of 2008 through 2016[5].

5 Prior to deployment of our new information technology systems (Business Transformation) in May of 2013, PAWC made all customer accounts "current" for dunning purposes. Following deployment, PAWC suspended the late-payment notice and disconnection process until the end of June 2103. PAWC took this action to ensure that the system had reached a certain level of stability and customers had some time to become accustomed to the bill redesign before reintroducing the dunning process. As a result, a significant amount of unbilled revenue from 2013 was billed in 2014 resulting in an unusual revenue swing between periods.

Table GPR-3
Pennsylvania American Water Company
Actual Revenue/Water Sales Compared to Authorized
(2008-2016)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total 2008-2016
PAWC Total Billed Annual Revenue*	430,080,225	424,755,833	481,723,983	476,218,514	530,779,399	519,267,968	580,339,362	576,844,163	567,841,132	4,587,850,579
Total Authorized Revenue**	430,659,124	439,076,723	486,521,372	494,111,014	540,839,399	540,839,399	580,184,165	580,184,165	580,184,165	4,672,599,526
Revenue Recovery to Authorized (Under)/Over	($578,899)	(14,320,890)	(4,797,389)	(17,892,500)	(10,060,000)	(21,571,431)	155,197	($3,340,002)	($12,343,033)	($72,405,914)
	-0.13%	-3.26%	-0.99%	-3.62%	-1.86%	-3.99%	0.03%	-0.58%	-2.13%	
PAWC Total Annual Water Sales (000 Gallons)	50,756,831	48,811,181	50,087,184	48,691,795	48,785,279	46,947,471	47,794,020	47,548,740	45,976,272	435,398,773
Total Authorized Water Sales*	51,183,239	51,066,200	50,406,525	50,299,128	49,637,898	49,637,898	47,431,611	47,431,611	47,431,611	444,525,721
Water Sales to Authorized (Under)/Over	(426,408)	(2,255,019)	(319,341)	(1,607,333)	(852,619)	(2,690,427)	362,409	117,129	(1,455,339)	(7,671,609)
	-0.83%	-4.42%	-0.63%	-3.20%	-1.72%	-5.42%	0.76%	0.25%	-3.07%	

* Exclusive of DSIC and STAS and Other Water Revenue
**Per Commission Orders Exclusive of Other Water Revenue

Q Has PAWC factored the observed trend in residential customer usage into its test year revenues in this case?

A. Yes. The development of PAWC's revenue requirement and test year revenues at present rates, including the adjustment to test year data to reflect the observed trend in residential customer, is addressed by Company witness Jo Ann Lontz.

Prospective Usage Trend For PAWC Residential Customers

Q. Do you expect the PAWC customer declining usage trend to continue in the future?

A. Yes. Water efficient fixtures and other drivers such as conservation education and federal government-mandated standards will continue to drive further water efficiency and hence an ongoing decline in usage per residential customer. The rate of the continued trend depends on the pace of fixture replacement within the PAWC service footprint and is influenced by the broadening acceptance of a conservation ethic through raised customer and business awareness programs, government conservation policy, and similar behavior modification related programs.

According to a American Water Works Association ("AWWA") Journal article dated February 2012, technology is now available for newer, more water-efficient products that

further improve Energy Policy Act levels, and there is a growing movement to codify these more stringent specifications[6]. The recent introduction of progressive code modifications—such as the International Code Council's ("ICC's") International Green Construction Code ("IGCC") and the International Association of Plumbing and Mechanical Officials ("IAPMO") Green Plumbing and Mechanical Code Supplement (2011) support uniform implementation of increased water efficiency standards.[7] AWWA research also indicates that this decline in water consumption will continue. An article in the June 2012 issue of the AWWA Journal entitled "Insights Into Declining Single-family Residential Water Demands" states: "[r]educed residential demand is a cornerstone of future urban water resource management. Great progress has been made in the last 15 years and the industry appears poised to realize further demand reductions in the future."[8] The regulations mandating water efficient washing machines and dishwashers are relatively new. Given the life expectancy of appliances, the replacement of existing appliances, and the corresponding reduction in water used, will likely continue to occur for the next fifteen years or more.[9]

Q. Is the decline residential water consumption showing any signs of reaching equilibrium?

6 Hoecker, Jay and Bracciano, David. Tampa Bay Water. "Passive Conservation: Codifying the use of Water-Efficiency Technologies" February 2012, Journal AWWA. 104:2.

7 Hoecker, Jay and Bracciano, David. Tampa Bay Water. "Passive Conservation: Codifying the use of Water-Efficiency Technologies" February 2012, Journal AWWA. 104:2.

8 DeOreo, William and Mayer, Peter. American Water Works Association Journal. Vol. 104. Issue 6. http://apps.awwa.org/WaterLibrary/showabstract.aspx?an=JAW_0076117. June 2012

9 As I mentioned earlier, EISA will further reduce indoor water consumption. The average life expectancy of a new dishwasher, clothes washer and gas water heater is 11 years. An electric water heater has an average life one year longer. http://www.statista.com/statistics/220020/average-life-expectancy-of-major-household-appliances/ Consequently, it should be obvious that the trend of declining use due to appliance replacement will continue for years to come.

A. The trend of decline in residential water consumption in the PAWC service territory shows no signs of ending any time soon. New water efficiency technology and regulations are expected to continue to drive water use downward in the future. As explained by the American Council for Energy Efficiency:

> Home appliance manufacturers and energy efficiency advocates have recently agreed to improved efficiency standards and tax policies for refrigerators, freezers, clothes washers, clothes dryers, dishwashers, and room air conditioners. This agreement could save enough energy to meet the total energy needs of 40 percent of American homes for one year and the amount of water necessary to meet the current water needs of every customer in the City of Los Angeles for 25 years.[10]

These higher efficiency dishwasher and washing machine standards include tax incentives for consumer purchases that became effective in January 2013 and January 2015, respectively. Therefore, consumers will achieve an even higher level of water efficiency (*i.e.*, lower usage) than the federal regulations mandated in the EPAct92.

Q. Have you performed an analysis of the likely future of the declining use trend for PAWC?

A. Yes, I have developed estimates of the impact of the Water Sense/Energy Star usage specifications for a family of four occupants' water usage. The results of this analysis are depicted on Exhibit GPR-6, page 1. Generally, the model multiplies the typical usage per capita by the estimated reduction for specific appliance usage from the pre-regulatory

10 American Council for Energy Efficiency, Major Home Appliance Efficiency Gains to Deliver Huge National Energy and Water Savings and Help to Jump Start the Smart Grid, *available at* http://aceee.org/press/2010/08/major-home-appliance-efficiency-gains-deliver-huge-natio. Date Accessed: 8/7/2012.

standard in place until 1994 to the Water Sense/Energy Star usage specifications in effect since 2010/2011 respectively, by the number of users in the household (4 in this example), annualized. I then summed the various usage reductions for the sample family of four across all fixtures that could be replaced to get an average total usage reduction. My analysis indicates that a household of four would see a reduction of approximately 54,315 annual gallons over the course of a year, due to fixture replacement at the Water Sense/Energy Star specification levels.

Q. Do the validity and applicability of the household of four analysis require that all four of the theoretical users reside in the same household?

A. Not at all. The household of four analysis is what economists and statisticians refer to as a stochastic analysis. A stochastic analysis implies that the data sample is randomly selected and distributed across the population of the data being analyzed. In this particularly instance, stochastic selection means that the household of four can be spread throughout multiple households across the PAWC service territory. In practical terms it means that the necessary number of toilets, water fixture, water heater, clothes washer, etc. replacements occur throughout the PAWC service territory to equal the number of replacements implied by the analysis and the annual amount of residential declining use. As an example, the analysis implies that 10,185 toilets are replaced annually amongst the 601,273 (1.69%) residential customers across the PAWC system.

Q. What does the estimated 54,315-gallon annual reduction in usage for a household of four imply related to the potential term of the declining use trend you have estimated for PAWC?

A. The estimated reduction in usage of the sample household of four analysis allows for the estimation of the time period over which all appliances in the PAWC service territory will be converted to meet the Water Sense/Energy Star specifications. Dividing the total estimated annual usage decline for PAWC of 553.171 million gallons by the estimated annual usage decline for the sample household of four of 54,315 gallons, reveals that 10,185 residential customers, or 1.69%, of the test year average of 601,273 residential customers, would need to make these fixture changes to account for the estimated total annual residential declining usage. Further, taking the reciprocal of the 1.69% of residential customers needed to account for the annual usage decline reveals a theoretical term of 59 years to fully convert the installed fixture base to the Water Sense/Energy Star usage specifications, all other factors remaining equal.

Q. Conceptually, how many additional years could the estimated declining use trend for PAWC continue?

A. Based on the historical data available for PAWC; the current declining use trend has been evident since 2002. To date, that trend has progressed for 15 consecutive years. Given that the implied theoretical term of the trend is 59 years, all factors staying the same, the trend could continue for an additional 44 years.

Q. Have the Company's residential customers received any benefits from their reduced water usage?

A. Yes. Residential customers share in various environmental and operational benefits from lower water usage by residential customers. For example, reduced usage helps maintain source water supplies, as diversions from supply sources are lessened, leaving more water

for passing flows or drought reserve. Reductions in power consumption, chemical usage, and waste disposal not only reduce water utility operating costs, but also provide environmental benefits such as reduced carbon footprint from lower power usage for treatment and pumping and reduced waste streams. Reduced water usage by residential customers also reduces energy consumption within the customer's home, for instance, through lower hot water heating needs. In addition, on a case-specific basis, reduced water usage has the potential to enable the utility to delay or downsize a capacity addition. In systems where demand is approaching the capacity of water supplies or treatment facilities, the water saved through efficient usage by customers can be a preferred alternative to a supply-side expansion, with a resulting lower cost to customers. Over the long term, reduced usage per residential customer has helped lower operating costs, and has helped avoid some capacity-related needs. These savings and avoided costs have benefitted customers through the ratemaking process.

Q. Please describe how declining usage and water conservation activities can result in avoided capital costs.

A. As discussed previously, the decline in residential water consumption has been steadily progressing since the early 2000's. Base water consumption for the average PAWC per residential customer is approximately 22% lower today than it was in the early 2000's. As a result of these ongoing reductions in water usage, the water utility industry has avoided the need to build supply, treatment, and transmission facilities to meet those now avoided additional usage demands. The impact of reduced usage per customer on supply and large transmission investment notwithstanding, the ongoing decline of usage per customer does not delay nor mitigate the on-going need for PAWC to continue replacing its aging

distribution infrastructure in order to continue providing its customers with reliable and safe drinking water.

Conclusions

Q. What conclusions were you able to draw concerning the water usage trends of PAWC customers historically and the degree and length of potential future water usage reductions into the future?

A. First, over the period of January 2007 to April 2016, PAWC residential customers' base usage fell 920 gpcy or approximately -2.14% per year. Second, there is potential for this trend to continue for up to 44 more years on the PAWC system. Third, housing stock data indicates that over 80% of the residential structures in Pennsylvania were built prior to the passage of contemporary water use standards which implies that a vast inventory of water fixtures and appliances currently exists that when replaced will result in large reductions in household water usage. Lastly, PAWC has not achieved Commission-authorized revenue levels in some time, with an accumulated under-recovery of $72.4 million over the period 2008-2016. The leading cause of this failure to achieve the revenue anticipated in Commission orders is the continued reduction in water usage by PAWC customers, which can render inaccurate and misleading the use of historic test year data as a proxy for rate year revenue. The inability of PAWC to meet its allowed revenue over the period of 2008-2016 is linked directly to water usage reductions which have attributed to the 7,671 billion-gallon short fall in total sales levels set in the PAWC cases over the period of 2008 through 2016. As a result, it is necessary to incorporate the continuing trend of reduced usage per customer for residential customers into the future.

Q. Does this conclude your direct testimony at this time?

A. Yes, it does.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
v.	:	**DOCKET NO. R-2017-2595853**
PENNSYLVANIA-AMERICAN WATER COMPANY	:	

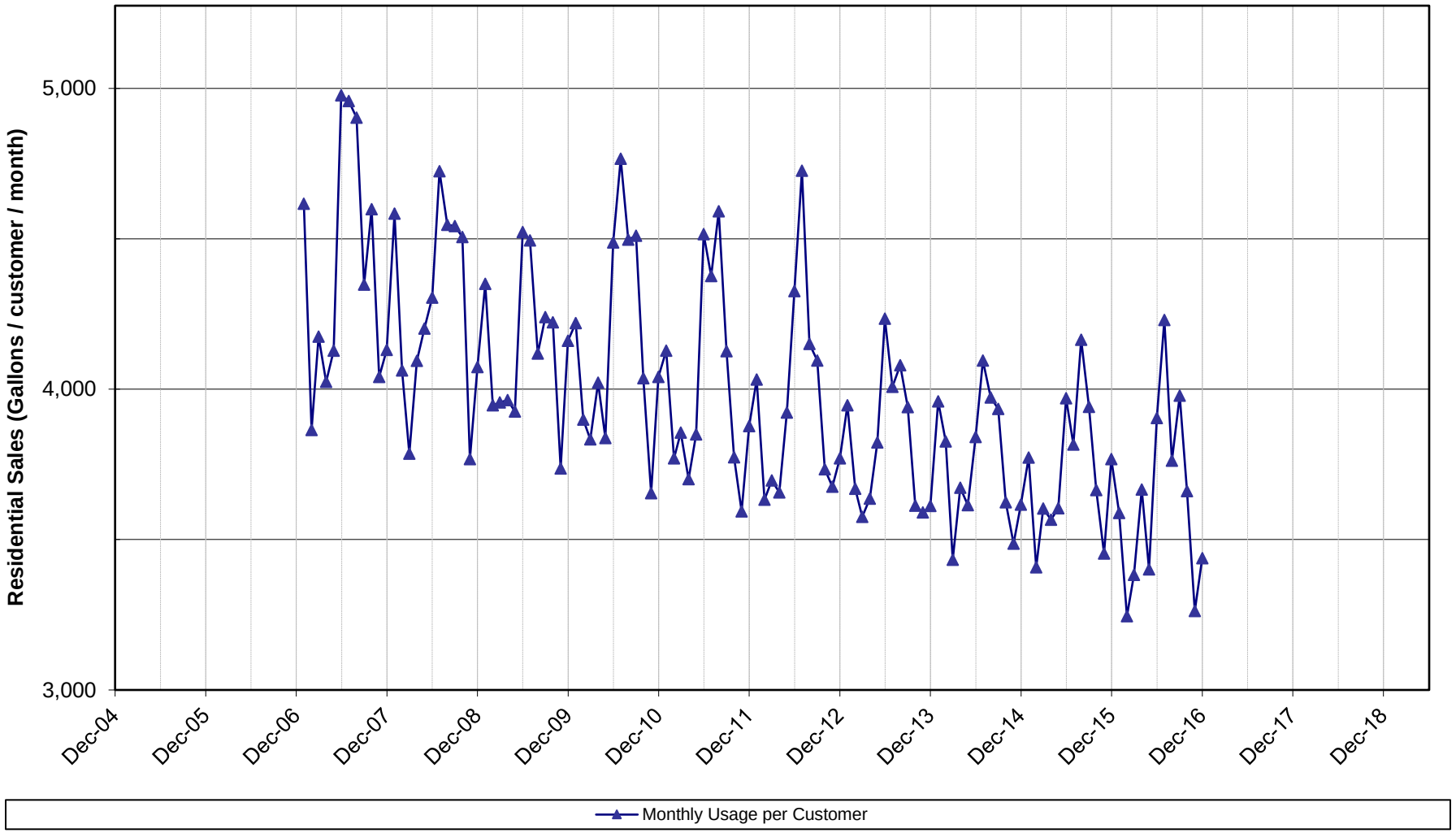
VERIFICATION

I, **Gregory P. Roach**, hereby state that the facts set forth in the pre-marked Statement No. 9 and accompanying exhibits, if any, are true and correct to the best of my knowledge information and belief. I understand that this verification is made subject to the provisions and penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

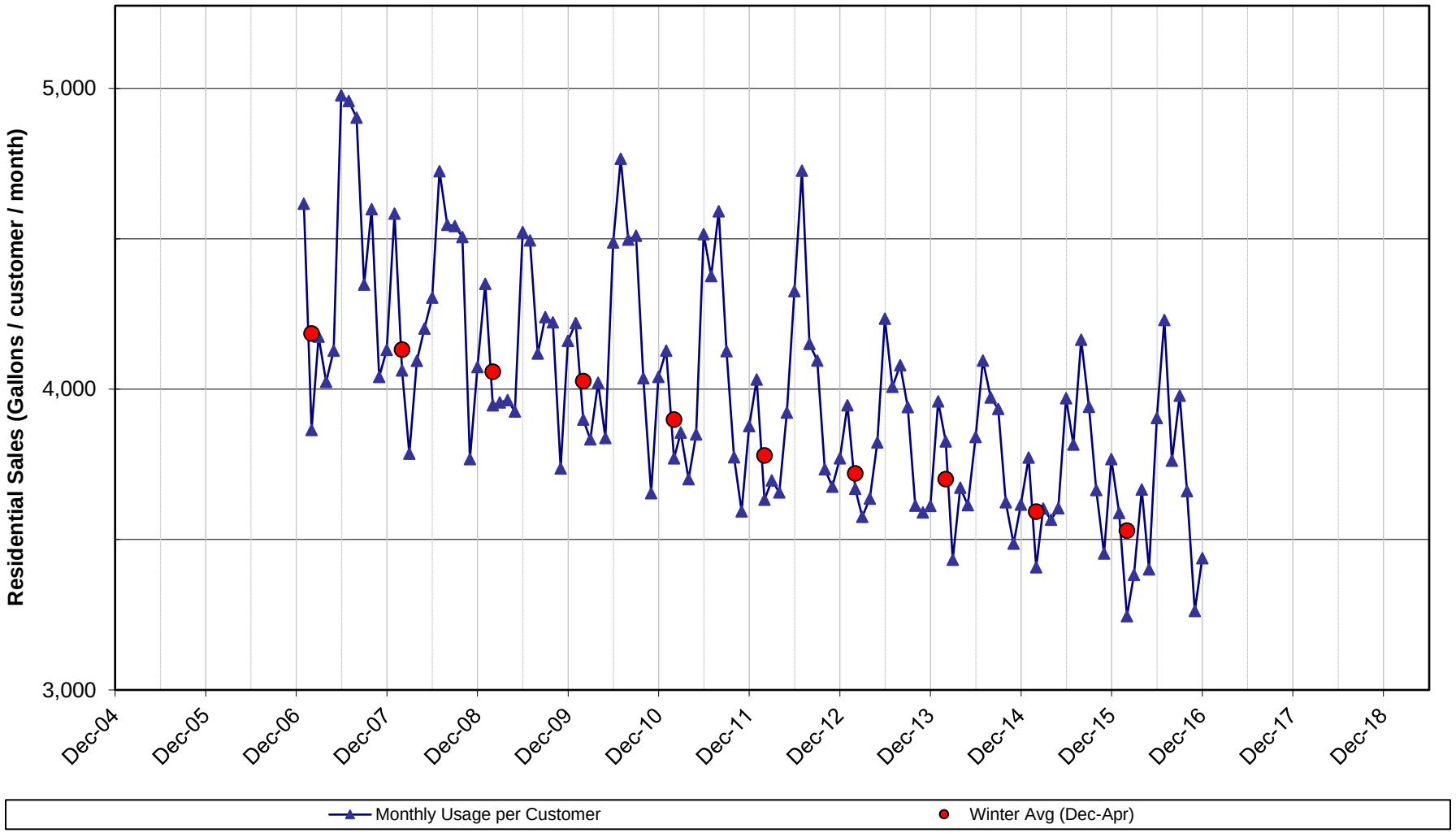
Date: April 28, 2017

Gregory P. Roach

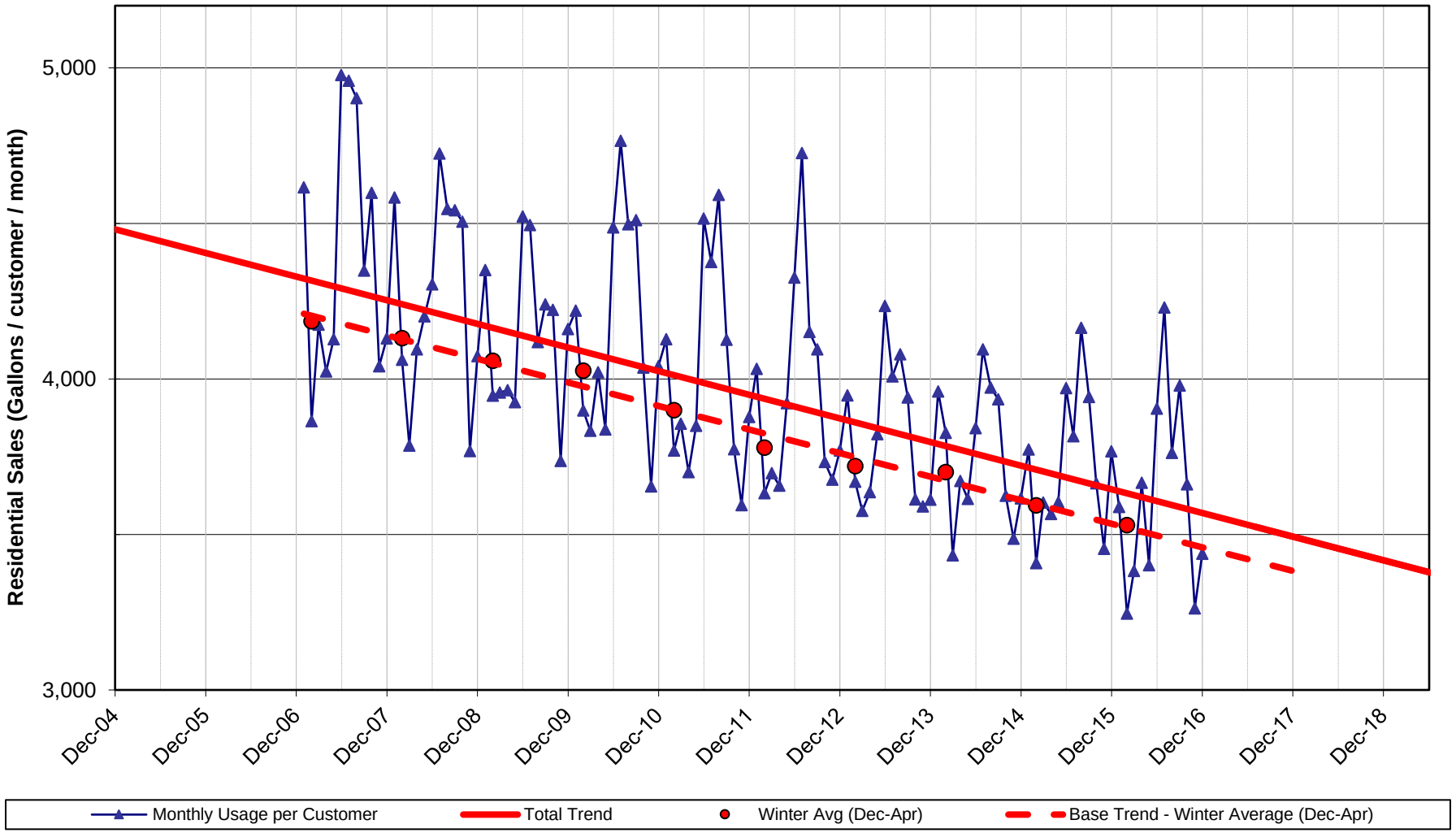
Pennsylvania American
Residential Sales Per Customer
(10-Year Winter Trend)



Pennsylvania American
Residential Sales Per Customer
(10-Year Winter Trend)



Pennsylvania American
Residential Sales Per Customer
(10-Year Winter Trend)



American Water Works Company
Residential Water Usage Forecasts Based on 10 year history
Based on Winter Usage Trends except where noted below

State	Annual Decline (GPCY) 10-year (2007-2016)	Rate of Decline (%) 10-year (2007-2016)
California*	-4,773	-4.3%
Illinois	-996	-1.9%
Indiana	-984	-2.0%
Iowa	-1,164	-2.6%
Kentucky	-864	-1.7%
Maryland**	-444	-0.9%
Missouri	-1,320	-1.8%
New Jersey (SA1)	-1,176	-1.7%
New York	-1,824	-1.9%
Pennsylvania	-920	-2.1%
Tennessee	-612	-1.3%
Virginia	-1,032	-2.0%
West Virginia	-540	-1.4%
Michigan++	-1,017	-2.4%
Weighted Average (w/o CA)	-1,063	-1.9%
Weighted Average (w/ CA)	-1,263	-2.0%

Notes:

*California used the Annual Average Method for trending using a 10 yr (2006-2015) history

**MD used the Annual Average Method for trending using a 10 yr (2007-2016) history

++ MI Analyses presented were performed using an annual average method for a 10 year duration only

The following regulations are listed in the "*Energy Independence & Security Act of 2007,"* Public Law 110–140 – Dec. 19, 2007:

1. A top-loading or front-loading standard-size residential clothes washers manufactured on or after January 1, 2011 shall have a water factor of not more than 9.5. (water factor is equal to gallons/cycle/cubic feet)

2. Dishwashers manufactured on or after January 1, 2010, shall—
   a. for standard size dishwashers (≥ 8 place settings + six serving pieces) not exceed **6.5 gallon per cycle**; and
   b. for compact size dishwashers (< 8 place settings + six serving pieces) not exceed **4.5 gallons per cycle**.

TABLE 1
Flow rates from typical fixtures and appliances before and after Federal Standards

Type of Use	Pre-Regulatory Flow*	New Standard (maximum)	Federal Standard	Year Effective	WaterSense / ENERGY STAR Current Specification+ (maximum)
Toilets	3.5 gpf	1.6 gpf	**U.S. Energy Policy Act**	1994	**1.28 gpf**
Clothes washers**	41 gpl (14.6 WF)	Estimated 26.6 gpl (9.5 WF)	**Energy Independence & Security Act of 2007**	2011	**Estimated 16.8 gpl (6.0 WF)**
Showers	2.75 gpm	2.5 gpm	**U.S. Energy Policy Act**	1994	**2.0 gpm**
Faucets***	2.75 gpm	2.5 gpm (1.5 gpm)	**U.S. Energy Policy Act**	1994	**1.5 gpm at 60 psi**
Dishwashers	14.0 gpc	6.5 gpc for standard; 4.5 gpc for compact	**Energy Independence & Security Act of 2007**	2010	**4.25 gpc for standard; 3.5 gpc for compact**
Commercial Pre Rinse Spray Valves	1.8 to 6 gpm	1.6 gpm	**U.S. Energy Policy Act of 2005**	2006	**1.28 gpm**

* Source: *Handbook of Water Use and Conservation*, Amy Vickers, May 2001
** Average estimated gallons per load and water factor (see calculations)
*** Regulation maximum of 2.5 gpm at 80 psi, but lavatory faucets available at 1.5 gpm maximum (see calculations)
+Source: http://www.epa.gov/watersense/ and http://www.energystar.gov websites

ABBREVIATIONS USED	
gpcd	gallons per capita per day
gpf	gallons per flush
gpl	gallons per load
gpm	gallons per minute
gpc	gallons per cycle
WF	water factor, or gallons per cycle per cubic feet capacity of the washer (the smaller the water factor, the more water efficient the clothes washer)

TABLE 2
Daily indoor per capita water use from various fixtures and appliances in a typical single family home before and after Federal Regulations

Type of Use	Pre-Regulatory Standards Amount** (gpcd)	Post-Regulatory Standards Amount** (gpcd)	Savings from Pre-Reg	Water Sense/ Energy Star Amount** (gpcd)	Additional Savings from Post-Reg
Toilets	17.9	8.2	54%	6.5	21%
Clothes washers*	15	9.8	35%	6.2	37%
Showers	9.7	8.8	9%	7.1	19%
Faucets	14.9	10.8	28%	8.1	25%
Dishwashers*	1.4	0.65	54%	0.43	34%
Total Indoor Water Use	**58.9**	**38.3**	**35%**	**28.3**	**26%**

Note: List only includes common household fixtures and appliances and excludes leaks and "other domestic uses" in order to be conservative.

*Regulatory Standards effective in 2010 and 2011. For calculations of amount in gpcd, refer to the calculation below.
**Source: *Handbook of Water Use and Conservation*, Amy Vickers, May 2001

CALCULATIONS

Clothes washer (pre-regulatory):

Number of times clothes washer used everyday *	= 0.37 loads per day
Clothes washer water use rate range *	= 39 gpl to 43 gpl
Average water use rate	= **41 gpl**
Water usage per capita	= 41 gpl * 0.37 loads/day
	= **15 gpcd**
Water factor (WF) as gallons/cycle/cu. ft	= 41 gpl / 2.8 cu. ft (assuming capacity of an average washer to be 2.8 cu. ft, most washers range between 2.7 – 2.9 cu. ft)
	= **14.6**

Clothes washer (new standard):

Number of times clothes washer used everyday *	= 0.37 loads per day
New regulatory standard	= **9.5 WF**
	= 9.5 gallons/per cycle/cubic feet

	= **26.6 gpl** (Assuming capacity of an average washer to be 2.8 cu. ft, most washers range between 2.7 – 2.9 cu. ft)
Therefore, new usage per capita	= 26.6 gpl * 0.37 loads/day
	= **9.8 gpcd**

Clothes washer (WaterSense/Energy Star):

Number of times clothes washer used everyday *	= 0.37 loads per day
New regulatory standard	= **6 WF**
	= 6 gallons/per cycle/cubic feet
	= **26.6 gpl** (Assuming capacity of an average washer to be 2.8 cu. ft, most washers range between 2.7 – 2.9 cu. ft)
Therefore, new usage per capita	= 16.8 gpl * 0.37 loads/day
	= **6.2 gpcd**

Dishwasher:

Number of times dishwasher used everyday*	= 0.10 times
New regulatory standard	= **6.5 gallons/per cycle** (for standard dishwashers only)
Therefore, new usage per capita	= 6.5 gallons/per cycle * 0.1
	= **0.65 gpcd**

Dishwasher (WaterSense/Energy Star):

Number of times dishwasher used everyday*	= 0.10 times
New regulatory standard	= **4.25 gallons/per cycle** (for standard dishwashers only)
Therefore, new usage per capita	= 4.25 gallons/per cycle * 0.1
	= **0.43 gpcd**

Faucet:

Actual faucet flow during use*	= 67% rated flow
Rated flow*	= **1.5 gpm** to **2.5 gpm**
Frequency of faucet use*	= 8.1 min/day
Range of usage per capita	= 8.1 gpcd to 13.5 gpcd
Assume average of range for estimated gpcd	= **10.8 gpcd**

Faucet (WaterSense/Energy Star):

Actual faucet flow during use*	= 67% rated flow
Rated flow*	= **1.5 gpm**
Frequency of faucet use*	= 8.1 min/day
Usage per capita	= 8.1 gpcd
Assume average of range for estimated gpcd	= **8.1 gpcd**

*Source: *Handbook of Water Use and Conservation,* Amy Vickers, May, 2001

Adapted from information provided by the U.S. EPA Office of Water, the Alliance for Water Efficiency, and other sources)

Fixtures and Appliances	EPAct 1992, EPAct 2005, ''Energy Independence and Security Act of 2007'' *(or backlog NAECA updates)*		WaterSense® or Energy Star®		Consortium for Energy Efficiency	
	Current Standard	**Proposed/Future Standard**	**Current Specification**	**Proposed/Future Specification**	**Current Specification**	**Proposed/Future Specification**
Residential Toilets	1.6 gpf[1]	1.28 gpf/ 4.8 Lpf proposed by efficiency advocates for tank-type only	Tank-type toilets: WaterSense = 1.28 gpf (4.8L) with at least 350 gram waste removal + LA Spec.		No specification	
Residential Lavatory (Bathroom) Faucets	2.2 gpm at 60 psi[2]	1.5 gpm/ 5.7 Lpm proposed by efficiency advocates	WaterSense = 1.5 gpm maximum & 0.8 gpm minimum at 20 psi		No specification	
Residential Kitchen Faucets				None proposed at this time	No specification	
Residential Showerheads	2.5 gpm at 80 psi		WaterSense = 2.0 gpm		No specification	
Residential Clothes Washers	MEF ≥ 1.26 ft^3/kWh/cycle *No specified water use factor Note: MEF measures energy consumption of the total laundry cycle (wash + dry). The higher the number, the greater the energy efficiency	Energy Independence and Security Act of 2007 specified effective in 2011: MEF ≥ 1.26 ft^3/kWh/cycle WF ≤ 9.5 gal/cycle/ft^3 Also specified: DOE shall publish final rule by Dec 31, 2011, determining if standards will change effective 1/1/2015.	Energy Star (DOE) effective July 1, 2009: MEF ≥ 1.8 ft^3/kWh/cycle WF ≤ 7.5 gal/cycle/ ft^3	Energy Star (DOE) To be effective Jan 1, 2011: MEF ≥ 2.0 WF ≤ 6.0 gal/cycle/ft^3	Tier 1: MEF ≥ 1.80 ft^3/kWh/cycle; WF ≤ 7.5 gal/cycle/ft^3 Tier 2: MEF ≥ 2.00 ft^3/kWh/cycle; WF ≤ 6.0 gal/cycle/ft^3 Tier 3: MEF ≥ 2.20 ft^3/kWh/cycle; WF ≤ 4.5 gal/cycle/ft^3	

[1] EPAct 1992 standard for toilets applies to both commercial and residential models.
[2] EPAct 1992 standard for faucets applies to both commercial and residential models.

DOE: Department of Energy
EPA: Environmental Protection Agency
EPAct 1992: Energy Policy Act of 1992
EPAct 2005: Energy Policy Act of 2005
EF: energy factor
ft^3: cubic feet
gal: gallons
gpm: gallons per minute
gpf: gallons per flush
kWh: kilowatt hour
MEF: modified energy factor
MaP: maximum performance
NAECA: National Appliance Energy Conservation Act
psi: pounds per square inch
WF: water factor
Lpf: Litres per flush

Updated March 2010
Koeller/Dietemann

National Efficiency Standards and Specifications for Residential and Commercial Water-Using Fixtures and Appliances

Adapted from information provided by the U.S. EPA Office of Water, the Alliance for Water Efficiency, and other sources)

Fixtures and Appliances	EPAct 1992, EPAct 2005, ''Energy Independence and Security Act of 2007'' *(or backlog NAECA updates)*		WaterSense® or Energy Star®		Consortium for Energy Efficiency	
	Current Standard	**Proposed/Future Standard**	**Current Specification**	**Proposed/Future Specification**	**Current Specification**	**Proposed/Future Specification**
Standard Size and Compact Residential Dishwashers[3]	*Standard models*: Energy Independence and Security Act of 2007 specified: effective 1/1/2010: Standard Size: 355 KWh/year (.62 EF + 1 watt standby) WF ≤ 6.5 gallons/cycle Compact Size: 260 kWh WF ≤ 4.5 gallons/cycle EF is the number of cycles the machine can run for each kWh of electricity	Also specified by the Act: DOE shall publish final rule by 1/1/2015 determining if dishwasher standards will change effective 1/1/2018.	Energy Star (DOE) Effective since July 1, 2009 Standard Size: 324 kWh/year WF ≤ 5.8 gallons/cycle Compact Size: 234 kWh/year WF ≤ 4.0 gallons/cycle kWH/yr is replacing EF since it includes the cycles the machine can run for each kWh, but also includes up to 8 kWh/yr of standby power (when the machine isn't cycling)	Energy Star effective July 1, 2011: Standard Size: 307 kWh/yr 5.0 gallons per cycle Compact Size: 222 kWh/yr 3.5 gallons per cycle	*Effective Aug. 11, 2009:* *Standard models*: EF; maximum kWh/year Tier 1: EF ≥ 0.72 cycles/kWh; and 307 max kWh/year; 5.0 gallons per cycle Tier 2: EF ≥ 0.75 cycles/kWh; 295 max kWh/year; 4.25 gallons per cycle *Compact models*: Tier 1: EF ≥ 1.0 cycles/kWh; 222 max kWh/year; 3.5 gallons per cycle	Could adjust Tiers after July 1, 2011 when new Energy Star becomes effective

[3] ***Standard models*:** capacity is greater than or equal to eight place settings and six serving pieces; ***Compact models*:** capacity is less than eight place settings and six serving pieces

DOE: Department of Energy
EPA: Environmental Protection Agency
EPAct 1992: Energy Policy Act of 1992
EPAct 2005: Energy Policy Act of 2005
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ft^3: cubic feet
gal: gallons
gpm: gallons per minute
gpf: gallons per flush
kWh: kilowatt hour
MEF: modified energy factor
MaP: maximum performance
NAECA: National Appliance Energy Conservation Act
psi: pounds per square inch
WF: water factor
Lpf: Litres per flush

Updated March 2010
Koeller/Dietemann

National Efficiency Standards and Specifications for Residential and Commercial Water-Using Fixtures and Appliances

Adapted from information provided by the U.S. EPA Office of Water, the Alliance for Water Efficiency, and other sources)

Fixtures and Appliances	EPAct 1992, EPAct 2005 *(or backlog NAECA updates)*		WaterSense® or Energy Star®		Consortium for Energy Efficiency	
	Current Standard	Proposed/ Future Standard	Current Specification	Proposed/Future Specification	Current Specification	Proposed /Future Specification
Commercial Toilets	1.6 gpf[4]/6.0 Lpf Except blow-out fixtures: 3.5-gpf/13 Lpf Note: Some states prohibit blow-out at 3.5 gpf	1.28 gpf/ 4.8 Lpf proposed by efficiency advocates for tank-type only	Tank-type only: WaterSense at 1.28 gpf (4.8L) with at least 350 gram waste removal + LA Spec.	Flushometer valve/ bowl combinations: WaterSense specification in development. No release date promised.	No specification	
Commercial Urinals	1.0 gpf	0.5 gpf/ 1.9 Lpf proposed by efficiency advocates	WaterSense = 0.5 gpf/1.9Lpf (flushing urinals only)		No specification	
Commercial Faucets	Private faucets: 2.2 gpm at 60 psi[5] Public Restroom faucets: 0.5 gpm at 60 psi[5] Metering (auto shut of) faucets: 0.25 gallons per cycle[6]			WaterSense draft specification now under consideration	No specification	

[4] EPAct 1992 standard for toilets applies to both commercial and residential models.

[5] In addition to EPAct requirements, the American Society of Mechanical Engineers standard for public lavatory faucets is 0.5 gpm at 60 psi (ASME A112.18.1-2005). This maximum has been incorporated into the national Uniform Plumbing Code and the International Plumbing Code for all except private applications, private being defined as residential, hotel guest rooms, and health care patient rooms. All other applications subject to the 0.5 gpm/1.9 Lpm flow rate maximum.

[6] Metering faucets not subject to flow rate maximum

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EPAct 1992: Energy Policy Act of 1992
EPAct 2005: Energy Policy Act of 2005
EF: energy factor
ft^3: cubic feet
gal: gallons
gpm: gallons per minute
gpf: gallons per flush
kWh: kilowatt hour
MEF: modified energy factor
MaP: maximum performance
NAECA: National Appliance Energy Conservation Act
psi: pounds per square inch
WF: water factor
Lpf: Litres per flush

Updated March 2010
Koeller/Dietemann

National Efficiency Standards and Specifications for Residential and Commercial Water-Using Fixtures and Appliances

Adapted from information provided by the U.S. EPA Office of Water, the Alliance for Water Efficiency, and other sources)

Fixtures and Appliances	EPAct 1992, EPAct 2005 *(or backlog NAECA updates)*		WaterSense® or Energy Star®		Consortium for Energy Efficiency	
	Current Standard	Proposed/ Future Standard	Current Specification	Proposed/Future Specification	Current Specification	Proposed /Future Specification
Commercial Clothes Washers (Family-sized)	MEF ≥ 1.26 ft^3/kWh; WF ≤ 9.5 gal/cycle/ft^3	New standards under development: DOE scheduled final action: January 2010; Rulemaking process postponed by DOE in 2008; began again in Dec. 2009.	Energy Star (DOE) MEF ≥ 1.72 ft^3/kWh/cycle; WF ≤ 8.0 gal/cycle/ft^3		Adopted Jan 1, 2007 (Note: this spec covers only normal capacity family washers, NOT large capacity commercial washers) Tier 1: 1.80 MEF 7.5 gal/cycle/ft^3 Tier 2: 2.00 MEF 6.0 gal/cycle/ft^3 Tier 3: 2.20 MEF 4.5 gal/cycle/ft^3	

DOE: Department of Energy
EPA: Environmental Protection Agency
EPAct 1992: Energy Policy Act of 1992
EPAct 2005: Energy Policy Act of 2005
EF: energy factor
ft^3: cubic feet
gal: gallons
gpm: gallons per minute
gpf: gallons per flush
kWh: kilowatt hour
MEF: modified energy factor
MaP: maximum performance
NAECA: National Appliance Energy Conservation Act
psi: pounds per square inch
WF: water factor
Lpf: Litres per flush

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Fixtures and Appliances	EPAct 1992, EPAct 2005 *(or backlog NAECA updates)*		WaterSense® or Energy Star®		Consortium for Energy Efficiency	
	Current Standard	Proposed/ Future Standard	Current Specification	Proposed/Future Specification	Current Specification	Proposed /Future Specification
Commercial Dishwashers	No standard		Energy Star (EPA) using NSF/ANSI standards for water use and ASTM standards for energy use Effective **10/11/2007** *Under counter*: Hi Temp: 1.0 gal/rack; <= 0.90 kW; Lo Temp 1.70 gal/rack <= 0.5 kW *Stationary Single Tank Door*: Hi Temp: 0.95 gal/rack; <= 1.0 kW Lo Temp: 1.18 gal/rack; <= 0.6 kW *Single Tank Conveyor*: Hi Temp: 0.70 gal/rack; <= 2.0 kW; Lo Temp: 0.79 gal/rack; <= 1.6 kW *Multiple Tank Conveyor*: Hi Temp: 0.54 gal/rack; <= 2.6 kW Lo Temp: 0.54 gal/rack; <= 2.0 kW		No specification	

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Fixtures and Appliances	EPAct 1992, EPAct 2005 *(or backlog NAECA updates)*		WaterSense® or Energy Star®		Consortium for Energy Efficiency	
	Current Standard	Proposed/ Future Standard	Current Specification	Proposed/Future Specification	Current Specification	Proposed /Future Specification
Automatic Commercial Ice Makers[7]	Effective 1/1/2010: Energy and condenser water efficiency standards vary by equipment type on a sliding scale depending upon harvest rate and type of cooling (see link to additional information at end of this table)		Energy Star (EPA) Energy and water efficiency standards vary by equipment type on a sliding scale depending upon harvest rate and type of cooling (see link to additional information at end of this table). Water cooled machines excluded from Energy Star		Energy and water (potable and condenser) standards are tiered and vary by equipment type on a sliding scale depending upon harvest rate and type of cooling (see link to additional information at end of this table)	
Commercial Pre-rinse Spray Valves (for food service appli-cations)	Flow rate ≤ 1.6 gpm (no pressure specified; no performance requirement)		No specification	Proposed Energy Star specification abandoned after standard established in EPAct 2005; WaterSense specification in development in conjunction with Energy Star	No specification (program guidance recommends 1.6 gpm at 60 psi and a cleanability requirement)	

[7] Optional standards for other types of automatic ice makers are also authorized under EPAct 2005.

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Fixtures and Appliances	EPAct 1992, EPAct 2005 *(or backlog NAECA updates)*		WaterSense® or Energy Star®		Consortium for Energy Efficiency	
	Current Standard	Proposed/ Future Standard	Current Specification	Proposed/Future Specification	Current Specification	Proposed /Future Specification
Commercial Steam Cookers[8]	No standard		Energy Star (EPA) *Electric*: 50% cooking energy efficiency; idle rate 400–800 Watts *Gas*: 38% cooking energy efficiency; idle rate 6,250–12,500 British thermal units/hour *No specified water use factor		*Electric*: 50% cooking energy efficiency; idle rate 400–800 Watts *Gas*: 38% cooking energy efficiency; idle rate 6,250–12,500 British thermal units/hour Water Use Factor (for both electric and gas models): Tier 1A: ≤ 15 gal/hr Tier 1B: ≤ 4 gal/hr	

[8] Idle rate standards vary for 3-, 4-, 5-, and 6-pan commercial steam cooker models.

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Information/materials on EPAct 2005/NAECA standards:

Schedule for development of appliance and commercial equipment efficiency standards:
http://www.eere.energy.gov/buildings/appliance_standards/2006_schedule_setting.html

Commercial Clothes Washers and Dishwashers (agenda/presentations at 4/27/06 DOE public meeting on rulemaking):
http://www.eere.energy.gov/buildings/appliance_standards/residential/home_appl_mtg.html

Automatic Commercial Ice Maker Standards:
http://www.eere.energy.gov/buildings/appliance_standards/pdfs/epact2005_appliance_stds.pdf (Page 18)

Pre-rinse Spray Valves
http://www.eere.energy.gov/buildings/appliance_standards/pdfs/epact2005_appliance_stds.pdf (Page 10)

Information/materials on WaterSense specifications:

Toilets
http://www.epa.gov/watersense/products/toilets.html

Urinals
http://www.epa.gov/watersense/products/urinals.html

Bathroom Lavatory Faucets
http://www.epa.gov/watersense/products/bathroom_sink_faucets.html

Information/materials on Energy Star specifications:

Residential Clothes Washers
http://www.energystar.gov/index.cfm?c=clotheswash.pr_crit_clothes_washers

Commercial Clothes Washers
http://www.energystar.gov/index.cfm?fuseaction=clotheswash.display_commercial_cw

Residential Dishwashers
http://www.energystar.gov/index.cfm?c=dishwash.pr_dishwashers

Commercial Dishwashers
http://www.energystar.gov/index.cfm?c=new_specs.comm_dishwashers

Automatic Commercial Ice Makers
http://www.energystar.gov/index.cfm?c=new_specs.ice_machines

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Commercial Steam Cookers
http://www.energystar.gov/index.cfm?c=steamcookers.pr_steamcookers

Information/materials on CEE specifications:

Residential Clothes Washers
http://www.cee1.org/resid/seha/rwsh/rwsh-main.php3

Residential Dishwashers
http://www.cee1.org/resid/seha/dishw/dishw-main.php3

Commercial, Family-Sized Clothes Washers
http://www.cee1.org/com/cwsh/cwsh-main.php3

Commercial Ice-Makers
http://www.cee1.org/com/com-ref/ice-main.php3; Spec Table: http://www.cee1.org/com/com-kit/ice-specs.pdf

Pre-rinse Spray Valves
http://www.cee1.org/com/com-kit/prv-guides.pdf

Commercial Steam Cookers
http://www.cee1.org/com/com-kit/sc-hc-specs.pdf

DP04

SELECTED HOUSING CHARACTERISTICS
2011-2015 American Community Survey 5-Year Estimates

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

A processing error was found in the Year Structure Built estimates since data year 2008. For more information, please see the errata note #110.

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Versions of this table are available for the following years:

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Subject	Pennsylvania			
	Estimate	Margin of Error	Percent	Percent Margin of Error
HOUSING OCCUPANCY				
Total housing units	5,585,611	+/-697	5,585,611	(X)
Occupied housing units	4,958,859	+/-9,151	88.8%	+/-0.2
Vacant housing units	626,752	+/-9,456	11.2%	+/-0.2
Homeowner vacancy rate	1.8	+/-0.1	(X)	(X)
Rental vacancy rate	5.9	+/-0.1	(X)	(X)
UNITS IN STRUCTURE				
Total housing units	5,585,611	+/-697	5,585,611	(X)
1-unit, detached	3,189,849	+/-6,744	57.1%	+/-0.1
1-unit, attached	1,028,654	+/-5,014	18.4%	+/-0.1
2 units	256,578	+/-3,056	4.6%	+/-0.1
3 or 4 units	231,826	+/-3,461	4.2%	+/-0.1
5 to 9 units	185,729	+/-2,754	3.3%	+/-0.1
10 to 19 units	140,574	+/-2,364	2.5%	+/-0.1
20 or more units	324,063	+/-2,709	5.8%	+/-0.1
Mobile home	226,919	+/-2,686	4.1%	+/-0.1
Boat, RV, van, etc.	1,419	+/-243	0.0%	+/-0.1
YEAR STRUCTURE BUILT				
Total housing units	5,585,611	+/-697	5,585,611	(X)
Built 2014 or later	3,179	+/-340	0.1%	+/-0.1
Built 2010 to 2013	48,649	+/-1,357	0.9%	+/-0.1
Built 2000 to 2009	469,837	+/-3,870	8.4%	+/-0.1
Built 1990 to 1999	528,489	+/-4,450	9.5%	+/-0.1
Built 1980 to 1989	540,741	+/-4,494	9.7%	+/-0.1
Built 1970 to 1979	705,633	+/-4,496	12.6%	+/-0.1
Built 1960 to 1969	571,635	+/-3,811	10.2%	+/-0.1
Built 1950 to 1959	772,429	+/-4,743	13.8%	+/-0.1
Built 1940 to 1949	450,017	+/-3,990	8.1%	+/-0.1
Built 1939 or earlier	1,495,002	+/-6,213	26.8%	+/-0.1
ROOMS				
Total housing units	5,585,611	+/-697	5,585,611	(X)
1 room	98,322	+/-2,406	1.8%	+/-0.1
2 rooms	97,406	+/-1,808	1.7%	+/-0.1

Subject	Pennsylvania			
	Estimate	Margin of Error	Percent	Percent Margin of Error
3 rooms	405,191	+/-3,845	7.3%	+/-0.1
4 rooms	690,140	+/-4,885	12.4%	+/-0.1
5 rooms	910,211	+/-5,927	16.3%	+/-0.1
6 rooms	1,216,349	+/-6,682	21.8%	+/-0.1
7 rooms	823,803	+/-5,214	14.7%	+/-0.1
8 rooms	598,610	+/-4,642	10.7%	+/-0.1
9 rooms or more	745,579	+/-5,915	13.3%	+/-0.1
Median rooms	6.0	+/-0.1	(X)	(X)
BEDROOMS				
Total housing units	5,585,611	+/-697	5,585,611	(X)
No bedroom	108,266	+/-2,375	1.9%	+/-0.1
1 bedroom	582,759	+/-4,533	10.4%	+/-0.1
2 bedrooms	1,291,382	+/-7,216	23.1%	+/-0.1
3 bedrooms	2,411,035	+/-6,652	43.2%	+/-0.1
4 bedrooms	955,611	+/-5,135	17.1%	+/-0.1
5 or more bedrooms	236,558	+/-2,608	4.2%	+/-0.1
HOUSING TENURE				
Occupied housing units	4,958,859	+/-9,151	4,958,859	(X)
Owner-occupied	3,431,790	+/-14,359	69.2%	+/-0.2
Renter-occupied	1,527,069	+/-8,387	30.8%	+/-0.2
Average household size of owner-occupied unit	2.60	+/-0.01	(X)	(X)
Average household size of renter-occupied unit	2.24	+/-0.01	(X)	(X)
YEAR HOUSEHOLDER MOVED INTO UNIT				
Occupied housing units	4,958,859	+/-9,151	4,958,859	(X)
Moved in 2015 or later	55,664	+/-1,776	1.1%	+/-0.1
Moved in 2010 to 2014	1,204,071	+/-6,159	24.3%	+/-0.1
Moved in 2000 to 2009	1,686,433	+/-8,327	34.0%	+/-0.1
Moved in 1990 to 1999	828,842	+/-5,967	16.7%	+/-0.1
Moved in 1980 to 1989	477,562	+/-3,153	9.6%	+/-0.1
Moved in 1979 and earlier	706,287	+/-3,917	14.2%	+/-0.1
VEHICLES AVAILABLE				
Occupied housing units	4,958,859	+/-9,151	4,958,859	(X)
No vehicles available	566,215	+/-3,784	11.4%	+/-0.1
1 vehicle available	1,694,447	+/-6,521	34.2%	+/-0.1
2 vehicles available	1,805,588	+/-8,450	36.4%	+/-0.1
3 or more vehicles available	892,609	+/-4,888	18.0%	+/-0.1
HOUSE HEATING FUEL				
Occupied housing units	4,958,859	+/-9,151	4,958,859	(X)
Utility gas	2,531,483	+/-6,956	51.0%	+/-0.1
Bottled, tank, or LP gas	193,724	+/-2,539	3.9%	+/-0.1
Electricity	1,070,550	+/-4,721	21.6%	+/-0.1
Fuel oil, kerosene, etc.	899,357	+/-4,504	18.1%	+/-0.1
Coal or coke	66,823	+/-1,389	1.3%	+/-0.1
Wood	145,275	+/-2,112	2.9%	+/-0.1
Solar energy	1,587	+/-197	0.0%	+/-0.1
Other fuel	33,776	+/-1,099	0.7%	+/-0.1
No fuel used	16,284	+/-796	0.3%	+/-0.1
SELECTED CHARACTERISTICS				

Subject	Pennsylvania			
	Estimate	Margin of Error	Percent	Percent Margin of Error
Occupied housing units	4,958,859	+/-9,151	4,958,859	(X)
Lacking complete plumbing facilities	21,002	+/-1,127	0.4%	+/-0.1
Lacking complete kitchen facilities	46,581	+/-1,240	0.9%	+/-0.1
No telephone service available	98,730	+/-2,012	2.0%	+/-0.1
OCCUPANTS PER ROOM				
Occupied housing units	4,958,859	+/-9,151	4,958,859	(X)
1.00 or less	4,892,809	+/-9,857	98.7%	+/-0.1
1.01 to 1.50	45,873	+/-1,658	0.9%	+/-0.1
1.51 or more	20,177	+/-1,058	0.4%	+/-0.1
VALUE				
Owner-occupied units	3,431,790	+/-14,359	3,431,790	(X)
Less than $50,000	313,473	+/-3,166	9.1%	+/-0.1
$50,000 to $99,999	589,589	+/-4,379	17.2%	+/-0.1
$100,000 to $149,999	585,924	+/-4,510	17.1%	+/-0.1
$150,000 to $199,999	601,701	+/-4,945	17.5%	+/-0.1
$200,000 to $299,999	692,271	+/-5,272	20.2%	+/-0.1
$300,000 to $499,999	461,931	+/-3,663	13.5%	+/-0.1
$500,000 to $999,999	156,406	+/-1,910	4.6%	+/-0.1
$1,000,000 or more	30,495	+/-893	0.9%	+/-0.1
Median (dollars)	166,000	+/-292	(X)	(X)
MORTGAGE STATUS				
Owner-occupied units	3,431,790	+/-14,359	3,431,790	(X)
Housing units with a mortgage	2,109,447	+/-10,525	61.5%	+/-0.1
Housing units without a mortgage	1,322,343	+/-7,217	38.5%	+/-0.1
SELECTED MONTHLY OWNER COSTS (SMOC)				
Housing units with a mortgage	2,109,447	+/-10,525	2,109,447	(X)
Less than $500	38,697	+/-1,019	1.8%	+/-0.1
$500 to $999	460,883	+/-3,950	21.8%	+/-0.1
$1,000 to $1,499	646,814	+/-4,553	30.7%	+/-0.2
$1,500 to $1,999	443,160	+/-4,067	21.0%	+/-0.2
$2,000 to $2,499	243,399	+/-3,008	11.5%	+/-0.1
$2,500 to $2,999	128,693	+/-2,035	6.1%	+/-0.1
$3,000 or more	147,801	+/-2,241	7.0%	+/-0.1
Median (dollars)	1,425	+/-3	(X)	(X)
Housing units without a mortgage	1,322,343	+/-7,217	1,322,343	(X)
Less than $250	107,223	+/-1,570	8.1%	+/-0.1
$250 to $399	311,113	+/-2,768	23.5%	+/-0.2
$400 to $599	456,107	+/-4,189	34.5%	+/-0.3
$600 to $799	245,857	+/-2,837	18.6%	+/-0.2
$800 to $999	108,519	+/-2,085	8.2%	+/-0.1
$1,000 or more	93,524	+/-1,677	7.1%	+/-0.1
Median (dollars)	498	+/-2	(X)	(X)
SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME (SMOCAPI)				
Housing units with a mortgage (excluding units where SMOCAPI cannot be computed)	2,101,060	+/-10,601	2,101,060	(X)
Less than 20.0 percent	897,899	+/-7,200	42.7%	+/-0.2
20.0 to 24.9 percent	344,103	+/-3,737	16.4%	+/-0.1
25.0 to 29.9 percent	238,008	+/-3,203	11.3%	+/-0.1
30.0 to 34.9 percent	158,657	+/-2,180	7.6%	+/-0.1

Subject	Pennsylvania			
	Estimate	Margin of Error	Percent	Percent Margin of Error
35.0 percent or more	462,393	+/-4,021	22.0%	+/-0.2
Not computed	8,387	+/-581	(X)	(X)
Housing unit without a mortgage (excluding units where SMOCAPI cannot be computed)	1,309,153	+/-7,088	1,309,153	(X)
Less than 10.0 percent	475,430	+/-3,810	36.3%	+/-0.2
10.0 to 14.9 percent	266,952	+/-2,868	20.4%	+/-0.2
15.0 to 19.9 percent	168,373	+/-2,172	12.9%	+/-0.2
20.0 to 24.9 percent	109,532	+/-1,627	8.4%	+/-0.1
25.0 to 29.9 percent	73,399	+/-1,425	5.6%	+/-0.1
30.0 to 34.9 percent	49,978	+/-1,278	3.8%	+/-0.1
35.0 percent or more	165,489	+/-2,324	12.6%	+/-0.2
Not computed	13,190	+/-676	(X)	(X)
GROSS RENT				
Occupied units paying rent	1,434,983	+/-8,261	1,434,983	(X)
Less than $500	218,690	+/-2,904	15.2%	+/-0.2
$500 to $999	734,089	+/-6,255	51.2%	+/-0.3
$1,000 to $1,499	345,595	+/-4,177	24.1%	+/-0.2
$1,500 to $1,999	87,361	+/-2,069	6.1%	+/-0.1
$2,000 to $2,499	28,970	+/-1,187	2.0%	+/-0.1
$2,500 to $2,999	10,095	+/-641	0.7%	+/-0.1
$3,000 or more	10,183	+/-789	0.7%	+/-0.1
Median (dollars)	840	+/-3	(X)	(X)
No rent paid	92,086	+/-1,823	(X)	(X)
GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME (GRAPI)				
Occupied units paying rent (excluding units where GRAPI cannot be computed)	1,401,717	+/-8,187	1,401,717	(X)
Less than 15.0 percent	186,651	+/-3,115	13.3%	+/-0.2
15.0 to 19.9 percent	173,752	+/-2,749	12.4%	+/-0.2
20.0 to 24.9 percent	172,096	+/-2,921	12.3%	+/-0.2
25.0 to 29.9 percent	162,036	+/-2,521	11.6%	+/-0.2
30.0 to 34.9 percent	122,829	+/-2,467	8.8%	+/-0.2
35.0 percent or more	584,353	+/-4,914	41.7%	+/-0.3
Not computed	125,352	+/-2,037	(X)	(X)

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates

Explanation of Symbols:
An '**' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
An '(X)' means that the estimate is not applicable or not available.

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Households not paying cash rent are excluded from the calculation of median gross rent.

Telephone service data are not available for certain geographic areas due to problems with data collection. See Errata Note #93 for details.

While the 2011-2015 American Community Survey (ACS) data generally reflect the February 2013 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

DP04

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2010

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Subject	Allegheny County, Pennsylvania			
	Estimate	Margin of Error	Percent	Percent Margin of Error
HOUSING OCCUPANCY				
Total housing units	589,681	+/-546	589,681	(X)
Occupied housing units	529,534	+/-1,903	89.8%	+/-0.3
Vacant housing units	60,147	+/-1,951	10.2%	+/-0.3
Homeowner vacancy rate	1.5	+/-0.2	(X)	(X)
Rental vacancy rate	4.5	+/-0.4	(X)	(X)
UNITS IN STRUCTURE				
Total housing units	589,681	+/-546	589,681	(X)
1-unit, detached	367,287	+/-1,932	62.3%	+/-0.3
1-unit, attached	60,796	+/-1,528	10.3%	+/-0.3
2 units	30,180	+/-996	5.1%	+/-0.2
3 or 4 units	25,414	+/-980	4.3%	+/-0.2
5 to 9 units	27,093	+/-890	4.6%	+/-0.2
10 to 19 units	22,786	+/-898	3.9%	+/-0.2
20 or more units	51,596	+/-1,240	8.7%	+/-0.2
Mobile home	4,522	+/-448	0.8%	+/-0.1
Boat, RV, van, etc.	7	+/-8	0.0%	+/-0.1
YEAR STRUCTURE BUILT				
Total housing units	589,681	+/-546	589,681	(X)
Built 2014 or later	313	+/-138	0.1%	+/-0.1
Built 2010 to 2013	3,710	+/-414	0.6%	+/-0.1
Built 2000 to 2009	29,998	+/-1,066	5.1%	+/-0.2
Built 1990 to 1999	32,922	+/-1,053	5.6%	+/-0.2
Built 1980 to 1989	39,496	+/-1,273	6.7%	+/-0.2
Built 1970 to 1979	63,493	+/-1,415	10.8%	+/-0.2
Built 1960 to 1969	68,620	+/-1,572	11.6%	+/-0.3
Built 1950 to 1959	110,551	+/-1,782	18.7%	+/-0.3
Built 1940 to 1949	60,082	+/-1,607	10.2%	+/-0.3
Built 1939 or earlier	180,496	+/-1,939	30.6%	+/-0.3
ROOMS				
Total housing units	589,681	+/-546	589,681	(X)
1 room	10,755	+/-786	1.8%	+/-0.1
2 rooms	12,271	+/-663	2.1%	+/-0.1

Subject	Allegheny County, Pennsylvania			
	Estimate	Margin of Error	Percent	Percent Margin of Error
3 rooms	52,451	+/-1,297	8.9%	+/-0.2
4 rooms	81,459	+/-1,946	13.8%	+/-0.3
5 rooms	100,526	+/-2,093	17.0%	+/-0.4
6 rooms	127,619	+/-1,882	21.6%	+/-0.3
7 rooms	82,043	+/-1,431	13.9%	+/-0.2
8 rooms	57,027	+/-1,163	9.7%	+/-0.2
9 rooms or more	65,530	+/-1,405	11.1%	+/-0.2
Median rooms	5.8	+/-0.1	(X)	(X)
BEDROOMS				
Total housing units	589,681	+/-546	589,681	(X)
No bedroom	12,551	+/-824	2.1%	+/-0.1
1 bedroom	81,476	+/-1,440	13.8%	+/-0.2
2 bedrooms	164,183	+/-1,886	27.8%	+/-0.3
3 bedrooms	223,327	+/-2,080	37.9%	+/-0.4
4 bedrooms	87,431	+/-1,499	14.8%	+/-0.3
5 or more bedrooms	20,713	+/-873	3.5%	+/-0.1
HOUSING TENURE				
Occupied housing units	529,534	+/-1,903	529,534	(X)
Owner-occupied	343,306	+/-1,922	64.8%	+/-0.3
Renter-occupied	186,228	+/-2,015	35.2%	+/-0.3
Average household size of owner-occupied unit	2.44	+/-0.01	(X)	(X)
Average household size of renter-occupied unit	1.93	+/-0.02	(X)	(X)
YEAR HOUSEHOLDER MOVED INTO UNIT				
Occupied housing units	529,534	+/-1,903	529,534	(X)
Moved in 2015 or later	6,742	+/-528	1.3%	+/-0.1
Moved in 2010 to 2014	141,424	+/-1,927	26.7%	+/-0.3
Moved in 2000 to 2009	169,368	+/-2,120	32.0%	+/-0.4
Moved in 1990 to 1999	79,697	+/-1,443	15.1%	+/-0.3
Moved in 1980 to 1989	50,325	+/-978	9.5%	+/-0.2
Moved in 1979 and earlier	81,978	+/-1,060	15.5%	+/-0.2
VEHICLES AVAILABLE				
Occupied housing units	529,534	+/-1,903	529,534	(X)
No vehicles available	73,120	+/-1,414	13.8%	+/-0.3
1 vehicle available	205,298	+/-2,300	38.8%	+/-0.4
2 vehicles available	185,648	+/-1,896	35.1%	+/-0.3
3 or more vehicles available	65,468	+/-1,211	12.4%	+/-0.2
HOUSE HEATING FUEL				
Occupied housing units	529,534	+/-1,903	529,534	(X)
Utility gas	444,499	+/-1,945	83.9%	+/-0.3
Bottled, tank, or LP gas	4,842	+/-420	0.9%	+/-0.1
Electricity	65,985	+/-1,475	12.5%	+/-0.3
Fuel oil, kerosene, etc.	7,846	+/-481	1.5%	+/-0.1
Coal or coke	441	+/-128	0.1%	+/-0.1
Wood	2,066	+/-279	0.4%	+/-0.1
Solar energy	24	+/-25	0.0%	+/-0.1
Other fuel	2,313	+/-328	0.4%	+/-0.1
No fuel used	1,518	+/-214	0.3%	+/-0.1
SELECTED CHARACTERISTICS				
Occupied housing units	529,534	+/-1,903	529,534	(X)

Subject	Allegheny County, Pennsylvania			
	Estimate	Margin of Error	Percent	Percent Margin of Error
Lacking complete plumbing facilities	1,912	+/-329	0.4%	+/-0.1
Lacking complete kitchen facilities	5,901	+/-507	1.1%	+/-0.1
No telephone service available	8,961	+/-499	1.7%	+/-0.1
OCCUPANTS PER ROOM				
Occupied housing units	529,534	+/-1,903	529,534	(X)
1.00 or less	525,555	+/-1,872	99.2%	+/-0.1
1.01 to 1.50	2,588	+/-306	0.5%	+/-0.1
1.51 or more	1,391	+/-225	0.3%	+/-0.1
VALUE				
Owner-occupied units	343,306	+/-1,922	343,306	(X)
Less than $50,000	36,369	+/-1,020	10.6%	+/-0.3
$50,000 to $99,999	89,193	+/-1,344	26.0%	+/-0.4
$100,000 to $149,999	73,444	+/-1,434	21.4%	+/-0.4
$150,000 to $199,999	55,374	+/-1,136	16.1%	+/-0.3
$200,000 to $299,999	48,509	+/-1,111	14.1%	+/-0.3
$300,000 to $499,999	28,567	+/-887	8.3%	+/-0.3
$500,000 to $999,999	9,971	+/-452	2.9%	+/-0.1
$1,000,000 or more	1,879	+/-229	0.5%	+/-0.1
Median (dollars)	129,600	+/-959	(X)	(X)
MORTGAGE STATUS				
Owner-occupied units	343,306	+/-1,922	343,306	(X)
Housing units with a mortgage	210,864	+/-1,907	61.4%	+/-0.4
Housing units without a mortgage	132,442	+/-1,695	38.6%	+/-0.4
SELECTED MONTHLY OWNER COSTS (SMOC)				
Housing units with a mortgage	210,864	+/-1,907	210,864	(X)
Less than $500	4,787	+/-449	2.3%	+/-0.2
$500 to $999	57,275	+/-1,392	27.2%	+/-0.6
$1,000 to $1,499	69,835	+/-1,331	33.1%	+/-0.6
$1,500 to $1,999	39,447	+/-1,030	18.7%	+/-0.4
$2,000 to $2,499	19,089	+/-689	9.1%	+/-0.3
$2,500 to $2,999	9,095	+/-532	4.3%	+/-0.2
$3,000 or more	11,336	+/-550	5.4%	+/-0.3
Median (dollars)	1,282	+/-11	(X)	(X)
Housing units without a mortgage	132,442	+/-1,695	132,442	(X)
Less than $250	10,911	+/-518	8.2%	+/-0.4
$250 to $399	30,068	+/-917	22.7%	+/-0.6
$400 to $599	47,988	+/-1,030	36.2%	+/-0.8
$600 to $799	24,529	+/-818	18.5%	+/-0.6
$800 to $999	9,698	+/-626	7.3%	+/-0.4
$1,000 or more	9,248	+/-556	7.0%	+/-0.4
Median (dollars)	501	+/-4	(X)	(X)
SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME (SMOCAPI)				
Housing units with a mortgage (excluding units where SMOCAPI cannot be computed)	209,991	+/-1,911	209,991	(X)
Less than 20.0 percent	108,533	+/-1,841	51.7%	+/-0.7
20.0 to 24.9 percent	32,632	+/-1,087	15.5%	+/-0.5
25.0 to 29.9 percent	20,472	+/-742	9.7%	+/-0.4
30.0 to 34.9 percent	13,196	+/-634	6.3%	+/-0.3
35.0 percent or more	35,158	+/-1,016	16.7%	+/-0.5

Subject	Allegheny County, Pennsylvania			
	Estimate	Margin of Error	Percent	Percent Margin of Error
Not computed	873	+/-191	(X)	(X)
Housing unit without a mortgage (excluding units where SMOCAPI cannot be computed)	131,110	+/-1,675	131,110	(X)
Less than 10.0 percent	51,035	+/-1,152	38.9%	+/-0.8
10.0 to 14.9 percent	26,133	+/-836	19.9%	+/-0.6
15.0 to 19.9 percent	16,833	+/-760	12.8%	+/-0.5
20.0 to 24.9 percent	11,414	+/-572	8.7%	+/-0.4
25.0 to 29.9 percent	6,998	+/-356	5.3%	+/-0.3
30.0 to 34.9 percent	4,384	+/-310	3.3%	+/-0.2
35.0 percent or more	14,313	+/-573	10.9%	+/-0.4
Not computed	1,332	+/-211	(X)	(X)
GROSS RENT				
Occupied units paying rent	177,993	+/-1,932	177,993	(X)
Less than $500	30,334	+/-1,037	17.0%	+/-0.6
$500 to $999	101,017	+/-1,775	56.8%	+/-0.8
$1,000 to $1,499	33,676	+/-1,118	18.9%	+/-0.6
$1,500 to $1,999	7,876	+/-519	4.4%	+/-0.3
$2,000 to $2,499	3,041	+/-350	1.7%	+/-0.2
$2,500 to $2,999	920	+/-197	0.5%	+/-0.1
$3,000 or more	1,129	+/-236	0.6%	+/-0.1
Median (dollars)	780	+/-6	(X)	(X)
No rent paid	8,235	+/-543	(X)	(X)
GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME (GRAPI)				
Occupied units paying rent (excluding units where GRAPI cannot be computed)	174,120	+/-1,915	174,120	(X)
Less than 15.0 percent	26,518	+/-882	15.2%	+/-0.5
15.0 to 19.9 percent	23,516	+/-831	13.5%	+/-0.5
20.0 to 24.9 percent	22,024	+/-988	12.6%	+/-0.5
25.0 to 29.9 percent	20,882	+/-1,037	12.0%	+/-0.6
30.0 to 34.9 percent	14,207	+/-758	8.2%	+/-0.4
35.0 percent or more	66,973	+/-1,633	38.5%	+/-0.8
Not computed	12,108	+/-675	(X)	(X)

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates

Explanation of Symbols:
An '**' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
An '(X)' means that the estimate is not applicable or not available.

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Households not paying cash rent are excluded from the calculation of median gross rent.

Telephone service data are not available for certain geographic areas due to problems with data collection. See Errata Note #93 for details.

While the 2011-2015 American Community Survey (ACS) data generally reflect the February 2013 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Pennsylvania American Water Company
Actual Revenue/Water Sales Compared to Authorized
(2008-2016)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total 2008-2016
PAWC Total Billed Annual Revenue*	430,080,225	424,755,833	481,723,983	476,218,514	530,779,399	519,267,968	580,339,362	576,844,163	567,841,132	4,587,850,579
Total Authorized Revenue**	430,659,124	439,076,723	486,521,372	494,111,014	540,839,399	540,839,399	580,184,165	580,184,165	580,184,165	4,672,599,526
Revenue Recovery to Authorized (Under)/Over	($578,899)	(14,320,890)	(4,797,389)	(17,892,500)	(10,060,000)	(21,571,431)	155,197	($3,340,002)	($12,343,033)	($72,405,914)
	-0.13%	-3.26%	-0.99%	-3.62%	-1.86%	-3.99%	0.03%	-0.58%	-2.13%	
PAWC Total Annual Water Sales (000 Gallons)	50,756,831	48,811,181	50,087,184	48,691,795	48,785,279	46,947,471	47,794,020	47,548,740	45,976,272	435,398,773
Total Authorized Water Sales*	51,183,239	51,066,200	50,406,525	50,299,128	49,637,898	49,637,898	47,431,611	47,431,611	47,431,611	444,525,721
Water Sales to Authorized (Under)/Over	(426,408)	(2,255,019)	(319,341)	(1,607,333)	(852,619)	(2,690,427)	362,409	117,129	(1,455,339)	(7,671,609)
	-0.83%	-4.42%	-0.63%	-3.20%	-1.72%	-5.42%	0.76%	0.25%	-3.07%	

* Exclusive of DSIC and STAS and Other Water Revenue
**Per Commission Orders Exclusive of Other Water Revenue

Pennsylvania American Water Co.
Reasonableness of Consumption Decline Calculation
920 Gallons Per Customer Per Year

Illustrating: Replacement of Clothes Washing, Toilet, Fixtures and Dishwashers Based on Family of Four

Washer:			
Old: Usage per load - gallons	41	Average Use Per Capita Per Day	0.37
New: Usage per load - gallons	17	Average Loads per week - 4 People	10
Usage decline	24	Savings per week	251
		Savings per year - Gallons	**13,037**
Toilet:			
Old: Usage per flush - gallons	3.5	Flush per person per day	5
New: Usage per flush - gallons	1.3	Household number	4
Usage decline	2.2		
		Flush per day per household	20
		Flush per year per household	7,300
		Savings per year - Gallons	**16,206**
Fixtures (Showers):			
Old: Gallons/min flow	2.75	Flow Minutes Per Person Day	8
New: Gallons/min flow	2.00	Household Number	4
Usage Decline	0.75		
		Total Flow Minutes Per Day	32
		Total Flow Savings Per Day	24
		Savings per year - Gallons	**8,870**
Fixtures (Faucets):			
Old: Gallons/min flow	2.75	Flow Minutes Per Person Day	8
New: Gallons/min flow	1.50	Household Number	4
Usage Decline	1.25		
		Total Flow Minutes Per Day	32
		Total Flow Savings Per Day	41
		Savings per year - Gallons	**14,783**
Dish Washer:			
Old: Gallons/cycle	14	Average Use Per Capita Per Day	0.10
New: Gallons/cycle	4	Average Loads per week - 4 People	3
Usage decline	10	Savings per week	27
		Savings per year - Gallons	**1,420**

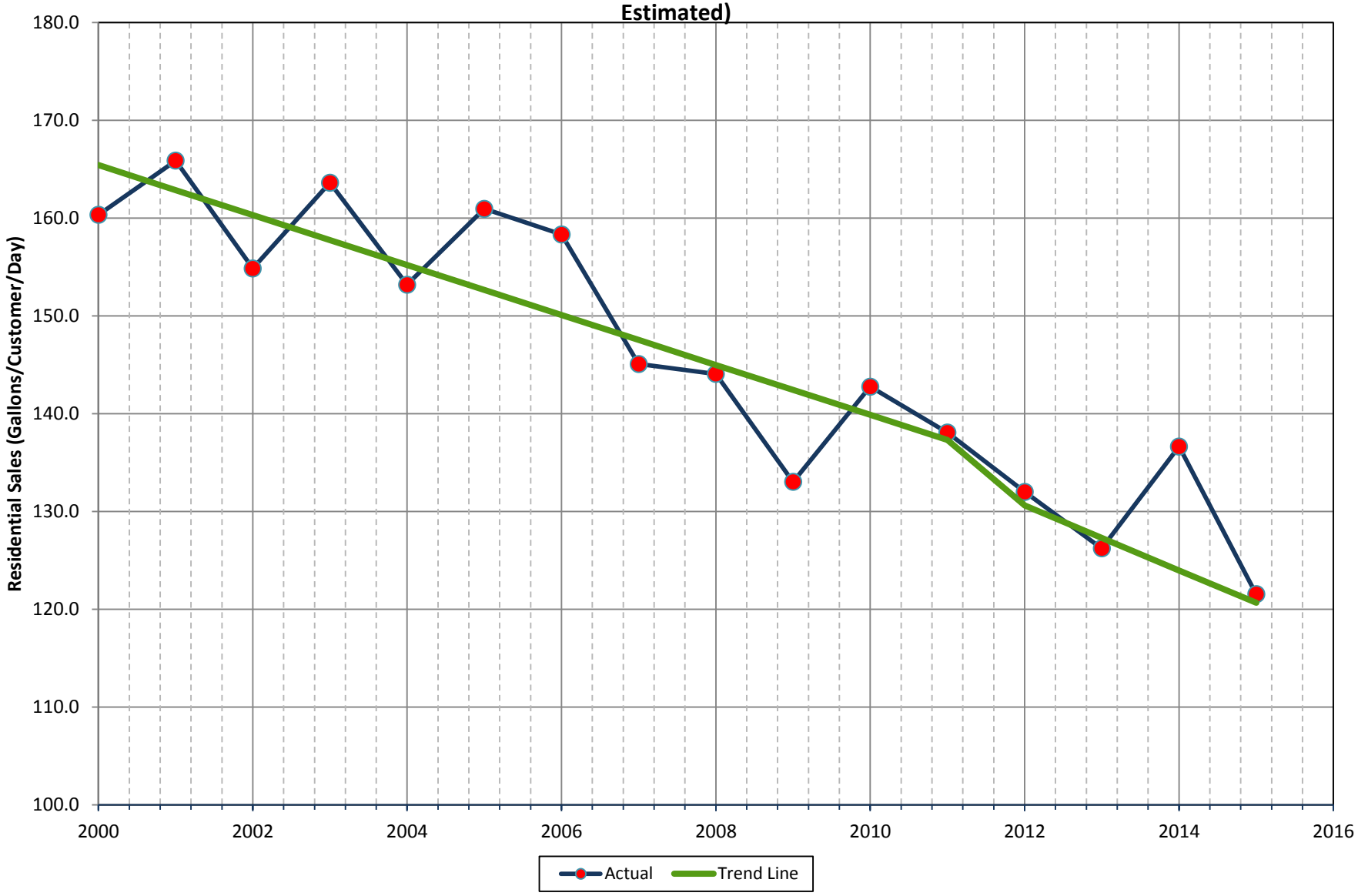
Total Impact of All Appliances:

Total Calculated Annual PAWC Decrease in Usage (Gallons)	553,171,160
Divided by: Total Estimate Water Usage Savings For Family of Four (Gallons)	**54,315**
Implied Number of Toilet, Clothes Washer, Fixture and Dish Washer Changes Accounting For Annual Usage Reduction WVAW (Number of Customers)	**10,185**
PAWC - Average Number of Residential Customers (2016)	601,273
Maximum number of Customers in a single year contributing to decline	**1.69%**
Implied Years For Complete Impact of Appliance Replacement	**59**

*1 Source: Handbook of Water Use and Conservation, Amy Vickers, May, 2001
*2 Source: www.home-water-works.org, A project of the Alliance for Water Efficency, 2011.

Pennsylvania American Water

MO Joplin District Residential Sales per Customer (Annual Average Usage Historic vs. Trend Estimated)



PAWC STATEMENT NO. 10

DIRECT TESTIMONY

OF

JOHN R. WILDE

WITH REGARD TO

PENNSYLVANIA-AMERICAN WATER COMPANY'S

INCOME TAXES

DOCKET NO. R-2017-2595853

DATE: April 28, 2017

PENNSYLVANIA-AMERICAN WATER COMPANY

DIRECT TESTIMONY OF JOHN R. WILDE

Q. What is your name and business address?

A. My name is John R. Wilde and my business address is 131 Woodcrest Road, Cherry Hill, New Jersey 08003.

Q. By whom are you employed and in what capacity?

A. I am employed by American Water Works Service Company ("AWWSC"). My title is Senior Director - Tax, and I oversee the tax function for American Water Works Company, Inc. ("American Water" or "AWW") and its subsidiaries.

Q. Please summarize your educational background and professional experience.

A. I graduated from Saint Norbert College, De Pere, Wisconsin in 1984 with a Bachelor of Business Administration Degree in Accounting. I have a graduate certificate in state and local taxation, as well as a Master of Science Degree in Taxation from the University of Wisconsin-Milwaukee. I have over 30 years of experience as a tax and accounting professional serving utilities with regulated operations in multiple states. For the fifteen years before my employment with AWWSC, I was the head of the tax function for WEC Energy Group, Inc., formerly Integrys Energy Group, Inc., that included six utilities with operations in four states.

Q. What are your duties as Senior Director - Tax?

A. My duties include management and oversight of the corporate tax function for AWW and its consolidated subsidiaries including Pennsylvania-American Water Company ("PAWC" or the "Company").

Q. Have you previously submitted testimony before the Pennsylvania Public Utility Commission ("PUC" or the "Commission")?

A. No, this is my first experience testifying before this Commission, but I have previously testified before the Federal Energy Regulatory Commission ("FERC"), the Public Service Commission of Wisconsin, the Michigan Public Service Commission, The Virginia State Corporation Commission, the Illinois Commerce Commission, and the Minnesota Public Utilities Commission.

Q. What is the purpose of your testimony?

A. The principal purpose of my testimony is to address Act 40 of 2016 ("Act 40"), which added Section 1301.1 to the Public Utility Code. Section 1301.1 deals with the computation of income tax expense for ratemaking purposes. I also address how the Company reflected in its rate case certain expenditures that are capitalized for book purposes but deducted as a maintenance expense for federal and state income tax purposes, which I will refer to as Tax Repairs Deductions.

Act 40

Q. What changes were made by Act 40?

A. Act 40 became law on June 12, 2016 and was effective sixty days later (August 11, 2016) to "all cases where the final order is entered after the effective date of [Section 1301.1]." Consequently, Section 1301.1 applies to this case. Section 1301.1(a) specifies how the Commission is to compute income tax expense for ratemaking purposes. Section 1301.1(b) states how any incremental internally-generated funds produced by the application of Section 1301.1(a) should be used by an affected utility pending the December 31, 2015 "sunset" of Section 1301.1(b).

Q. What does Section 1301.1 direct the Commission to do in calculating income tax expenses for ratemaking purposes?

A. In summary, Section 1301.1(a) provides that current and deferred income taxes of a Pennsylvania utility are to be calculated for ratemaking purposes based only on the income, deductions and credits of the utility itself. Therefore, the Commission may not calculate a utility's current and deferred income taxes for ratemaking purposes by taking into account income, deductions (including taxable losses) or credits of the utility's parent or affiliated companies with which it joins in filing a consolidated Federal income tax return. This is generally referred to as a "stand-alone" computation of income tax expense because it reflects income tax expense of the utility "standing alone" and without regard to taxable income, deductions or credits of other companies in the same consolidated group.

Q. How does Section 1301.1(a) change prior Commission practice?

A. Section 1301.1(a) terminates the practice of making a "consolidated tax adjustment" ("CTA") when calculating a utility's Federal income taxes for ratemaking purposes in Pennsylvania. As directed by prior decisions of Pennsylvania appellate courts,[1] the Commission, until Act 40 became effective, was required to calculate CTAs employing the "Modified Effective Tax Rate Method," which the Commission described as follows:

> [U]nder the Modified Effective Tax Rate Method, which was approved under *Barasch II, supra,* the consolidated tax savings generated by the non-regulated companies of a corporate group are allocated to the regulated and non-regulated members of the group having positive taxable incomes.[2]

1 *Barasch v. Pa. P.U.C.*, 493 A.2d 653 (Pa. 1985) ("*Barasch I*"); *Barasch v. Pa. P.U.C.*, 548 A.2d 1310 (Pa. Cmwlth 1988) ("*Barasch II*").

2 *Pa. P.U.C. v. Philadelphia Suburban Water Co*., Docket No. R-00016750 et al, 2002 Pa PUC LEXIS 55, *90-91 (July 18, 2002).

As calculated under the Modified Effective Tax Rate Method, a CTA captured a portion of the tax benefits of deductions – including taxable losses – of unregulated affiliates of public utilities and gave those benefits to the utilities' customers (as lower income tax expense than the utilities would have on a "stand-alone" basis), even though the utilities' customers did not pay the expenses that gave rise to those tax benefits. With the enactment of Act 40, Pennsylvania joins the vast majority of other jurisdictions, including the FERC, that do not make CTAs for ratemaking purposes.

Q. What does Section 1301.1(b) provide?

A. Section 1301.1(b) states as follows:

> If a differential accrues to a public utility resulting from applying the ratemaking methods employed by the commission prior to the effective date of subsection (a) for ratemaking purposes, the differential shall be used as follows:
>
> (1) fifty percent to support reliability or infrastructure related to the rate-base eligible capital investment as determined by the commission; and
>
> (2) fifty percent for general corporate purposes.

As I previously explained, Section 1301.1(c)(1) provides that Section 1301.1(b) will no longer apply after December 31, 2025.

Q. Have you calculated the "differential" in income taxes referenced in Section 1301.1(b)?

A. Yes, the confidential response to Filing Requirement (FR) IV.14 sets forth the computation of a CTA using the Modified Effective Tax Rate Method and data for tax years 2011 through 2015, which are the most recent five years for which tax returns have been filed. The second page of the calculation shows the "differential" in an amount of $4.4 million corresponding to the CTA calculated in the manner I described above.

Q. Over what period of time will the "differential" accrue?

A. The "differential" computed in FR IV.14 will not begin to accrue until after the base rates established in this proceeding go into effect near the end of January 2018. Therefore, at most, approximately 11/12ths of fifty percent of the "differential" calculated would be realized in 2018 – and that amount would have to grow from zero to 11/12ths over the course of eleven months. Thus, a full annual amount will not be realized until 2019. Because the entire fifty percent of the "differential" would not be available as incremental utility income in 2018, the investment of a full fifty percent of the "differential" in reliability and infrastructure projects by the Company will occur thereafter.

Q. How will the Company invest the fifty percent of the "differential" in order to "support reliability or infrastructure related to rate-base eligible investment"?

A. The investment of fifty-percent of the differential in projects that conform to Section 1301.1(b) is explained by Mr. Nevirauskas in PAWC Statement No. 1.

Tax Repairs Deductions

Q. How is the Company reflecting Tax Repairs Deductions in this case?

A. The Company has normalized the income tax effects of its Tax Repairs Deductions in this case, just as it had done in prior water and wastewater base rate cases since 2008. Unlike in prior cases, the Company has **not** reduced its accumulated deferred income tax ("ADIT") balance associated with normalizing Tax Repairs Deductions for a "FIN-48 reserve." FIN-48 refers to the Financial Accounting Standards Board's ("FASB") Interpretation 48, *Accounting for Uncertainty in Income Taxes*, which requires companies to assess the likelihood that the Internal Revenue Service ("IRS") would approve their tax deductions. To the extent any Tax Repairs Deductions were considered uncertain, FIN-

48 would require the Company to create a reserve against the possibility that the IRS would disallow those deductions in a subsequent audit. As I previously explained, the Company has not reduced its ADIT balance for a FIN-48 reserve and, therefore, the entire amount of ADIT related to Tax Repairs Deductions has been reflected as reduction to rate base in PAWC Exhibit No. 3-A.

Conclusion

Q. Does that conclude your direct testimony at this time?

A. Yes, it does.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
	:	
v.	:	**DOCKET NO. R-2017-2595853**
	:	
PENNSYLVANIA-AMERICAN WATER COMPANY	:	

VERIFICATION

I, **John R. Wilde**, hereby state that the facts set forth in the pre-marked Statement No. 10 and accompanying exhibits, if any, are true and correct to the best of my knowledge information and belief. I understand that this verification is made subject to the provisions and penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: April 28, 2017

John R. Wilde