

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission)
)
v.) **Docket No. R-2018-3000834**
)
SUEZ Water Pennsylvania, Inc.)

**DIRECT TESTIMONY
OF
LAFAYETTE K. MORGAN, JR.**

**ON BEHALF OF THE
OFFICE OF CONSUMER ADVOCATE**

July 20, 2018

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Introduction

1

2 Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS
3 ADDRESS?

4 A. My name is Lafayette K. Morgan, Jr. My business address is 10480 Little Patuxent
5 Parkway, Columbia, Maryland, 21044. I am a Public Utilities Consultant working
6 with Exeter Associates, Inc. Exeter is a firm of consulting economists specializing in
7 issues pertaining to public utilities.

8 Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND
9 QUALIFICATIONS.

10 A. I received a master's Degree in Business Administration from The George
11 Washington University. The major area of concentration for this degree was Finance.
12 I received a bachelor's Degree in Business Administration with a concentration in
13 Accounting from North Carolina Central University. I was previously a CPA
14 licensed in the state of North Carolina, but, in 2009, I elected to place my license in
15 an inactive status as I focused on start-up activities for other business interests.

16 Q. WOULD YOU PLEASE DESCRIBE YOUR PROFESSIONAL
17 EXPERIENCE?

18 A. From May 1984 until June 1990, I was employed by the North Carolina Utilities
19 Commission - Public Staff in Raleigh, North Carolina. I was responsible for
20 analyzing testimony, exhibits, and other data presented by parties before the North
21 Carolina Utilities Commission. I had the additional responsibility of performing
22 examinations of books and records of utilities involved in rate proceedings and
23 summarizing the results into testimony and exhibits for presentation before that
24 Commission. I was also involved in numerous special projects, including

1 participating in compliance and prudence audits of a major utility and conducting
2 research on several issues affecting natural gas and electric utilities.

3 From June 1990 until July 1993, I was employed by Potomac Electric Power
4 Company (Pepco) in Washington, D.C. At Pepco, I was involved in the preparation
5 of the cost of service, rate base and ratemaking adjustments supporting the company's
6 requests for revenue increases in the State of Maryland and the District of Columbia.
7 I also conducted research on several issues affecting the electric utility industry for
8 presentation to management.

9 From July 1993 through 2010, I was employed by Exeter Associates, Inc. as a
10 Senior Regulatory Analyst. During that period, I was involved in the analysis of the
11 operations of public utilities, with particular emphasis on utility rate regulation. I
12 reviewed and analyzed utility rate filings, focusing primarily on revenue requirement
13 determinations. This work involved natural gas, water, electric and telephone
14 companies.

15 In 2010, I left Exeter Associates to pursue other business interests. In late
16 2014, I returned to Exeter to continue to work in a similar capacity to my work prior
17 to my hiatus.

18 Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY
19 PROCEEDINGS ON UTILITY RATES?

20 A. Yes. I have previously presented testimony and affidavits on numerous occasions
21 before the North Carolina Utilities Commission, the Pennsylvania Public Utility
22 Commission, the Virginia Corporation Commission, the Louisiana Public Service
23 Commission, the Georgia Public Service Commission, the Maine Public Utilities
24 Commission, the Kentucky Public Service Commission, the Public Utilities
25 Commission of Rhode Island, the Vermont Public Service Board, the Illinois

1 Commerce Commission, the West Virginia Public Service Commission, the
2 Maryland Public Service Commission, the Corporation Commission of Oklahoma,
3 the Kansas Corporation Commission, the Philadelphia Water, Sewer and Storm Water
4 Rate Board and the Federal Energy Regulatory Commission (FERC). My resume is
5 attached hereto as Appendix A.

6 Q. ON WHOSE BEHALF ARE YOU APPEARING?

7 A. I am presenting testimony on behalf of the Office of Consumer Advocate (OCA).

8 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS
9 PROCEEDING?

10 A. The OCA has retained Exeter Associates to assist in the evaluation of the general rate
11 filing submitted by SUEZ Water Pennsylvania, Inc. ("SUEZ" or "the Company").
12 The OCA has asked me to determine the level of revenues that SUEZ should be
13 authorized in this proceeding. In this testimony, I present my findings regarding
14 SUEZ's test year rate base and net operating income at present rates. Based on these
15 amounts, I have determined the revenues that are required to generate the overall rate
16 of return on rate base recommended by Aaron L. Rothschild on behalf of the OCA.

17 Q. IN CONNECTION WITH THIS CASE, HAVE YOU PERFORMED AN
18 EXAMINATION AND REVIEW OF THE COMPANY'S TESTIMONY
19 AND EXHIBITS?

20 A. Yes. I have reviewed SUEZ's testimony, exhibits and its rate filing. I have also
21 reviewed the Company's responses to the interrogatories of the OCA, the Bureau of
22 Investigation & Enforcement (I&E) and other parties.

23 Q. HAVE YOU PREPARED SCHEDULES TO ACCOMPANY YOUR
24 TESTIMONY?

1 A. Yes. I have prepared Schedules LKM-1 through LKM-25. Schedule LKM-1 provides
2 a summary of revenues and expenses under present and proposed rates. My
3 adjustments to SUEZ's claimed revenues and operating expenses are presented on
4 Schedules LKM-2 through LKM-25. These adjustments also incorporate the
5 adjustments of OCA witness Rothschild.
6

7 **Summary and Recommendations**

8 Q. PLEASE SUMMARIZE THE RATE RELIEF REQUESTED BY SUEZ IN
9 ITS FILING.

10 A. In the Company's application filed on April 30, 2018, SUEZ proposed an increase in
11 rates designed to produce additional revenues of approximately \$6.2 million per year.
12 According to the Company, for a residential customer using an average of 3,500
13 gallons of water per month, the \$6.2 million increase would result in a total bill
14 increase from \$43.94 to \$48.85 or an increase of 11.2 percent. The \$6.2 million
15 requested increase is based upon the fully projected future test year ending December
16 31, 2019 ("FPFTY"). The Company is requesting an overall rate of return of 7.95%,
17 which includes a return on equity of 10.75% and a cost of debt rate of 4.65%.

18 Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS.

19 A. As shown on Schedule LKM-1, I have determined that the Company's proposed
20 revenue should be reduced to reflect a net decrease of \$3,483,852 million for the
21 FPFTY ending December 31, 2019. This represents a decrease of \$9,720,257 from
22 SUEZ's requested net increase of \$6,236,405. This is the amount by which revenues
23 exceed those required to generate an overall rate of return of 6.51 percent after
24 accounting for the OCA's adjustments to SUEZ's claimed rate base and operating

1 income. This overall return of 6.51 percent represents OCA witness Rothschild's
2 findings regarding the Company's overall rate of return.

3 Schedule LKM-2 summarizes my adjustments to SUEZ's proposed rate year
4 rate base. Schedule LKM-3 provides a summary of my adjustments to rate year
5 revenues and expenses and the resulting operating income.

6 Q. WHAT TIME PERIOD DID YOU USE IN MAKING YOUR
7 DETERMINATION OF SUEZ'S REVENUE REQUIREMENTS?

8 A. Consistent with SUEZ's filing, I have used the FPFTY ending December 31, 2019 as
9 the basis for determining SUEZ's rate year revenue requirements. This is the same
10 period used by the Company in its filing.

11 Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

12 A. In the remainder of my testimony, I document and explain each of the adjustments to
13 rate base and operating income that I have made to arrive at the rate year revenue
14 increase shown on Schedule LKM-1. My discussion of these adjustments is
15 organized into sections corresponding to the issue being addressed. These sections
16 are set forth in the Table of Contents for this testimony.

17

18

Fully Projected Future Test Year

19 Q. HOW HAS SUEZ CALCULATED ITS RATE BASE AND OPERATING
20 INCOME FOR THE FPFTY?

21 A. SUEZ's FPFTY cost of service is based upon an end of period basis. Specifically, the
22 Company's claim for utility plant in service is calculated using the closing plant
23 balances as of December 31, 2017 (the historical test year or "HTY"), and budgeted
24 plant additions for the years ending December 31, 2018 (the future test year or
25 "FTY") and December 31, 2019 (FPFTY). Similarly, for the accumulated

1 depreciation, SUEZ started with accumulated depreciation as of December 31, 2017,
2 added the budgeted level of depreciation expense for the FTY and FPFTY, and
3 included the impact of the FTY and FPFTY plant retirements and a provision for net
4 salvage to derive the end of period amount.

5 Q. HAS SUEZ PROPERLY CALCULATED ITS REVENUE
6 REQUIREMENTS IN THE FPFTY?

7 A. No. As I understand it, the use of a fully projected future test year or rate year is
8 intended to allow rates to be set to reflect the costs that will be incurred during the
9 first year the rates will be in effect. SUEZ has overstated its future rate year cost of
10 service by reflecting costs at end of FPFTY levels rather than at the levels of costs
11 that will be experienced during the rate year. Rather than reflecting costs that will be
12 incurred during the rate year ending December 31, 2019, the use of the end of period
13 means SUEZ has reflected costs that will be incurred as of January 1, 2020.

14 Q. CAN YOU FURTHER EXPLAIN HOW SUEZ'S USE OF THE END OF
15 THE FPFTY HAS OVERSTATED THE COMPANY'S RATE YEAR
16 COST OF SERVICE?

17 A. Yes. I will explain using the example of the inclusion of the projected plant in
18 service as of December 31, 2019 in rate base and calculating depreciation expense
19 based on the balance of plant in service as of December 31, 2019. If accepted,
20 SUEZ's proposal would result in SUEZ earning a return, beginning on the first day of
21 the rate year, on plant that will not be in service until the end of the FPFTY and,
22 hence, will not be used and useful for up to one year later. Similarly, the Company
23 would be allowed to recover a full year of depreciation expense on plant that will not
24 be in service for the entire rate year.

1 Q. DO YOU HAVE ANY ADDITIONAL OBSERVATIONS REGARDING
2 SUEZ'S DETERMINATION OF ITS RATE YEAR REVENUE
3 REQUIREMENT?

4 A. Yes. In rate cases that predated Act 11, utilities' revenue requirements were
5 established based on FTY costs. Because the FTY ended at approximately the same
6 time that rates were scheduled to take effect, adjustments were made to reflect plant
7 in service, wage levels and other costs as of the end of the FTY. SUEZ has followed
8 a similar approach in calculating its FPFTY revenue requirements in this proceeding.
9 While reflecting costs at end of year levels may have been appropriate when revenue
10 requirements were being established to reflect costs for a future test year that ended at
11 the time that rates would go into effect, adjusting costs to year end levels is not
12 appropriate now that a FPFTY is being used to establish rates. Adjusting costs to end
13 of rate year levels and beyond would result in SUEZ recovering costs from ratepayers
14 that are in excess of the costs that will be incurred as the rate year progresses.

15 Q. WHAT IS THE PROPER APPROACH TO DETERMINE REVENUE
16 REQUIREMENTS FOR THE RATE YEAR?

17 A. As noted previously, the use of a FPFTY is intended to allow rates to be set to recover
18 the costs that will be incurred during the first year the rates are in effect.
19 Accordingly, rate base should reflect the average balances of plant in service,
20 accumulated depreciation, accumulated deferred income taxes ("ADIT") and other
21 elements. Similarly, the amounts included for depreciation, wages and other
22 expenses should be based on the costs that will be incurred during the rate year.
23 Wages, for example, should reflect the wage rates in effect each month of the year,
24 not the wage rates that will be in effect at the end of the year. Depreciation expense
25 should reflect average levels of plant in service during the rate year.

Average Rate Base

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Q. WHAT ADJUSTMENTS ARE YOU PROPOSING TO MAKE TO SUEZ'S FILED CLAIM TO REFLECT AVERAGE RATE BASE DURING THE RATE YEAR?

A. In its filing, SUEZ has reflected plant in service, accumulated depreciation, and accumulated deferred income taxes at the projected December 31, 2019 end of year levels in determining its FPFTY rate base claim. As explained previously, including the end of rate year plant in service and related balances in rate base would result in SUEZ earning a return on a rate base that exceeds the Company's actual investment during the rate year. To reflect the Company's projected investment over the course of the first year the rates in this case will be in effect, I have adjusted plant in service, accumulated depreciation and ADIT included in rate base to reflect the average balances during the rate year.

Q. HOW HAVE YOU CALCULATED THE AVERAGE BALANCES OF PLANT, ACCUMULATED DEPRECIATION AND ADIT?

A. I have calculated the average balances of plant in service, accumulated depreciation and ADIT using the balances from December 31, 2018 and December 31, 2019 and averaging both.

Q. HAVE YOU PREPARED A SCHEDULE THAT SHOWS THE EFFECT OF ADJUSTING SUEZ'S CLAIMED RATE BASE TO REFLECT THE 12-MONTH AVERAGE BALANCES OF PLANT IN SERVICE, ACCUMULATED DEPRECIATION AND ADIT DURING THE FIRST YEAR THAT THE RATES APPROVED IN THIS PROCEEDING WILL BE IN EFFECT?

1 A. Yes. Schedule LKM-5 presents my adjustment to reflect the average rate year
2 balances of plant, accumulated depreciation and ADIT. As shown there, the net
3 effect of this adjustment is to reduce rate base by \$17.2 million.
4

5 **Allowance for Cash Working Capital**

6 Q. HOW DO YOU DEFINE CASH WORKING CAPITAL?

7 A. For ratemaking purposes, cash working capital is the investment that a utility needs to
8 have on hand to fund its day-to-day operations. Positive cash working capital
9 represents funds provided by investors that should be included in rate base so that the
10 utility earns a return on it. Negative cash working capital represents funds supplied
11 by ratepayers that should be recognized as a rate base offset to reflect funds advanced
12 for operations by ratepayers.

13 Q. HOW DID THE COMPANY REFLECT CASH WORKING CAPITAL IN
14 ITS FILING?

15 A. The Company's cash working capital allowance is calculated based upon the results
16 of a lead/lag study. A lead/lag study is an in-depth analysis that measures the
17 difference between the lapse of time when a company receives revenue for the
18 provision of service and the lapse of time when a company pays for the costs of
19 providing service. This difference is expressed as a number of days and is used to
20 calculate the level of investor-supplied funds advanced for operations, or the funds
21 advanced by customers for operations.

22 Q. WHAT CHANGES HAVE YOU MADE TO THE ALLOWANCE FOR
23 CASH WORKING CAPITAL?

24 A. I have made an adjustment to cash working capital to reduce rate base by \$40,283.
25 This adjustment is the result of reflecting the adjustments I have recommended be

1 made to Operation & Maintenance (“O&M”) expenses and taxes in the lead/lag
2 study. The O&M expenses are the bases on which the lead/lag working capital is
3 calculated. Therefore, when deriving the allowance for cash working capital, it is
4 appropriate to reflect any O&M expense adjustment made to the cost of service in the
5 lead/lag study.

6 On Schedule LKM-9, I present this adjustment which reduces the working
7 capital allowance by \$40,283.

8
9 **Potential Mahoning Township Water System Acquisition**

10 Q. PLEASE EXPLAIN SUEZ’S ADJUSTMENT TO INCLUDE THE COSTS
11 RELATING TO THE POTENTIAL ACQUISITION OF THE MAHONING
12 TOWNSHIP WATER SYSTEM.

13 A. The Company states that it anticipates acquiring the Mahoning Township water and
14 wastewater systems pursuant to Section 1329 of the Pennsylvania Public Utility
15 Code. The purchase price, under the Asset Purchase Agreement executed on April
16 20, 2018, for both the water and wastewater systems is \$9.5 million. The system
17 serves approximately 1,200 water customers and 1,200 wastewater customers. The
18 acquired water system assets include approximately twenty-three miles of main, and
19 associated appurtenances that include hydrants, services, meters and valves; three
20 storage tanks; and four pumping stations. The wastewater system consists of
21 approximately twenty-six miles of collection mains and the associated appurtenances,
22 and two pumping stations.

23 Q. WHAT COSTS IS THE COMPANY CLAIMING IN THIS PROCEEDING?

24 A. According to Company witness Hollenbach, SUEZ is making no claims related to the
25 wastewater system acquisition in this rate case. However, the Company included

1 approximately 60 percent of the \$9.5 million purchase price in rate base in this filing,
2 or \$5.8 million, representing the water system's portion of the purchase price. In
3 addition, the Company is claiming Purchased Water Expense of \$360,835,
4 Maintenance and Outside Services Expense of \$45,000, and Utility Expense of
5 \$24,948. These expenses are supposed to represent the operating costs of the acquired
6 system.

7 Q. HAS THE COMMISSION APPROVED THE MAHONING TOWNSHIP
8 ACQUISITION AND DETERMINED THE RATEMAKING RATE BASE
9 UNDER SECTION 1329?

10 A. No. As of the date I finalized this Direct Testimony, SUEZ had not filed an
11 application with the Public Utility Commission to acquire the Mahoning Township
12 systems. The value of the system that is to be included in rate base, if the acquisition
13 is approved, has not been determined.

14 Q. SHOULD THE COSTS OF THE MAHONING TOWNSHIP WATER
15 SYSTEM BE INCLUDED IN THIS PROCEEDING?

16 A. No. The inclusion of the Mahoning Township water system costs in this proceeding is
17 not appropriate because the costs are not known and measurable. First, the Company
18 has not filed an application for Commission approval of the acquisition. If an
19 application is filed under Section 1329 of the Public Utility Code, the Commission
20 has 6 months to issue an order establishing the ratemaking rate base for the acquired
21 system. The application must also be approved under Chapter 11 of the Public Utility
22 Code. The Commission's Order could be appealed. It cannot be reasonably known
23 whether the Commission will approve the application and whether the acquisition
24 will close within the FPFTY. Thus, it is premature to include any costs for Mahoning
25 Township in rate base or expenses in this proceeding.

1 Second, SUEZ includes \$5.8 million in rate base, which is 60 percent of the
2 \$9.5 million acquisition price of the Mahoning Township water and wastewater
3 systems. This value is not based on appraisals. Moreover, the water asset listing
4 provided by the Company in the response to OCA-IV-23 indicates that the water
5 assets included in the cost of service are \$5,820,000, which is a difference of
6 \$120,000. Further, it is unknown at this point whether the value assigned to the water
7 assets versus the wastewater assets is reasonable. Even if the Company provides
8 support for the allocation, however, there are too many other assumptions and
9 unknowns to include any specific amount in rate base in this proceeding. It would
10 require the assumptions that an application will be filed and perfected, that the
11 Commission will approve the application and that the acquisition will close within the
12 FPFTY. It would also require the assumption that the purchase price will be the
13 ratemaking rate base. This, in turn, requires the assumptions that the Commission
14 does not adjust the appraisals and that, if any adjustments are made, they will not
15 reduce the average of the appraisals to an amount less than the purchase price. As
16 stated above, this determination could be 6 months away, or longer. Hearings and
17 briefs in this base rate proceeding will conclude in 3 months. Thus, by the time all of
18 the assumptions are answered, it will be too late for inclusion of the costs in revenue
19 requirement in this proceeding.

20 Third, Section 1329 requires a specific review process to determine an
21 acquired system's ratemaking rate base using fair market value methods. Including a
22 value for the Mahoning Township water system in the base rates established in this
23 case, would predetermine the ratemaking rate base before the Section 1329
24 application, investigation and review takes place. Consequently, where the buyer is an
25 existing utility, Section 1329 requires that the inclusion of the costs of the acquired

1 system in rates be done in the utility's next base rate case, post-acquisition. Under
2 Section 1329:

3
4 (1) The ratemaking rate base of the selling utility shall be incorporated
5 into the rate base of:

6 (i) the acquiring public utility during the acquiring public
7 utility's next base rate case

8 . . .

9 (2) The ratemaking rate base of the selling utility shall be the lesser of
10 the purchase price negotiated by the acquiring public utility or entity
11 and selling utility or the fair market value of the selling utility.

12 No Commission-determined fair market value has been presented in this base rate
13 proceeding and an investigation of the acquisition of the Mahoning Township system
14 has not occurred. Therefore, the inclusion of these costs in this proceeding is
15 premature, and it is not in accordance with Section 1329.

16 Fourth, the Company has included \$483,336 in depreciation and O&M
17 expenses to reflect its claim for expenses to operate the Mahoning Township system,
18 which it has not acquired. None of the costs are known and certain. The Company is
19 claiming Purchased Water Expense of \$360,835, Maintenance and Outside Services
20 Expense of \$45,000, and Utility Expense of \$24,948. Those amounts are based upon
21 Mahoning Township's 2016 fiscal year. It is unknown whether those costs contain
22 any unusual or unnecessary costs. It is also unknown, whether some of the costs will
23 continue at the level presented by the Company. For instance, SUEZ has already
24 received Commission approval to extend its mains to the Mahoning Township border.
25 An interconnection could change the cost incurred to provide service to Mahoning
26 Township,¹ in particular, the claimed \$360,835 Purchase Water Expense.

27 One justification for regionalization and consolidation of water service is to
28 create efficiencies and lower costs. Therefore, simply adding in the costs previously

¹ SWPA Statement No. 1, Direct Testimony of John D. Hollenbach, page 24, lines 12 through 15.

1 incurred by the acquired system, when it was a stand-alone system and before it was
2 operated by a larger, regional utility, could lead to the inclusion of higher costs than
3 what the system will incur. Quite simply, the operating costs will not be known and
4 measurable until (and unless) SUEZ acquires and begins operating the system.

5 Therefore, inclusion of these costs in this proceeding, pre-acquisition, is premature.

6 Further, I support the recommendation of OCA witness Jerome D. Mierzwa
7 that SUEZ perform a separate Cost of Service Study for Mahoning Township post-
8 acquisition, which can be provided with SUEZ's next base rate filing where the costs
9 can be reviewed to determine what level of expense is properly included in SUEZ's
10 revenue requirement.

11 Based upon the foregoing, I have made an adjustment to remove the costs
12 associated with the Mahoning Township Water System Acquisition from the cost of
13 service on Schedule LKM-6. This adjustment results in a decrease in rate base of
14 \$5,767,447, revenue of \$613,260 and depreciation and O&M expenses of \$483,336.

15
16 **Route 15 Service Territory Expansion²**

17 Q. PLEASE EXPLAIN THE ROUTE 15 SERVICE TERRITORY
18 EXPANSION.

19 A. On March 1, 2018, SUEZ received a certificate of public convenience from the
20 Commission to serve customers along Route 11 in Montour and Cooper Townships.
21 The proposed territory abuts existing SUEZ water service territory in Montour
22 Township, Columbia County. The expanded franchise area encompasses 1,503 acres
23 that includes a portion of Montour Township, Columbia County and a portion of

² The Direct Testimony of SUEZ's witness Hollenbach refers to the Expansion territory as "Route 15 Service Territory Expansion". In the response to OCA-IV-14 and 19, SUEZ refers to the area as "Route 11". Also, the map and metes and bounds description provided in Exhibits B-1 and B-2 of the SUEZ Application filed in Docket Number A-2017-2626908 indicate the extension will serve customers along Route 11.

1 Cooper Township, Montour County. To provide water service to this area, the
2 Company plans to install six miles of 16-inch water mains and a booster station.
3 According to the Company, there is no public water system that serves this area.
4 Therefore, SUEZ will be providing the area with its first public water system.

5 The Company has included \$8.9 million in rate base for provision of service
6 to this area. The Company projects that the expansion infrastructure will be
7 completed and in service by December 2019. The Company has also included
8 revenues of \$119,862 based on 252 customers.

9 Q. DO YOU AGREE THAT THE COSTS AND REVENUES SHOULD BE
10 INCLUDED IN COST OF SERVICE IN THIS CASE?

11 A. No. I do not think it is appropriate to include the costs of the Route 15 expansion in
12 cost of service in this base rate proceeding, for several reasons. First, I note that the
13 Commission placed several conditions on its approval of the service territory
14 expansion. In its January 2018 Order in A-2017-2626908, the Commission stated,³

15 That at the time of filing its next base rate case, which proposes to include this
16 Application's proposed water main extension assets in rate base, SUEZ Water
17 Pennsylvania, Inc. shall specifically identify and provide the following:

- 18 a. SUEZ Water Pennsylvania, Inc.'s actual contribution amount toward
19 the cost of installing the proposed 16-inch diameter water main
20 extension and any customer advances for construction.
- 21 b. All accounting entries which record the costs of the proposed water
22 main extension.
- 23 c. A cost comparison that quantifies the estimated cost of completing this
24 water main extension utilizing an 8-inch diameter ductile iron water
25 pipe in lieu of the proposed 16-inch diameter ductile iron water pipe.
- 26 d. A detailed explanation justifying how the proposed 16-inch diameter
27 ductile iron water main is used and useful.

³ Docket No. A-2017-2626908 January 18, 2018 Order, pages 8-9.

1 e. A hypothetical calculation of bona fide customer advance amounts for
2 each of the two businesses requesting water service in the
3 Application's requested territory, for the proposed water main
4 extension, based on the current in effect tariff of SUEZ Water
5 Pennsylvania, Inc.

6 To my knowledge, the Company did not provide this information in its filing but
7 proposes to include the assets in rate base. This information needs to be provided in
8 determining what costs, if any, should be included in revenue requirement.

9 Also, in its January and March 2018 Orders, the Commission stated,

10 That in its first base rate proceeding following the completion
11 and placement into service of the subject water main extension
12 within the subject territory, SUEZ Water Pennsylvania, Inc.
13 shall, for informational purposes:

- 14 a. Submit a cost of service study that removes all costs
15 and revenues associated with the operations of the
16 subject water main extension within the subject
17 territory.
- 18 b. Use the same rate design methodology it proposes to
19 be adopted in that case, and show how the exclusion
20 of the impact of the water main extension would
21 impact its proposed rates.

22 The cost of service study was provided in SUEZ Exhibit PRH-2.

23 Second, in this proceeding, SUEZ states that the main extension project will
24 be in service by the end of the FPPTY in December 31, 2019. In the response to
25 OCA-IV-18, the Company stated:

26 The infrastructure to serve these customers is scheduled to be in
27 service by December 2019 at which time the Company will provide
28 service to those customers that apply.

29 In an Order entered six months ago in Docket No. A-2017-2626908, the Commission
30 noted that SUEZ planned to complete the project by December 31, 2020.⁴ The 12-

⁴ Docket No. A-2017-2626908 January 18, 2018 Order, page 4.

1 month reduction in the construction period raises questions whether the plant that is
2 claimed in cost of service will be used and useful by the end of FPPTY. The project is
3 still in the design phase. As outlined on pages 21 and 22 of the Direct Testimony of
4 Mr. Hollenbach, project delays are not uncommon. In fact, in the response to OCA
5 VI-9, the Company stated, with respect to this project, that “The project design is
6 currently at 50% and final design is scheduled to be completed in August but may slip
7 till September.” If the design is delayed, the stages that follow will also be delayed.
8 Based on the information provided, the Company has not shown that the project will
9 be in service by the end of December 2019.

10 Q. HAVE YOU MADE AN ADJUSTMENT WITH REGARD TO THE
11 EXPANSION TERRITORY?

12 A. Yes. Because the Company did not provide the information required by the
13 Commission in the application proceeding and because the Company has not
14 demonstrated that the project will be in service a full 12 months earlier than originally
15 projected, it is not appropriate to include the costs of this extension in this case.
16 Therefore, I am recommending an adjustment to remove all of the costs and revenues
17 for the expansion project from revenue requirement. On Schedule LKM-7, I present
18 this adjustment which reduces rate base by \$8,929,800, operating revenues by
19 \$119,862 and depreciation expense by \$70,200.

20 Q. DO YOU HAVE ANY OTHER CONCERNS ABOUT THE PROJECT
21 COSTS?

22 Yes. Apart from my concerns about the in-service date for the project and the matters
23 flagged by the Commission for review, the Company has not shown that the project is
24 economic. The Commission instructed SUEZ to provide information in this rate case
25 regarding the costs associated with this extension and quantifications of the particular

1 proposals regarding the main. The Company did not provide this information. In its
2 January 2018 Order in the application proceeding, the Commission stated that SUEZ
3 estimated annual expenses to be \$200,250 and total annual revenue to be \$175,983,
4 resulting in an estimated net annual loss of \$24,267.⁵ I have not addressed this
5 concern, because my recommended adjustment removed all of the costs from rate
6 base in this case. Whether the project is economic will need to be addressed in a
7 future case when the required information is available and provided.
8

9 **Administrative Office Building**

10 Q. PLEASE EXPLAIN THE ADJUSTMENT YOU HAVE MADE TO THE
11 NEW ADMINISTRATIVE OFFICE BUILDING.

12 A. The Company has included \$2.1 million in rate base for the cost of its new
13 administrative office building. The building is planned to replace the current
14 administrative office building that the Company is leasing. According to the
15 Company, construction of the new administrative office is expected to begin October
16 2018 with an in-service date of December 2019. In addition to the inclusion of the
17 cost of the new office building, the Company has included the cost of leasing the
18 current office building in the revenue requirement in this proceeding. According to
19 the Company, in its response to OCA-IV-15, the rationale for including both of these
20 costs in the revenue requirement is that the Company plans to have the new office
21 facility in service by December 2019, therefore the 2019 lease costs are included in
22 the cost of service presumably because it will be incurred all year. In other words,
23 since the cost of leasing the current office building will be incurred during the entire
24 2019, the Company believes the lease costs should be included in the cost of service

⁵ Docket No. A-2017-2626908 January 18, 2018 Order, page 6. SUEZ's estimates assumed 271 customers.

1 despite the fact that when the new office is placed in service, the lease on the old
2 office will terminate. On the other hand, the end of FPFTY plant in service approach
3 used by the Company includes the cost of the new office building as if it were in
4 service the entire 2019 year, even though it will not be ready until the end of the
5 FPFTY.

6 The approach taken by the Company with respect to the office building is
7 inappropriate because it leads to an over-collection of its costs. Rates are set
8 prospectively, so the costs that are included in rates should be reflective of the normal
9 ongoing cost of providing service. The approach taken by the Company would
10 include two sets of costs in rates for administrative offices. One is the capital cost of
11 the new building and the other is the lease cost of the old building. According to
12 SUEZ, it will not retain the old administrative office building once it moves into the
13 new building. Therefore, the cost of occupying both buildings simultaneously is not
14 part of normal operations going forward. As a result, it is inappropriate to include the
15 cost of both buildings in the cost of service.

16 On Schedule LKM-8, I have made an adjustment which reduces rate base by
17 \$2,039,100 to remove the cost of the new office building from the cost of service.

18 Q. WHY DID YOU REMOVE THE COST OF THE NEW
19 ADMINISTRATIVE OFFICE BUILDING RATHER THAN THE OLD
20 ADMINISTRATIVE OFFICE BUILDING?

21 A. I have removed the cost of the new office building because the construction has not
22 yet begun on the new administrative office building. It is common for planned
23 construction to be delayed for unexpected reasons.⁶ Therefore, there is a higher
24 degree of uncertainty with respect to the completion of the construction of the office

⁶ On page 22, lines 4 through 17 of Mr. Hollenbach's Direct Testimony, he cites instances where planned construction projects were delayed.

1 building then there is that the Company will continue to make lease payments for the
2 current office building. Consequently, I removed the more uncertain costs from the
3 cost of service.

4
5 **Revenues Annualization**

6 Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO THE ANNUALIZED
7 REVENUES.

8 A. To determine the annualized operating revenues, one of the components of the
9 calculation is the average customer usage. SUEZ has used a regression analysis to
10 determine the data points to use to derive the average usage for the FPFTY. The
11 regression analysis for the average usage produced a trendline based upon the
12 historical data that serve as the basis for projection. The data points along the
13 trendline are typically the points used to predict the movement of data when trying to
14 project future data. Rather than using the trendline to predict the average
15 consumption for the FTY and FPFTY, SUEZ has chosen to calculate what it calls
16 "Slope on Actual" and then used those data points to project the future usage per
17 customer.

18 I disagree with this approach because, in general, the purpose for performing
19 the regression analysis in ratemaking scenarios like this is to determine the trendline
20 for projecting revenues. Therefore, consistent with using a regression analysis, I have
21 recalculated the FPFTY revenues using the data point on the trendline. This
22 recalculation results in total service water service revenues at present rates of
23 \$47,367,835. This amount results in an adjustment of \$14,415 to operating revenues
24 as presented on Schedule LKM-11.

1 **Payroll Expenses**

2 Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO PAYROLL EXPENSE.

3 A. SUEZ has adjusted O&M expenses to include five new employees during the FPFTY.
4 Four of these employees will be assigned to the existing system and one is slated to
5 work on the Mahoning Township system. The Company has included these costs as if
6 the employees will all be hired and on payroll for the entire year, when that is not
7 likely to be the case. Given that the costs included in the FPFTY should reflect the
8 costs to be incurred during the FPFTY rather than the annualized amount, I have
9 adjusted payroll to reflect six months of cost for four of these employees. I have
10 removed all of the cost of the fifth employee consistent with my position that all of
11 the costs related to the Mahoning Township acquisition should be removed from the
12 cost of service. On Schedule LKM-12, I present this adjustment to reduce payroll by
13 \$133,459.

14
15 **Employee Benefits Expenses**

16 Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO EMPLOYEE BENEFITS
17 EXPENSE.

18 A. Consistent with my adjustment to reflect six months of payroll for the new employees
19 discussed above, I have made an adjustment on Schedule LKM-13 to remove six
20 months of employee benefits related to the new employees. This adjustment decreases
21 O&M expenses by \$50,133.

22
23 **Pension Expense**

24 Q. WHY HAVE YOU ADJUSTED PENSION EXPENSE?

1 A. The pension expense included in the cost of service is based upon an estimated
 2 amount rather than actuarial principles. Pension costs are based on complex
 3 assumptions rather than simple projections. Therefore, I have removed the FPFTY
 4 increase to reflect the most recent actuarial costs for pension expense as provided by
 5 the Company for the FTY on Exhibit No. CEH-2, Schedule-4, Adjustment No. 3.
 6 This adjustment is presented on Schedule LKM-14 and results in a decrease of
 7 \$32,421.

8
 9 **Purchased Water Expenses**

10 Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO PURCHASED WATER
 11 EXPENSE.

12 A. In the cost of service, SUEZ has adjusted purchased water expense by escalating the
 13 3-year average purchased water expense by inflation factors for 2018 and 2019 to
 14 derive the FPFTY expense. The Company then increased the purchased water
 15 expense to reflect an increase of \$105,000 for additional purchased water from
 16 Susquehanna Area Regional Airport Authority (SARAA).

17 I am recommending an adjustment that removes the projected increase in
 18 purchased water expense. First, with regard to the projected inflationary increase,
 19 there is not sufficient evidence to support the impact of inflation on these costs. The
 20 chart below presents a summary of the cost of water.

<u>Year</u>	<u>Cost of Water</u>	<u>Standby Fee</u>	<u>Cost of Water Less Stand by Fee</u>	<u>Purchased Volumes</u>	<u>Cost per 1000 Gallons</u>
2015	\$ 84,246	\$ 20,100	\$ 64,146	16,208,000	\$ 3.958
2016	\$ 70,706	\$ 20,100	\$ 50,606	12,811,000	\$ 3.950
2017	\$ 68,621	\$ 20,100	\$ 48,521	13,612,000	\$ 3.565

Source: Company Response to OCA-IV-37.

21

1 As can be seen in the table above, the average cost of water has decreased over the
2 historic three-year period. It is important to note that the water suppliers have not
3 changed, so the decrease in costs is not the result of changing suppliers.

4 With regard to the inclusion of \$105,000 related to water purchased from
5 SARAA, I have removed these costs because the Company has not demonstrated the
6 need for the additional volumes. The Company's reason for including these costs
7 seems to be based upon the fact that several years ago it purchased water from
8 SARAA and it anticipates resuming water purchases in the near future.⁷ The
9 Company stopped purchasing water from SARAA because of a contamination issue,
10 which SARAA is currently addressing but remains unresolved. The inclusion of these
11 costs is uncertain at this time and should not be included in the cost of service.
12 Moreover, the Company's revenue projections indicate that there is declining
13 customer usage. Therefore, inclusion of the additional source of water means that the
14 current sources of water would be reduced by the additional quantity of additional
15 purchased water. The Company has not made an adjustment to reduce the cost of
16 current water supply, whether purchased or produced by SUEZ, to reflect an offset
17 brought about by the projected SARAA increase. In the response to I&E-RE-27, the
18 Company indicated that water purchased from SARAA is "only used in conjunction
19 with the Company's Harrisburg system". Clearly, that means that current source of
20 supply for the Harrisburg will decrease if the water purchased from SARAA is
21 included.

22 On Schedule LKM-15, I present my adjustment which reduces O&M expense
23 by \$114,307. This reflects an adjustment of \$9,307 to remove the projected
24 inflationary increase and \$105,000 to remove the projected SARAA increase.

⁷ Response to OCA-IV-37(e) and I&E-RE-27.

1 **Purchased Power Expenses**

2 Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO PURCHASED POWER
3 EXPENSE.

4 A. SUEZ has adjusted purchased power expense by escalating the 3-year average
5 purchased power expense by inflation factors for 2018 and 2019 to derive the FPFTY
6 expense. Purchased power is not the type of expense that fluctuates based upon
7 inflation. Typically purchased power is acquired through rates that are fixed by the
8 Commission or subject to a contractual arrangement. Therefore, the approach of
9 escalating the average expense is not an appropriate way to project the FPFTY
10 purchased power expense. Instead, such a projected increase should be supported by
11 evidence such as revised Commission-approved tariffs or citation of a contract
12 provision. Neither of those were provided by the Company. Therefore, on Schedule
13 LKM-16, I present my adjustment which reduces purchased power expense by
14 \$327,852.

15
16 **Materials & Supplies Expense**

17 Q. PLEASE EXPLAIN YOUR MATERIALS & SUPPLIES EXPENSE
18 ADJUSTMENT.

19 A. SUEZ has adjusted materials and supplies expense by escalating the 3-year average of
20 materials and supplies expense by inflation factors for 2018 and 2019 to derive the
21 FPFTY expense. The 3-year average contained the level of expense reported for
22 2015. The 2015 amount is much higher than the amounts reported for 2016 and 2017.
23 According to the Company, after 2015, there was a change in the Company Fixed
24 Assets Capitalization policy which broaden the definition of the items that should be
25 capitalized rather than expense. Therefore, it is inappropriate to use the 2015 amount

1 in the average used to project the FPFTY materials and supplies expense because the
2 change in capitalization policy is a permanent change. The permanent change means
3 the 2015 expense is higher than the ongoing level of expense because it encompasses
4 costs that are no longer charged to expenses, and no longer representative of
5 operating expenses. Consequently, I believe it should be excluded from the
6 calculation of the materials and supplies expense. This is consistent with the approach
7 taken by the Company in its adjustment to Outside Contractors Expense.⁸

8 On Schedule LKM-17, I calculate my adjustment to Materials & Supplies
9 expense by using the average expense based upon 2017 and 2016. This results in a
10 decrease of \$27,623 to O&M expenses.

11
12 **Management and Service Fee**

13 Q. PLEASE EXPLAIN THE MANAGEMENT AND SERVICE FEE
14 INCLUDED IN THE COST OF SERVICE.

15 A. According to the Company, SUEZ Water Management and Services, Inc. (M&S), a
16 wholly owned subsidiary of SUEZ Water, Inc., provides administrative, engineering,
17 legal, operations, accounting, finance, human resources, purchasing, insurance, data
18 processing, customer service, billing, public relations, planning and ratemaking
19 services, collectively known as “Shared Services” to the operating subsidiaries of
20 SUEZ Water, Inc. SUEZ Water Pennsylvania, Inc. is one of the subsidiaries that
21 receives services from M&S. The Management and Service fee in the Company’s
22 cost of service for the FPFTY is based upon a 3 percent escalation for the FTY and
23 the FPFTY and the inclusion of a common asset allocation.

⁸ See Response to OCA-IV-47(a).

1 The FPFTY M&S fee that was included in the cost of service was \$5,359,497.
2 This amount is made up of \$4,492,483, which was the FTY amount for the various
3 services highlighted above, escalated at 3 percent and \$867,014 for Common Asset
4 Allocation.

5 According to the Company, the 3 percent escalation is justified based upon the
6 fact that most of the M&S services are labor-related costs. Regarding the inclusion of
7 the Common Asset Allocation, the Company states that the Common Asset
8 Allocation is in accordance with its cost allocation manual. In the response to I&E-
9 RE-1 Attachment D-III-6, the calculation shows that the Common Asset Allocation is
10 composed of the both the return component and the depreciation component.
11 Regarding the return component, SUEZ calculated the return based upon its requested
12 return and capital structure. Ultimately, whatever return and capital structure the
13 Commission determines in this proceeding will have to be used in the calculation of
14 the M&S fees.

15 Q. WHAT ADJUSTMENT HAVE YOU MADE TO THE M&S FEES?

16 A. I have adjusted M&S fees to revise the return component of the Common Asset
17 Allocation to reflect the OCA recommended return on equity.

18 In addition to revising the return on equity in the Common Asset Allocation, I
19 have reduced the inflation escalation that is applied to the other shared service
20 expenses from 3 percent to 2 percent. The Company claims that the M&S fees are,
21 for the most part, labor-related costs and that the escalation rate is in line with the
22 non-bargaining employees merit increases. However, not all labor-related costs are
23 payroll-related costs. For costs that are not related to payroll, the Company uses an
24 inflation factor as the escalation rate. Therefore, I have applied the Company's
25 general inflation factor for the FTY and FPFTY as a reasonable escalation of cost

1 increases. On Schedule LKM-18, I present this adjustment that reduces O&M
2 expenses by \$244,863.

3
4 **Outside Contractors Expense**

5 Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO OUTSIDE
6 CONTRACTORS EXPENSE.

7 A. SUEZ has adjusted outside contractors' expense by escalating the 2-year average of
8 the expense by inflation factors for 2018 and 2019 to derive the FPPTY expense. The
9 Company then adjusted the expense to include \$150,000 for additional convenience
10 fees for Western Union payments, \$150,000 for a non-revenue water study "NRW
11 study" and \$75,000 for an inventory study.

12 I have made several adjustments to revise the components of the Company's
13 adjustments because they overstate the Company's claim. First, I have revised the
14 amount included for the Western Union convenience fee from \$150,000 to
15 \$11,764. The Company claims that it expects to incur an 8.5 percent increase in these
16 fees. However, the HTY amount on which the Company applies the inflation factor
17 already includes convenience fees of \$138,236. Therefore, only the incremental
18 amount (representing the 8.5 percent increase) should be included in the adjustment.
19 Therefore, it is necessary to revise the Company's claim.

20 The second revision I have made to the Company's adjustment relates to the
21 NRW study. The Company included \$150,000 in its adjustment for the NRW study in
22 both the FTY and the FPPTY. However, there are uncertainties relating to the
23 frequency of the study and the cost. The Company has stated that the study (also
24 described as a survey) is not a requirement of any governmental agency. Therefore, it
25 appears that the frequency of the study is at the Company's discretion. SUEZ states

1 the last time an NRW study was performed was 10 years ago. Regarding the costs,
2 the most recent information I am aware of is from a data request response wherein the
3 Company indicated that it had not received the bids for the work. Therefore, I have
4 revised the Company adjustment to reflect a 4-year normalization of the cost. The 4-
5 year normalization was chosen to moderate the impact of the projected costs on
6 ratepayers. Given that the bids for the project was to be received on June 15, 2018, if
7 SUEZ provides the OCA with the winning bid amount, I will revise my normalization
8 adjustment if necessary.

9 The final revision I have made to the Company's adjustment is to reflect a 4-
10 year normalization of the cost of the inventory study. According to the Company, it
11 has not conducted an inventory study in the past using an outside consultant. The
12 Company also indicated the project has not gone out for bids and that it would be
13 meeting in July to define what the project will entail. Given these uncertainties, I
14 have normalized the amount to moderate the impact on ratepayers. The reason I have
15 chosen to moderate the impact is because it is possible that these costs could be
16 infrequent and not annually recurring. In addition, these costs are not yet known and
17 certain, but I recognize that the need for the study stems from the Focused
18 Management and Operations Audit. Therefore, I believe the 4-normalization is a
19 reasonable approach to recovering the inventory study costs.

20 On Schedule LKM-19, I present these three adjustments, which reduce O&M
21 expenses by \$250,736.

22
23 **Transportation Expense**

24 Q. PLEASE EXPLAIN YOUR TRANSPORTATION EXPENSE
25 ADJUSTMENT.

1 A. SUEZ has adjusted transportation expense by escalating the 3-year average of
2 transportation expense by inflation factors for 2018 and 2019 to derive the FPFTY
3 expense. The 3-year average included the expense reported for 2015. The 2015
4 expense amount is much higher than the amounts reported for 2016 and 2017 and the
5 capitalized amounts are much higher in 2016 and 2017. Transportation costs are
6 usually allocated on a pro rata basis to expense and capital accounts. As I have noted
7 in this testimony, there are several instances where expenses in 2015 were not
8 representative of the ongoing level of expenses because of the Company's change in
9 its capitalization policy. It appears that transportation expense is another instance
10 where the expense for 2015 is affected. Therefore, it is not appropriate to include the
11 2015 amount in the derivation of the FPFTY transportation expense because the
12 change in capitalization policy is a permanent change. Consequently, I believe it
13 should be excluded from the calculation of the transportation expense.

14 On Schedule LKM-20, I calculate my adjustment to Transportation expense
15 by using the average expense based upon 2017 and 2016. This results in a decrease of
16 \$73,983 to O&M expenses.

17

18

Depreciation Expense

19 Q. WHY HAVE YOU ADJUSTED DEPRECIATION EXPENSE?

20 A. Earlier I explained why it is necessary to use the average plant in service balances in
21 rate base when using the FPFTY. The adjustment I have presented on Schedule
22 LKM-21 reduces depreciation expense by \$252,063. This adjustment is necessary
23 because of the use of the average plant in service.

24

1 Payroll Taxes

2 Q. WHY HAVE YOU ADJUSTED PAYROLL TAXES?

3 A. Earlier I explained that I am recommending an adjustment to payroll expense. Since
4 there is a change in payroll expense, there is a corollary effect on payroll taxes.
5 Therefore on Schedule LKM-22, I am recommending an adjustment to payroll taxes
6 to reflect a reduction of \$14,201.

7
8 Act 40

9 Q. WHAT DOES ACT 40 REQUIRE?

10 A. Act 40 changes the way federal income tax expense is computed for ratemaking
11 purposes for many Pennsylvania utilities that participate in a consolidated federal
12 income tax return. In part, Act 40 states:

13 If an expense or investment is allowed to be included in a public
14 utility's rates for ratemaking purposes, the related income tax
15 deductions and credits shall also be included in the computation of
16 current or deferred income tax expense to reduce rates. If an expense
17 or investment is not allowed to be included in a public utility's rates,
18 the related income tax deductions and credits, including tax losses of
19 the public utility's parent or affiliated companies, shall not be
20 included in the computation of income tax expense to reduce rates.
21 The deferred income taxes used to determine the rate base of a public
22 utility for ratemaking purposes shall be based solely on the tax
23 deductions and credits received by the public utility and shall not
24 include any deductions or credits generated by the expenses or
25 investments of a public utility's parent or any affiliated entity. The
26 income tax expense shall be computed using the statutory income tax
27 rates.

28 Act 40 also states:

29 REVENUE USE – If a differential accrues to a public utility resulting
30 from applying the ratemaking methods employed by the commission
31 prior to the effective date of subsection (a) for ratemaking purposes,
32 the differential shall be used as follows:

1 (1) Fifty percent to support reliability or infrastructure related to the
2 rate-base eligible capital investment as determined by the
3 commission; and
4 (2) Fifty percent for general corporate purposes.

5 Q. HAS THE COMPANY CALCULATED A CONSOLIDATED TAX
6 EXPENSE ADJUSTMENT?

7 A. Yes. In its response to I&E-RE-63, the Company calculated a consolidated tax
8 expense adjustment of \$1,543,234. The calculation of the consolidated tax adjustment
9 reflects the use of the modified effective tax rate methodology traditionally used by
10 the Commission prior to the enactment of Act 40. However, in the filing the
11 Company did not include a provision for the Act 40 requirements.

12 Q. DID THE COMPANY COMPLY WITH ACT 40 OF 2016?

13 A. No. As outlined above, Act 40 requires 50 percent of the consolidated tax savings be
14 earmarked to support reliability or infrastructure related to the rate-base eligible
15 capital investment. The Company made no adjustments to address this requirement.
16 In its response to I&E-RE-64, SUEZ states:

17 The Company has not applied the 50% differential in its filing and
18 would propose at this point that the amount be generally applied to
19 capital additions in this case and that the accounting for this
20 adjustment be applied over a 3 year period.

21 Q. HAS THE COMPANY ADDRESSED THE USE OF 50% FOR GENERAL
22 CORPORATE PURPOSES?

23 A. The Company also did not address the treatment for the 50 percent use of
24 consolidated tax savings for general corporate purposes.

25 Q. WHAT DO YOU CONCLUDE REGARDING THE 50% OF THE
26 DIFFERENTIAL THAT ACT 40 REQUIRES BE USED TO SUPPORT
27 RELIABILITY OF INFRASTRUCTURE RELATED TO RATE BASE
28 ELIGIBLE CAPITAL INVESTMENT?

1 A. The 50 percent of the differential should be used to offset rate base in this case. The
2 rate base reduction supports infrastructure and reliability investment and reduces the
3 burden of rate base-eligible capital investment on ratepayers.

4 Q. WHAT DO YOU CONCLUDE ABOUT THE 50 PERCENT OF THE
5 DIFFERENTIAL TO BE USED FOR GENERAL CORPORATE
6 PURPOSES?

7 A. I conclude that the Company has no specific plans for and did not address how the 50
8 percent differential will be spent with regard to general corporate purposes. Typical
9 examples of general corporate spending needs include capital expenditures to execute
10 utility business plans, paying off debt, funding construction projects, paying
11 dividends, paying for maintenance and operating expenses, investment in utility plant
12 in Pennsylvania and to provide a source of working capital. As this 50 percent
13 revenue differential represents ratepayer-supplied capital, it should not result in a
14 windfall to the Company, but rather should benefit the Company's ratepayers. I
15 recommend that the 50 percent differential for general corporate purposes be reflected
16 as a source of non-investor-supplied funding for utility working capital.

17 Q. HAVE YOU CALCULATED AN ADJUSTMENT RELATED TO THE TAX
18 SAVINGS DIFFERENTIAL PROVISIONS OF ACT 40?

19 A. Yes, On Schedule LKM-10, I present my adjustment which reduces rate base by
20 \$1,543,234.

21 Q. DOES ACT 40 IMPACT THE DISTRIBUTION SYSTEM IMPROVEMENT
22 CHARGE ("DSIC")?

1 A. The impact of Act 40 on the treatment of income tax deductions and credits in the
2 DSIC calculation was raised in the FirstEnergy DSIC case.⁹ That case is currently on
3 appeal.¹⁰ Pending the outcome of that proceeding, any necessary changes to SUEZ's
4 DSIC calculation and tariff will need to be addressed in a future filing.

5
6 **Tax Cuts and Jobs Act**

7 Q. PLEASE EXPLAIN THE COMPANY'S POSITION ON THE EFFECTS OF
8 THE TAX CUTS AND JOBS ACT?

9 A. On December 22, 2017, the Tax Cuts and Jobs Act (TCJA) was signed into law. One
10 of the primary changes brought about by the TCJA is the reduction in the corporate
11 income tax rate from 35 percent to 21 percent. The TCJA became effective on
12 January 1, 2018. On that date, the income tax rate decreased from 35 percent to 21
13 percent for SUEZ. While the TCJA is complicated and there remain some issues to
14 resolve regarding the implementation of the law, the issues that we have to resolve in
15 this rate proceeding are (1) The flowback of the tax savings between January 2018
16 and the effective date of rates from this proceeding; (2) The flowback of excess
17 deferred taxes; and (3) The tax effects on Contributions in Aid of Construction
18 (CIAC).

19 In accordance with Generally Accepted Accounting Principles (GAAP), the
20 Company was required to reflect the effects of the tax rate change on its financial
21 statements. One area of change is the accumulated deferred income taxes. Over the
22 past years, deferred income taxes were accrued at the 35 percent income tax rate,
23 those taxes will now be paid at the new 21 percent rate when they become due. In its

⁹ Petitions of Metropolitan Edison Co., Pennsylvania Electric Co., Pennsylvania Power Co., and West Penn Power Co. for Approval of a DSIC, Office of Consumer Advocate v. Metropolitan Edison Co., P-2015-2508942, C-2016-2531040, et al.

¹⁰ McCloskey v. Pa. PUC, 697 C.D. 2018.

1 2017 financial statements, the Company restated the ADIT balance resulting from the
2 change in the federal income tax rate from 35% to 21%. The Company indicated that
3 the difference between the ADIT at the 35 percent rate and the 21 percent rate has
4 been reflected as a regulatory liability on the Company's balance sheets as of
5 December 31, 2017. SUEZ states that:

6 The net change, or excess ADIT, resulting from the calculation was
7 recorded as a regulatory liability. This regulatory liability was then
8 "grossed-up" to reflect the tax effect at 21% of the regulatory liability
9 including state income tax. The "gross-up" creates an equal and
10 offsetting deferred tax asset which is included in the overall ADIT of
11 the Company. As a result, the amount of ADIT plus the amount of
12 the grossed-up regulatory liability is equivalent to the ADIT before
13 reflection of the effects of the TCJA.

14 SUEZ believes that the regulatory liability established, which was contributed by
15 customers, should be returned to customers over time.

16 Q. HAS THE COMPANY CALCULATED THE FLOWBACK OF THE
17 REGULATORY LIABILITY?

18 A. Yes. On Exhibit JCC-1, the Company calculated an annual amortization of the
19 regulatory liability of \$265,189. This amount was calculated using the Reverse South
20 Georgia Method.

21 Q. DID THE COMPANY REFLECT THE \$265,189 AMORTIZATION IN ITS
22 REVENUE REQUIREMENT?

23 A. No. The Company states that it is currently reviewing, in detail, its income tax
24 records in order to verify the balance of the regulatory liability subject to continued
25 normalization (protected) as well as those that are not (unprotected), and that the
26 review is also determining the amounts subject to the Average Rate Assumption
27 Method (ARAM) amortization or the Reverse South Georgia Method amortization.

1 The regulatory liability (or excess ADIT) stems from ADIT which arose from
2 temporary tax differences which were required by IRS regulations to be normalized
3 or tax differences that were not required to be normalized. Those tax differences that
4 were required to be normalized are considered “protected” and, even as a regulatory
5 liability, cannot be amortized faster than the period over which the related ADIT
6 would have otherwise reversed. The IRS regulations also indicate that if the
7 accounting records exists, ARAM must be utilized to amortize or flowback the
8 regulatory liability. If the records do not exist, then the Reverse South Georgia
9 Method can be used. The tax differences that were not required to be normalized are
10 considered to be “unprotected”. The regulatory liability related to those items can be
11 amortized over a period determined at the Commission’s discretion.

12 Q. WHAT IS YOUR RECOMMENDATION REGARDING THE EXCESS
13 DEFERRED INCOME TAXES?

14 A. I recommend that the Company begins the \$265,189 amortization of the Excess
15 Deferred Income Taxes regulatory liability now. I also recommend that the
16 Commission require SUEZ, within six months, to make a filing that identifies the
17 protected and unprotected components of the Excess Deferred Income Taxes, its
18 proposal to flow back the Excess Deferred Income Taxes to customers, and whether
19 the ARAM or Reverse South Georgia Method can be used. Any differences in the
20 amortization amount between what is allowed in this proceeding and the amount
21 determined from that filing should be recorded in a regulatory liability or asset
22 account and flowed back in the Company’s next rate case.

23 On Schedule LKM-23, I present this adjustment which reduces current
24 Federal Income Tax by \$265,189.

1 Q. DID THE COMPANY REFLECT THE IMPACT OF THE TCJA IN THE
2 DETERMINATION OF THE 2019 FPFTY REVENUE REQUIREMENT?

3 A. Yes. As can be seen on SUEZ's Exhibit No. CEH-2, Schedule-34, Adjustment No.
4 33, the Company used the new federal income tax rate of 21% in the calculation of
5 pro forma income tax expense.

6 Q. DID THE COMPANY INCLUDE THE 2018 TAX SAVINGS IN THE
7 REVENUE REQUIREMENT AS FILED?

8 A. No. The 2018 tax savings represent the tax savings, as a result of the decrease in the
9 tax rate, from January 1, 2018 to the date that rates from this proceeding go into
10 effect. The Company did not include those savings in the revenue requirement in this
11 proceeding. However, it indicated that, in anticipation of this amount being returned
12 to ratepayers, it has and will continue to record as a regulatory liability the effect of
13 the change in federal income tax rate from 35% to 21% until the change in rate is
14 reflected in the Company's base rates. In its response to I&E-RE-58, the Company
15 estimated the amount of the regulatory liability to be \$1,700,000 and proposed to
16 amortize that amount over a 36-month period. According to the Company, the 36-
17 month period was chosen to approximate the historical time period between rate
18 cases. I recommend that the 2018 tax savings be flowed back to customers through a
19 surcharge mechanism over a period no longer than the period over which the savings
20 accrued.¹¹ In the alternative, the savings can be flowed back to customers through a
21 one-time credit in the first quarter after new rates take effect.

22

¹¹Based upon the date the rates from this case are expected to go into effect, January 2019 and the effective date of the TCJA, January 2018, that period would be 13 months.

1 **Contributions in Aid of Construction Gross-up**

2 Q. PLEASE SUMMARIZE THE COMPANY'S POSITION ON THE GROSS-
3 UP OF CONTRIBUTIONS IN AID OF CONSTRUCTION.

4 A. Under the TCJA, water utilities and sewer utilities are no longer exempt from
5 recognizing Contributions in Aid of Construction ("CIAC") as taxable income. Based
6 upon how taxable CIAC has been addressed in other jurisdictions for other SUEZ
7 operating affiliates, the Company has proposed the following:

- 8 • SUEZ would be authorized to gross-up the CIAC charged to developers at
9 the net present value of cash flows resulting from the taxability of the
10 CIAC and the future deductibility for income tax purposes of the resulting
11 asset.
- 12 • The deferred income tax impact of such a transaction would be held
13 outside of the ratemaking process such that water service customers are
14 not impacted.
- 15 • The Company would utilize the actual capital structure and debt cost rate
16 of SUEZ Water Resources (SWPA's immediate parent) and the water
17 proxy group return on equity amount in effect as of December 31 of each
18 year. The Company proposes to update this calculation once per year.

19 Q. DO YOU DISAGREE WITH ANY OF THE CIAC PROPOSALS PUT
20 FORTH BY THE COMPANY?

21 A. I do not object to the gross up of the CIAC for taxes or the exclusion of the deferred
22 income taxes from the ratemaking process. However, I believe the proposal regarding
23 capital structure, debt costs and return on equity should be modified.

24 I recommend that the Company follow the approach used to calculate
25 quarterly DSIC rates, but make the gross-up calculation annually. SUEZ calculates its

1 DSIC rate using the capital structure and debt cost of its parent, which is the same as
2 its proposal for the gross-up. However, for equity cost, SUEZ calculates its DSIC
3 rate using the equity return rate approved in its most recent fully litigated base rate
4 proceeding, consistent with the Section 1357 of the Public Utility Code which states:

5 (2) The cost of equity shall be the equity return rate approved in the
6 utility's most recent fully litigated base rate proceeding for which a
7 final order was entered not more than two years prior to the
8 effective date of the distribution system improvement charge.
9

10 (3) If more than two years have elapsed between the entry of a final
11 order and the effective date of the distribution system improvement
12 charge, the equity return rate used in the calculation shall be the
13 equity return rate calculated by the commission in the most recent
14 Quarterly Report on the Earnings of Jurisdictional Utilities released
15 by the commission.

16 Using the DSIC method would mean the Company would use the equity cost rate
17 approved in its own base rate proceeding for 2 years, or 1 year longer than the
18 Company's proposed method. After 2 years, it would mean the Commission, rather
19 than the Company, would be calculating the equity cost rate. Thus, using an approach
20 consistent with the DSIC method would simplify the gross-up calculation and
21 streamline review.
22

23 Interest Synchronization

24 Q. PLEASE EXPLAIN YOUR INTEREST SYNCHRONIZATION
25 ADJUSTMENT.

26 A. To determine the tax-deductible interest for ratemaking, I have multiplied the OCA's
27 recommended rate base by the weighted cost of debt included in the capital structure
28 recommended by OCA witness Rothschild. This procedure synchronizes the interest
29 deduction for tax purposes with the interest component of the return on rate base to be

1 recovered from ratepayers. As shown on Schedule LKM-24, this adjustment reduces
2 the interest deduction by \$757,666 compared to the interest deduction recognized by
3 SUEZ. This increases state and federal income taxes by \$75,691 and \$143,215,
4 respectively.

5 Q. DOES THIS END YOUR DIRECT TESTIMONY?

6 A. Yes, it does. However, I reserved the right to update this testimony as may be
7 necessary.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission)
v.) **Docket No. 2018-3000834**
SUEZ Water Pennsylvania, Inc.)

**APPENDIX ACCOMPANYING THE
DIRECT TESTIMONY
OF
LAFAYETTE K. MORGAN, JR.**

**ON BEHALF OF THE
OFFICE OF CONSUMER ADVOCATE**

July 20, 2018

EXETER

ASSOCIATES, INC.
10480 Little Patuxent Parkway, Suite 300
Columbia, Maryland 21044

LAFAYETTE K. MORGAN, JR.

Mr. Morgan is an independent regulatory consultant focusing in the area of the analysis of the operations of public utilities with particular emphasis on rate regulation. He has reviewed and analyzed utility rate filings, focusing primarily on revenue requirements determination, accounting and regulatory policy and cost recovery mechanisms. This work has included natural gas, water, electric, and telephone utilities.

Education and Qualifications

B.B.A. (Accounting) – North Carolina Central University, 1983

M.B.A. (Finance) – The George Washington University, 1993

C.P.A. – Licensed in the State of North Carolina (Inactive status)

Previous Employment

1993-2010 Senior Regulatory Analyst
Exeter Associates, Inc.
Columbia, MD

1990-1993 Senior Financial Analyst
Potomac Electric Power Company
Washington, D.C.

1984-1990 Staff Accountant
North Carolina Utilities Commission – Public Staff
Raleigh, NC

Professional Experience

As a Staff Accountant with the North Carolina Utilities Commission – Public Staff, Mr. Morgan was responsible for analyzing testimony, exhibits, and other data presented by parties before the Commission. In addition, he performed examinations of the books and records of utilities involved in rate proceedings and summarized the results into testimony and exhibits for presentation before the Commission. Mr. Morgan also participated in several policy proceedings and audits involving regulated utilities.

As a Senior Financial Analyst with Potomac Electric Power Company, Mr. Morgan was a lead analyst and was involved in the preparation of the cost of service, rate base, and ratemaking adjustments supporting the Company's request for revenue increases in its retail jurisdictions.

As a Senior Regulatory Analyst with Exeter Associates, Inc., Mr. Morgan has been involved in the analysis of the operations of public utilities with particular emphasis on rate regulation. He has reviewed and analyzed utility rate filings, focusing primarily on revenue requirements determination, accounting and regulatory policy and cost recovery mechanisms. This work included natural gas, water, electric, and telephone utilities.

Expert Testimony
of Lafayette K. Morgan, Jr.

Kings Grant Water Company (North Carolina Utilities Commission, Docket No. W-250, Sub 5), 1984. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Northwood Water Company (North Carolina Utilities Commission, Docket No. W-690, Sub 1), 1985. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Emerald Village Water System (North Carolina Utilities Commission, Docket No. W-184, Sub 3), 1985. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

General Telephone Company of the South (North Carolina Utilities Commission, Docket No. P-19, Sub 207), July 1986. Presented testimony on the level of cash working capital allowance on behalf of the North Carolina Utilities Commission – Public Staff.

Heins Telephone Company (North Carolina Utilities Commission, Docket No. P-26, Sub 93), November 1986. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Carolina Power and Light Company (North Carolina Utilities Commission, Docket No. E-2, Sub 537), March 1988. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Public Service Company of North Carolina, Inc. (North Carolina Utilities Commission, Docket No. G-5, Sub 246), August 1989. Presented testimony on rate base, cash working capital allowance, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Conestoga Telephone and Telegraph Company (Pennsylvania Public Utility Commission, Docket No. I-00920015), September 1993. Presented testimony on cost of service on behalf of the Pennsylvania Office of Consumer Advocate.

Louisiana Power and Light Company (Louisiana Public Service Commission, Docket No. U-20925), February 1995. Presented testimony on rate base and working capital issues on behalf of the Louisiana Public Service Commission Staff.

South Central Bell Telephone Company – Louisiana (Louisiana Public Service Commission, Docket No. U-17949, Subdocket E), June 1995. Presented testimony on rate base and working capital issues on behalf of the Louisiana Public Service Commission Staff.

Expert Testimony
of Lafayette K. Morgan, Jr.

Apollo Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00953378), August 1995. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Carnegie Natural Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00953379), August 1995. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Tennessee Gas Pipeline Company (Federal Energy Regulatory Commission, Docket No. RP95-112), September 1995. Presented testimony rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Virginia-American Water Company (Virginia State Corporation Commission, Case No. PUE-950003), March 1996. Presented testimony on rate base and cost of service issues on behalf of the City of Alexandria.

GTE North, Inc. Interconnection Arbitration (Pennsylvania Public Utility Commission, Docket No. A-310125F0002), September 1996. Presented testimony on the determination of the appropriate resale discount on behalf of the Pennsylvania Office of Consumer Advocate.

United Cities Gas Company (Georgia Public Service Commission, Docket No. 6691-U), October 1996. Presented testimony on rate base and cost of service issues on behalf of the Office of Governor, Consumer Utility Counsel Division.

GTE North, Inc. (Pennsylvania Public Utility Commission, Docket Nos. R-00963666 and R-00963666C001), February 1997. Presented testimony on the determination of the appropriate resale discount on behalf of the Pennsylvania Office of Consumer Advocate.

Consumers Maine Water Company (Maine Public Utilities Commission, Docket No. 96-739), May 1997. Presented testimony on rate base, cost of service, and rate of return issues on behalf of the Maine Office of the Public Advocate.

Pennsylvania-American Water Company (Pennsylvania Public Utility Commission, Docket No. R-00973944), July 1997. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Pennsylvania-American Water Company – Wastewater Operations (Pennsylvania Public Utility Commission, Docket No. R-00973973), July 1997. Presented testimony on rate base, cost of service, depreciation, and rate design issues on behalf of the Pennsylvania Office of Consumer Advocate.

Expert Testimony
of Lafayette K. Morgan, Jr.

Jackson Purchase Electric Cooperative Corporation (Kentucky Public Service Commission, Case No. 97-224), December 1997. Presented testimony on rate base and cost of service issues on behalf of the Kentucky Office of the Attorney General.

Henderson Union Electric Cooperative Corporation (Kentucky Public Service Commission, Case No. 97-220), January 1998. Presented testimony on the return of patronage capital on behalf of the Kentucky Office of the Attorney General.

Green River Electric Corporation (Kentucky Public Service Commission, Case No. 97-219), January 1998. Presented testimony on the return of patronage capital on behalf of the Kentucky Office of the Attorney General.

Western Kentucky Gas Company (Kentucky Public Service Commission, Case No. 99-070), November 1999. Presented testimony on rate base and cost of service issues on behalf of the Kentucky Office of the Attorney General.

American Broadband, Inc. (Rhode Island Public Utilities Commission, Docket No. 2000-C-3), June 2000. Presented report and testimony on the Company's financing plan on behalf of the Rhode Island Division of Public Utilities and Carriers.

PPL Utilities (Pennsylvania Public Utility Commission, Docket No. R-00005277), October 2000. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

T.W. Phillips Oil and Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00005459), October 2000. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Pike County Light & Power Company (Pennsylvania Public Utility Commission, Docket No. P-00011872), May 2001. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Vermont Gas Systems, Inc. (Vermont Public Service Board, Docket No. 6495), June 2001. Presented testimony on rate base and cost of service issues on behalf of the Vermont Public Service Department.

Community Service Telephone Company (Maine Public Utilities Commission, Docket No. 2001-249), July 2001. Presented joint testimony on rate base and cost of service issues on behalf of the Maine Office of the Public Advocate.

Expert Testimony
of Lafayette K. Morgan, Jr.

West Virginia-American Water Company (Public Service Commission of West Virginia, Docket No. 01-0326-W-42-T), August 2001. Presented testimony on rate base and cost of service issues on behalf of the Consumer Advocate Division.

Philadelphia Suburban Water Company (Pennsylvania Public Utility Commission, Docket No. R-00016750) February 2002. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Illinois-American Water Company (Illinois Commerce Commission, Docket No. 02-0690) January 2003. Presented testimony on cost of service issues on behalf of Citizens Utility Board.

Pennsylvania-American Water Company (Pennsylvania Public Utility Commission, Docket No. R-00027983), February 2003. Presented testimony addressing surcharge mechanism to recover security costs on behalf of the Pennsylvania Office of Consumer Advocate.

FairPoint New England Telephone Companies (Maine Public Utilities Commission, Docket Nos. 2002-747, 2003-34, 2003-35, 2003-36, and 2003-37), June 2003. Presented testimony on rate base and cost of service issues on behalf of the Maine Office of the Consumer Advocate.

Pennsylvania-American Water Company (Pennsylvania Public Utility Commission, Docket No. R-00038304), August 2003. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

PPL Electric Utilities Corporation (Pennsylvania Public Utility Commission, Docket No. R-00049255), June 2004. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Entergy Louisiana, Inc. (Louisiana Public Service Commission, Docket No. U-20925 RRF 2004), August 2004. Presented testimony on rate base and cost of service issues on behalf of the Louisiana Public Service Commission Staff.

Vectren Energy Delivery of Indiana (Indiana Utility Regulatory Commission, Cause No. 42598), September 2004. Presented testimony on O&M expense issues on behalf of the Indiana Office of Utility Consumer Counselor.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission, Docket No. R-00049656), December 2004. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Expert Testimony
of Lafayette K. Morgan, Jr.

Block Island Power Company (Rhode Island Public Utilities Commission, Docket No. 3655), April 2005. Presented testimony on cash working capital on behalf of the Rhode Island Division of Public Utilities & Carriers.

Verizon New England, Inc. (Maine Public Utilities Commission, Docket No. 2005-155), September 2005. Presented joint testimony with Thomas S. Catlin on rate base and cost of service issues on behalf of the Maine Office of the Public Advocate.

T.W. Phillips Oil and Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00051178), May 2006. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Duquesne Light Company (Pennsylvania Public Utility Commission, Docket No. R-00061346), July 2006. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Company (Pennsylvania Public Utility Commission, Docket No. R-00061493), September 2006. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Southern Indiana Gas & Electric Co. (Indiana Utility Regulatory Commission, Cause No. 43112), January 2007. Presented testimony on rate base and cost of service issues on behalf of the Indiana Office of Utility Consumer Counsel.

PPL Electric Utilities (Pennsylvania Public Utility Commission, Docket No. R-00072155), July 2007. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Aqua Pennsylvania, Inc. (Pennsylvania Public Utility Commission, Docket No. R-00072711), February 2008. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company (Pennsylvania Public Utility Commission, Docket No. R-2008-2029325), October 2008. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

The Narragansett Bay Commission (Rhode Island Public Utilities Commission, Docket No. 4026), April 2009. Presented testimony on rate base and cost of service issues on behalf of the Rhode Island Division of Public Utilities and Carriers.

Expert Testimony
of Lafayette K. Morgan, Jr.

Maryland-American Water Company (Maryland Public Service Commission, Case No. 9187), July 2009. Presented testimony on rate base and cost of service issues on behalf of the Maryland Office of People's Counsel.

Monongahela Power Company & The Potomac Edison Company, both d/b/a Allegheny Power Company (West Virginia Public Service Commission, Case No. 09-1352-E-42T), February 2010. Presented testimony on rate base and cost of service issues on behalf of the West Virginia Consumer Advocate Division.

PPL Electric Utilities (Pennsylvania Public Utility Commission, Docket No. R-2010-2161694), June 2010. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Pawtucket Water Supply Board (Rhode Island Public Utilities Commission, Docket No. 4550), June 2015. Presented testimony on revenue requirements issues on behalf of the Rhode Island Division of Public Utilities and Carriers.

Columbia Gas of Pennsylvania (Pennsylvania Public Utility Commission, Docket No. R-2015-2468056), June 2015. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Indianapolis Power and Light Company (Indiana Utility Regulatory Commission, Cause No. 44576/44602), July 2015. Presented testimony on revenue requirements issues on behalf of the Indiana Office of Utility Consumer Counselor.

Public Service Company of Oklahoma (Corporation Commission of Oklahoma, Cause No. PUD 201500208), October 2015. Presented testimony on revenue requirements and environmental compliance rider issues on behalf of the United States Department of Defense and the Federal Executive Agencies.

Northern Indiana Public Service Company (Indiana Utility Regulatory Commission, Cause No. 44688), January 2016. Presented testimony on the company's electric division operating revenues, operating expenses and income taxes issues on behalf of the Indiana Office of Utility Consumer Counselor.

Philadelphia Water Department (Philadelphia Water, Sewer And Storm Water Rate Board, FY2017-2018 Rate Proceeding), March 2016. Presented testimony on revenue requirements issues on behalf of the Public Advocate.

Columbia Gas of Maryland (Public Service Commission of Maryland, Case No. 9417), June 2016. Presented testimony on rate base and cost of service issues on behalf of the Office of People's Counsel.

Expert Testimony
of Lafayette K. Morgan, Jr.

Chesapeake Utilities Corporation (Delaware Public Service Commission, PSC Docket No. 15-1734), August 2016. Presented testimony on rate base and cost of service issues on behalf of the Staff of the Delaware Public Service Commission.

Kent County Water Authority (Public Service Commission of Rhode Island, Docket No. 4611), September 2016. Presented testimony on rate base and cost of service issues on behalf of the Division of Public Utilities and Carriers.

Northern Utilities, Inc. (Maine Public Utilities Commission, Docket No. 2017-00065), August 2017. Assisted the Maine Office of Public Advocate (OPA) with Northern Utilities application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements, the utility's request to renew and modify its alternative rate plan, and its Targeted Infrastructure Replacement Adjustment.

Indiana Michigan Power Company (Indiana Utility Regulatory Commission, Cause No. 44967), November 2017. Presented testimony on rate base, operating revenues and operating expenses issues on behalf of the Indiana Office of Utility Consumer Counselor.

Emera Maine (Maine Public Utilities Commission, Docket No. 2017-00198), December 2017. Assisted the Maine Office of Public Advocate (OPA) with Emera Maine's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements, the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

UGI-Electric (Pennsylvania Public Utility Commission, Docket No. R-2017-2640058), April 2018. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Electric's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OCA, on accounting issues including test year revenue requirements, the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

Philadelphia Water Department (Philadelphia Water, Sewer And Storm Water Rate Board, FY2019-2020 Rate Proceeding), April 2018. Presented testimony on revenue requirements and the Department's three-year rate plan issues on behalf of the Public Advocate.

Westar Energy, Inc. (Westar Energy) and Kansas Gas and Electric Company (KGE), (Kansas State Corporation Commission, Docket No. 18-WSEE-328-RTS), May 2018. Presented testimony on revenue requirements on behalf on behalf of the Federal Executive Agencies.

Expert Testimony
of Lafayette K. Morgan, Jr.

Duquesne Light Company (Pennsylvania Public Utility Commission, Docket No. R-2018-3000124), June 2018. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Electric's application for an increase in rates. Presented testimony, on behalf of the OCA, on accounting issues including test year revenue requirements, the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

Bangor Natural Gas Company (Maine Public Utilities Commission, Docket No. 2018-00007), June 2018. Assisted the Maine Office of Public Advocate (OPA) Presented testimony, on behalf of the OPA, on the changes brought about by the Tax Change and Jobs Act of 2017.

Special Projects

Developed a Uniform System of Accounts and Financial Data Collection Template for five countries participating in the National Association of Regulatory Utility Commissioners (NARUC)/East Africa Regional Energy Regulatory Partnership. Also conducted training seminars and participated as a panel member addressing issues in the utility industry from the perspective of the regulator. This work was conducted by NARUC) and the United States Agency for International Development (USAID).

Other Projects

Texas Gas Transmission Corporation (Federal Energy Regulatory Commission, Docket No. RP93-106). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Natural Gas Pipeline Company of America (Federal Energy Regulatory Commission, Docket No. RP93-36). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Texas Gas Transmission Company (Federal Energy Regulatory Commission, Docket No. RP94-423). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Lafourche Telephone Company (Louisiana Public Service Commission, Docket No. U-21181). Analysis and investigation of earnings and appropriate rate of return on behalf of the Louisiana Public Service Commission Staff.

Natural Gas Pipeline Company of America (Federal Energy Regulatory Commission, Docket No. RP95-326). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Pymatuning Independent Telephone Company (Pennsylvania Public Utility Commission, Docket No. R-00953502). Technical analysis and development of settlement position in the Company's rate case on behalf of the Pennsylvania Office of Consumer Advocate.

Illinois Bell Telephone Company (Illinois Commerce Commission, Docket No. 96-0172). Technical analysis of the Company's annual rate filing pursuant to its Price Cap Plan on behalf of Citizens Utility Board.

Illinois Bell Telephone Company (Illinois Commerce Commission, Docket No. 97-0157).
Technical analysis of the Company's annual rate filing pursuant to its Price Cap Plan on behalf of Citizens Utility Board.

TDS Telecom (Pennsylvania Public Utility Commission, Docket Nos. R-00973892 and R-00973893). Technical analysis regarding rate base, cost of service, rate design, and rate of return, and assistance in settlement negotiations in the Company's rate case and alternative regulatory filing on behalf of the Pennsylvania Office of Consumer Advocate.

Appalachian Power Company (Virginia State Corporation Commission, Case No. PUE 960301).
Technical analysis regarding rate base and cost of service and assistance in settlement negotiations in the Company's rate case and alternative regulatory filing on behalf of the Virginia Office of the Attorney General.

Central Maine Power Company (Maine Public Utilities Commission, Docket No. 97-580).
Technical analysis regarding attrition and accounting issues in the Company's Transmission and Distribution unbundling proceeding on behalf of the Maine Public Utilities Commission Staff.

Illinois Bell Telephone Company (Illinois Commerce Commission, Docket No. 98-0259).
Technical Analysis of the Company's annual rate filing pursuant to its Price Cap Plan on behalf of Citizens Utility Board.

Maine Public Service Company (Maine Public Utilities Commission, Docket No. 98-577).
Technical analysis regarding attrition and accounting issues in the Company's Transmission and Distribution unbundling proceeding on behalf of the Maine Public Utilities Commission Staff.

Bangor Hydro-Electric Company (Maine Public Utilities Commission, Docket No. 97-596).
Technical analysis regarding attrition and accounting issues in the Company's Transmission and Distribution unbundling proceeding on behalf of the Maine Public Utilities Commission Staff.

TDS Telecom (Maine Public Utilities Commission, Docket Nos. 98-894, 98-895, 98-904, 98-906, 98-911, and 98-912). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

Mid-Maine Telecom (Maine Public Utilities Commission, Docket No. 2000-810). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

Unitel, Inc. (Maine Public Utilities Commission, Docket No. 2000-813). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

Hydraulics International, Inc. (Armed Services Board of Contract Appeals, ASBCA No. 51285). Technical analysis and support relating to the Economic Adjustment Clause claim on behalf of the Air Force Materiel Command.

Tidewater Telecom and Lincolnville Telephone Company (Maine Public Utilities Commission, Docket Nos. 2002-100 and 2002-99). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

TDS Telecom (Vermont Public Service Board, Docket No. 6576). Technical analysis regarding rate base, cost of service, and depreciation expense on behalf of the Vermont Department of Public Service.

CenterPoint Energy-Entex (Louisiana Public Service Commission, Docket No. U-26720, Subdocket A). Technical analysis regarding rate base and cost of service on behalf of the Louisiana Public Service Commission Staff.

CenterPoint Energy-Arkla (Louisiana Public Service Commission, Docket No. U-27676). Technical analysis regarding rate base and cost of service on behalf of the Louisiana Public Service Commission Staff.

Provided technical analysis and support on behalf of the Louisiana Public Service Commission Staff relating to CLECO Power LLC Rate Stabilization Plan.

Provided technical analysis and support on behalf of the Louisiana Public Service Commission Staff relating to CLECO Power LLC post-Katrina power purchases.

Provided technical analysis and support on behalf of the Louisiana Public Service Commission Staff relating to Entergy Louisiana LLC recovery of storm damage costs.

Westar Energy, Inc. (Westar Energy) and Kansas Gas and Electric Company (KGE), (Kansas State Corporation Commission, Docket No. 17-WSEE-147-RTS). Technical analysis regarding rate base and cost of service on behalf of the Federal Executive Agencies.

Westar Energy, Inc. (Westar Energy) and Kansas Gas and Electric Company (KGE), (Kansas State Corporation Commission, Docket No. 17-WSEE-147-RTS). Technical analysis regarding rate base and cost of service on behalf of the Federal Executive Agencies.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission)
)
v.) **Docket No. 2018-3000834**
)
SUEZ Water Pennsylvania, Inc.)

**SCHEDULES ACCOMPANYING THE
DIRECT TESTIMONY
OF
LAFAYETTE K. MORGAN, JR.**

**ON BEHALF OF THE
OFFICE OF CONSUMER ADVOCATE**

July 20, 2018

EXETER
ASSOCIATES, INC.
10480 Little Patuxent Parkway, Suite 300
Columbia, Maryland 21044

SUEZ WATER PENNSYLVANIA INC.

Summary of Operating Income
For the Rate Year Ending December 31, 2019

Line No.	Description	Company Amounts at Present Rates	OCA Adjustments	Amounts After OCA Adjustments	Pro Forma Change in Revenues	Amounts After Change in Revenues
	<u>Operating Revenues</u>					
1	Operating Revenues	\$ 47,382,250	\$ (747,537)	\$ 46,634,713	\$ -	\$ 46,634,713
2	Revenue Increase	-	-	-	(3,483,852)	(3,483,852)
3	Total Operating Revenues	\$ 47,382,250	\$ (747,537)	\$ 46,634,713	\$ (3,483,852)	\$ 43,150,861
4						
5	<u>Operating Expenses</u>					
6	O&M Expenses	\$ 19,205,688	\$ (1,686,160)	\$ 17,519,528	\$ (12,403)	\$ 17,507,125
7	Depreciation	8,722,962	(435,716)	8,287,246	-	8,287,246
	Amortization of Acquisition Adjustment	57,744	-	57,744	-	57,744
	Amortization of Regulatory Asset	(265,198)	-	(265,198)	-	(265,198)
8	Taxes Other Than Income Taxes	968,391	(14,201)	954,190	(17,548)	936,642
9	Total Operating Expenses	\$ 28,689,587	\$ (2,136,077)	\$ 26,553,510	\$ (29,951)	\$ 26,523,559
10						
11	Operating Income Before Income Taxes	\$ 18,692,663	\$ 1,388,540	\$ 20,081,203	\$ (3,453,901)	\$ 16,627,302
12						
13	Federal & State Income Taxes	\$ 3,732,788	\$ 354,894	\$ 4,087,682	\$ (997,904)	\$ 3,089,778
14						
15	Net Operating Income	\$ 14,959,875	\$ 1,033,646	\$ 15,993,521	\$ (2,455,996)	\$ 13,537,524
16						
17	Rate Base	\$ 243,448,859		\$ 207,949,669		\$ 207,949,669
18						
19	Return On Rate Base	6.14%		7.69%		6.51%

SUEZ WATER PENNSYLVANIA INC.

Summary of Revenue Increase at OCA Rate of Return
 For the Rate Year Ending December 31, 2019

Line No.	Description	Amount	Source
1	Adjusted Rate Base	\$ 207,949,669	Schedule LKM-2, Page 2
2	Required Rate of Return	6.510%	Per OCA Witness Rothchild
3			
4	Net Operating Income Required	\$ 13,537,523	
5	Net Operating Income at Present Rates	15,993,521	Schedule LKM-1, Page 1
6			
7	Income Deficiency/(Surplus)	\$ (2,455,998)	
8	Revenue Multiplier	1.418508	
9			
10	Required Change in Company Revenue	\$ (3,483,852)	
11			
12	Proposed Revenue Change	\$ (3,483,852)	
13	Less: Uncollectibles	0.3560% (12,403)	
14	Revenues After Uncollectibles	(3,471,449)	
15	Gross Receipts Tax	0.0000% 0	
16	PUC / OCA & SBA Assessment	0.5037% (17,548)	
17	Income Before State Taxes	\$ (3,453,901)	
18	State Income Tax Effect Tax Rate	9.9900%	
19	Less: State Income Tax	(345,045)	
20			
21	Income Before Federal Taxes	\$ (3,108,856)	
22	Federal Income Tax	21.0000% (652,860)	
23			
24	Net Income Surplus/(Deficiency)	\$ (2,455,996)	

SUEZ WATER PENNSYLVANIA INC.

Summary of Rate Base
 For the Rate Year Ending December 31, 2019

Line No.	Description	Amount per Company Filing	OCA Rate Base Adjustments	Amount After OCA Adjustments
1	Utility Plant	\$ 409,389,892	\$ (37,757,885)	\$ 371,632,008
2	Accumulated Depreciation	(85,360,944)	3,555,615	(81,805,329)
3	Net Plant in Service	\$ 324,028,948	\$ (34,202,270)	\$ 289,826,678
4	Additions			
5	Working Capital	\$ 863,746	\$ (811,900)	\$ 51,846
6	Materials & Supplies	481,594	-	481,594
7	Excess Pension Capitalized	-	-	-
8	Total Rate Base Additions	\$ 1,345,340	\$ (811,900)	\$ 533,440
9	Deductions			
10	Customer Deposits	\$ -	\$ -	\$ -
11	Customer Advances for Construction	(63,114,693)	-	(63,114,693)
12	Rate Base for Infrastructure Investment (Act 40)	-	(771,617)	(771,617)
13	Regulatory Liability	-	-	-
14	Accumulated Deferred Income Taxes	(18,810,736)	286,597	(18,524,139)
15	Total Rate Base Deductions	\$ (81,925,429)	\$ 286,597	\$ (81,638,832)
16				
17	Total Rate Base	\$ 243,448,859	\$ (35,499,190)	\$ 207,949,669

SUEZ WATER PENNSYLVANIA INC.

Summary of Rate Base Adjustments
For the Rate Year Ending December 31, 2019

<u>Line No.</u>	<u>Description</u>	<u>Source</u>	<u>Amount</u>
1	Rate Base per Company Filing	Schedule LKM-2, Page 1	\$ 243,448,859
2			
3			
4	<u>OCA Adjustments:</u>		
5	Reflect Average Balance for Plant and Related Items	Schedule LKM-5	\$ (17,179,326)
6	Remove Mahoning Township Water System	Schedule LKM-6	(5,767,447)
7	Remove Route 11 Expansion Territory	Schedule LKM-7	(8,929,800)
8	Remove Cost of New Office Building	Schedule LKM-8	(2,039,100)
9	Reflect the Requirements of Act 40	Schedule LKM-10	(1,543,234)
10	Adjustment to Cash Working Capital	Schedule LKM-9	(40,283)
11			
12			
13	Total Ratemaking Adjustments		\$ (35,499,190)
14			
15	Adjusted Rate Base per OCA		\$ 207,949,669

SUEZ WATER PENNSYLVANIA INC.

Summary of Adjustments to Income Before Income Taxes
 For the Rate Year Ending December 31, 2019

Line No.	Amount	Source
1	\$ 14,959,875	Schedule LKM-1
2		
3		<u>OCA Adjustments:</u>
4	\$ (92,386)	Schedule LKM-6
5	(35,314)	Schedule LKM-7
6	43,305	Schedule LKM-8
7	(153)	Schedule LKM-10
8	94,900	Schedule LKM-12
9	35,649	Schedule LKM-13
10	23,054	Schedule LKM-14
11	81,281	Schedule LKM-15
12	233,129	Schedule LKM-16
13	19,642	Schedule LKM-17
14	174,117	Schedule LKM-18
15	178,293	Schedule LKM-19
16	52,608	Schedule LKM-20
17	179,237	Schedule LKM-22
18	265,189	Schedule LKM-23
19	(218,906)	Schedule LKM-24
20	-	
21	1,033,646	
22		
23	\$ 15,993,521	

SUEZ WATER PENNSYLVANIA INC.

Summary of Adjustments to Income Before Income Taxes
For the Rate Year Ending December 31, 2019

Line No.	Operating Revenues	O&M Expenses	Depreciation & Amortization	Taxes Other Than Income	State & Federal Income Taxes	Operating Income Before Income Taxes
1	\$ 47,382,250	\$ 19,205,688	\$ 8,515,508	\$ 968,391	\$ 3,732,788	\$ 14,959,875
2						
3	<u>OCA Adjustments:</u>					
4	\$ (613,260)	\$ (430,783)	\$ (52,553)	\$ -	(37,538)	\$ (92,386)
5	(119,862)	-	(70,200)	-	(14,348)	(35,314)
6			(60,900)	-	17,595	43,305
7	(14,415)			(14,201)	(62)	(153)
8		(133,459)		-	38,559	94,900
9	-	(50,133)	-	-	14,484	35,649
10	-	(32,421)	-	-	9,367	23,054
11	-	(114,307)	-	-	33,026	81,281
12	-	(327,852)	-	-	94,723	233,129
13	-	(27,623)	-	-	7,981	19,642
14	-	(244,863)	-	-	70,746	174,117
15	-	(250,736)	-	-	72,443	178,293
16	-	(73,983)	-	-	21,375	52,608
17	-	-	(252,063)	-	72,826	179,237
18	-	-	-	-	(265,189)	265,189
19	-	-	-	-	218,906	(218,906)
20						
21	\$ (747,537)	\$ (1,686,160)	\$ (435,716)	\$ (14,201)	\$ 354,894	\$ 1,033,646
22						
23	\$ 46,634,713	\$ 17,519,528	\$ 8,079,792	\$ 954,190	\$ 4,087,682	\$ 15,993,521

SUEZ WATER PENNSYLVANIA INC.

Calculation of Current of State and Federal Income Taxes
 For the Rate Year Ending December 31, 2019

Line No.	Description	After Company Adj		OCA Adjustments		After OCA Adjustments		After OCA Rate Change	
		Dec-19 Federal Income Tax Current Rates	Dec-19 State Income Tax Current Rates	Dec-19 Federal Income Tax Current Rates	Dec-19 State Income Tax Current Rates	Dec-19 Federal Income Tax Proposed Rates	Dec-19 State Income Tax Proposed Rates	Dec-19 Federal Income Tax Current Rates	Dec-19 State Income Tax Current Rates
1	Operating Income Before Income Taxes	\$ 18,692,663	\$ 18,692,663	\$ 1,388,540	\$ 1,388,540	\$ 20,081,203	\$ 20,081,203	\$ (3,453,901)	\$ (3,453,901)
2	Interest Expense	5,186,994	5,186,994	(757,666)	(757,666)	4,429,328	4,429,328	-	-
3	State Income Tax	1,086,677		214,406		1,301,083		(345,045)	
4	Repair Adjustment on 2018 Additions								
5	Repair Adjustment on 2019 Additions	2,222,921	2,222,921	-	-	2,222,921	2,222,921	-	-
6	Excess Of Tax Depreciation Over Book	506,570	717,113	-	-	506,570	717,113	-	-
7									
8	Taxable Income	\$ 9,689,500	\$ 10,565,634	\$ 1,931,800	\$ 2,146,206	\$ 11,621,300	\$ 12,711,840	\$ (3,108,856)	\$ (3,453,901)
9									
10	Income Tax Rate	21.00%	9.99%	21.00%	9.99%	21.00%	9.99%	21.00%	9.99%
11									
12	Pro Forma Income Tax : Current	2,034,795	1,055,507	405,678	214,406	2,440,473	1,269,913	(652,860)	(345,045)
13	CTA Adjustment								
14	Amortization of Flow through Taxes	38,123	31,170	-	-	38,123	31,170	-	-
15	Amortization of Income Tax Credit	-	-	-	-	-	-	-	-
16									
17	Total - Current Income Taxes	\$ 2,072,918	\$ 1,086,677	\$ 405,678	\$ 214,406	\$ 2,478,595	\$ 1,301,083	\$ (652,860)	\$ (345,045)
18									
19	<u>Deferred Income Tax:</u>								
20	Repair Adjustment	2,222,921		-		2,222,921		-	
21	Less: State Deduction								
22	Income Tax Rate	21.00%		21.00%		21.00%		21.00%	
23	Deferred Income Tax - Repair Adjustment	466,813		-		466,813		-	
24									
25	Excess Of Tax Depreciation Over Book	\$ 506,570		\$ -		\$ 506,570	\$ -	\$ -	
26	Less: State Deferred Income Tax	-		-		-		-	
27	Income Tax Rate	21.00%	9.99%	21.00%	9.99%	21.00%	9.99%	21.00%	9.99%
28	Deferred Income Tax - Tax/Book Deprec.	106,380	-	-	-	106,380	-	-	-
29	Total Deferred Income Tax (L20+L24)	573,193	-	-	-	573,193	-	-	-
30									
31	Amortization of EDIT			(265,189)		(265,189)			
32	Total Income Taxes (L16+L25)	\$ 2,646,111	\$ 1,086,677	\$ 140,489	\$ 214,406	\$ 2,786,600	\$ 1,301,083	\$ (652,860)	\$ (345,045)
	Total Income Taxes		\$ 3,732,788		\$ 354,895		\$ 4,087,683		\$ (997,904)

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Rate Base to Reflect Average Balance for Plant and Related Items
For the Rate Year Ending December 31, 2019

Line No.	Description	Balance Per Company at December 31, 2019	1/	Balance Per Company at December 31, 2018	1/	Average Balance per OCA	OCA Adjustment
1	Plant In Service	\$ 409,389,892		\$ 367,714,123		\$ 388,552,008	\$ (20,837,885)
2							
3	Accumulated Depreciation	<u>(85,360,944)</u>		<u>(78,617,020)</u>		<u>(81,988,982)</u>	<u>3,371,962</u>
4							
5	Net Plant	\$ 324,028,948		\$ 289,097,103		\$ 306,563,026	\$ (17,465,923)
6							
7	CIAC and Contributions	(63,114,693)		(63,114,693)		(63,114,693)	-
8							
9	Accumulated Deferred Income Taxes	<u>(18,810,736)</u>		<u>(18,237,542)</u>		<u>(18,524,139)</u>	<u>286,597</u>
10							
11	Net Balance	<u>\$ 305,218,212</u>		<u>\$ 270,859,561</u>		<u>\$ 288,038,887</u>	<u>\$ (17,179,326)</u>

Notes:

1/ Exhibit No. CEH-1, Schedule 1.1.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Remove Mahoning Township Water System
 For the Rate Year Ending December 31, 2019

Line No.	Description	Depreciation		Amount
		1/ Rate	2/ Rate	
1	Adjustment to Plant in Service			\$(5,820,000) 1/
2				
3	Adjustment to Accumulated Depreciation			\$ 52,553 1/
4				
5	Net Adjustment to Rate Base			<u>\$(5,767,447)</u>
6				
7	Operating Revenues			<u>\$ (613,260)</u>
8				
9	Adjustment to Depreciation Expense			(52,553) 1/
10				
11	Adjustment to Purchased Water			(360,835) 2/
12				
13	Energy/ Power Expense			(24,948) 2/
14				
15	Additional Subcontractor			<u>(45,000) 2/</u>
	Total Adjustment to Depreciation and O&M Expenses			<u>\$ (483,336)</u>

Notes:

1/ Schedule LKM-6, page 2.

2/ Exhibit No. CEH-2, Schedule 29, Adjustment No. 28.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Remove Mahoning Township Water System
 For the Rate Year Ending December 31, 2019

Line No.	Description	Amount	1/ Depreciation Rate	2/ Depreciation Expense
1	<u>Plant Account 303.2</u>			
2	5.8 Acres	\$ 3,000		\$ -
3	23 Easements or Rights-of-Way	3,000		-
4				
5	<u>Plant Account 330.4</u>			
6	300,000 Gallon Tank	-		-
7	500,000 Gallon Tank	308,800	2.79%	8,616
8	75,000 Gallon Tank	96,240	2.79%	2,685
9				
10	<u>Plant Account 304.4</u>			
11	Route 11 Water Booster Station	12,450	2.90%	361
12	Montgomery Village Booster Station	33,700	2.90%	977
13	Edgewood Booster Station	40,000	2.90%	1,160
14	Woods of Welsh Booster Station	30,000	2.90%	870
15	Pressure Reducing Station	5,000	2.90%	145
16				
17	<u>Plant Account 304.3</u>			
18	Chlorination Building	5,000	2.28%	114
19				
20	<u>Plant Account 304.5</u>			
21	Storage Building	70,000	3.52%	2,464
22				
23	<u>Plant Account 335.4</u>			
24	137 Hydrants	214,953	1.67%	3,590
25				
26	<u>Plant Account 331.4</u>			
27	3,485 ft. - 4" Main	121,975	1.56%	1,903
28	44,141 ft. - 6" Main	1,677,358	1.56%	26,167
29	45,302 ft. - 8" Main	1,721,476	1.56%	26,855
30	12,778 ft. - 10" Main	488,759	1.56%	7,625
31	10,454 ft. - 12" Main	402,689	1.56%	6,282
32				
33	<u>Plant Account 334.4</u>			
34	1,200 Meters	180,000	4.44%	7,992
35	<u>Plant Account 333.4</u>			
36	1,200 Services	<u>405,600</u>	1.80%	7,301
37				
38		<u>\$ 5,820,000</u>		
39	Adjustment to Depreciation Expense			<u>\$ (105,106)</u>

Notes:

1/ Company's response to OCA -IV-23.

2/ Exhibit No. JJS-3

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Remove Route 11 Expansion Territory
For the Rate Year Ending December 31, 2019

Line No.	Description	Amount
1	Plant in Service	\$ (9,000,000) 1/
2	Depreciation Reserve	<u>70,200</u>
3		
4	Adjustment to Rate Base	<u>\$ (8,929,800)</u>
5	Operating Revenues	<u>\$ (119,862)</u>
6	Adjustment to Depreciation Expense @ 1.56% 2/	<u>\$ (70,200)</u>

Note:

1/ Company response to OCA-IV-19.

2/ Company response to OCA-IV-16.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Remove Cost of New Office Building
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Amount</u> ^{1/}
1	Plant in Service	\$ (2,100,000) ^{1/}
2	Depreciation Reserve	<u>60,900</u>
3		
4	Adjustment to Rate Base	<u>\$ (2,039,100)</u>
5		
6	Adjustment to Depreciation Expense @ 2.60% ^{2/}	<u>\$ (60,900)</u>

Note:

1/ SWPA Statement No.1, page 19.

2/ Exhibit No. JJS-3, Account No. 304.51.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Cash Working Capital to Reflect O&M Adjustments
For the Rate Year Ending December 31, 2019

Line No.	Utility Operating Expenses	Net Lag Days	Amounts Ending 12/31/2019	OCA Adjustments	After OCA Adjustments	Cash Working Capital
1	Labor Expense	19.9	\$ 5,458,942	\$ (178,459)	\$ 5,280,483	\$ 287,895
2	Employee Group Health & Life	20.6	1,439,521	(50,133)	1,389,388	78,415
3	Employee Pension Benefits	-24.1	1,442,010	(32,421)	1,409,589	(93,071)
6	Purchased Water	17.9	182,928	(475,142)	(292,214)	(14,330)
7	Purchased Power	6.3	1,570,688	(352,800)	1,217,888	21,021
8	Fuel for Power Production	-3.4	23,696		23,696	(221)
9	Chemicals	8.2	599,527		599,527	13,469
10	Materials and Supplies	22.8	283,439	(27,623)	255,816	15,980
11	Management and Service Fees	18.6	5,359,497	(27,623)	5,331,874	271,706
12	Lab Testing Fees	17.8	83,542		83,542	4,074
13	Outside Contractors	4.6	1,147,114	(250,736)	896,378	11,297
14	Outside Professional Services	-16.4	68,193		68,193	(3,064)
15	Rental - Building/Real Property	48	60,476		60,476	7,953
16	Rental of Equipment	38.4	51,375		51,375	5,405
17	Transportation Expense	2.3	560,322	(73,983)	486,339	3,065
18	Prop& Gen Liab. Insurance	92.9	4,935		4,935	1,256
19	Worker Compensation	19.6	110,717		110,717	5,945
22	Regulatory Commission Expense	110.3	270,077		270,077	81,615
25	Office Expense and Utilities	29.3	540,894		540,894	43,420
26	Postage and Air Freight Expense	3.2	366,358		366,358	3,212
27	Other O&M	19.5	203,938		203,938	10,895
28	Real Estate Tax	60.2	318,178		318,178	52,478
29	Payroll Taxes	14.7	650,213	(14,201)	636,012	25,615
30	Federal Income Taxes	-3.7	3,814,409	140,489	3,954,898	(40,091)
31	State Income Taxes	4.6	1,704,138	214,406	1,918,544	24,179
32						
33						\$ 818,118
34						858,401
35						
36				Adjustment to CWC		\$ (40,283)

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Rate Base to Reflect the Requirements of Act 40
For the Rate Year Ending December 31, 2019

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>
1	Consolidated Tax Savings Adjustment	<u>\$ 1,543,234</u> 1/
2		
3	Adjustment to Working Capital	<u>\$ (771,617)</u>
4		
5	Adjustment to Reflect Cost Free Capital	<u>\$ (771,617)</u>

Notes:

1/ Response to I&E-RE-63.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Annualized Revenues at Present Rates
 For the Rate Year Ending December 31, 2019

Line No.	Customer Classification	Total Pro Forma Revenue Present Rates Per Company	Total Pro Forma Revenue Present Rates Per OCA	Adjustment to Revenues
1	<u>METERED SALES</u>			
2	Residential	\$ 29,345,020	\$ 29,157,892	\$ (187,128)
3	Commercial	11,958,637	12,131,350	172,713
4	Industrial	1,467,311	1,467,311	-
5	Public Sales	1,835,763	1,835,763	-
6				
7	Total Sales of Water	\$ 44,606,731	\$ 44,592,316	\$ (14,415)
8				
9	Private Fire	\$ 1,446,048	\$ 1,446,048	\$ -
10	Public Fire	923,861	923,861	-
11			-	-
12	Other Operating Revenues	405,611	405,611	-
13				
14	Total	<u>\$ 47,382,250</u>	<u>\$ 47,367,835</u>	<u>\$ (14,415)</u>

SUEZ WATER PENNSYLVANIA INC.

Summary of Revenue Under Present Rates
For the Rate Year Ending December 31, 2019

Line No.	Customer Classification	Adjusted Revenues, Per Books Present Rates 12/31/2017 (a)	Bill Analysis Revenues, Present Rates (Schedule 5)	Adjustment Factor	Revenues Under Present Rates	Pro Forma Adjustments Present Rates (Schedule 5 and 7)	Add Back Annualized DSIC Revenue	Total Pro Forma Revenue Present Rates
1	METERED SALES							
2	Residential	\$ 26,796,924	\$ 26,824,015	0.99899003	\$ 26,796,924	\$ 326,697	\$ 2,034,272	\$ 29,157,892
3	Commercial	11,045,912	11,048,045	0.99980693	11,045,912	239,065	846,373	12,131,350
4	Industrial	1,278,641	1,278,758	0.99990886	1,278,641	86,299	102,371	1,467,311
5	Public Sales	1,772,512	1,787,388	0.99167720	1,772,512	(64,825)	128,078	1,835,763
6								
7	Total Sales of Water	<u>\$ 40,893,989</u>	<u>\$ 40,938,206</u>		<u>\$ 40,893,989</u>	<u>\$ 587,235</u>	<u>\$ 3,111,092</u>	<u>\$ 44,592,316</u>
8								
9	Private Fire	\$ 1,436,836	\$ 1,436,836	1.00000000	1,436,836	\$ 9,211		1,446,048
10	Public Fire	923,861	923,861	1.00000000	923,861			923,861
11								
12	Other Operating Revenues	<u>405,611</u>	<u>405,611</u>		<u>405,611</u>			<u>405,611</u>
13								
14	Total	<u>\$ 43,660,297</u>	<u>\$ 43,704,514</u>		<u>\$ 43,660,297</u>	<u>\$ 596,446</u>	<u>\$ 3,111,092</u>	<u>\$ 47,367,835</u>

(a) Excludes DSIC and Unbilled Revenue.

(c) See Schedule 6.

(d) See Schedule 7.

SUEZ WATER PENNSYLVANIA INC.

Summary of Application of Present Rates to Customer Bill Analysis and Pro Forma Adjustments
 For the Rate Year Ending December 31, 2019

Line No.	Rate Zone	Residential	Commercial	Industrial	Large Industrial	Public Authority	Metered Total
1	<u>Present Rate Application</u>						
2							
3	Total Revenue	\$ 26,824,015	\$ 11,048,045	\$ 664,035	\$ 614,723	\$ 1,787,388	\$ 40,938,206
4							
5	Total	<u>\$ 26,824,015</u>	<u>\$ 11,048,045</u>	<u>\$ 664,035</u>	<u>\$ 614,723</u>	<u>\$ 1,787,388</u>	<u>\$ 40,938,206</u>
6							
7	<u>Pro Forma Adjustments - 2018</u>						
8							
9	Total Adjustments	\$ (160,210)	\$ 119,213		\$ 86,299	\$ (56,722)	\$ (11,420)
10							
11	Subtotal	<u>\$ (160,210)</u>	<u>\$ 119,213</u>	<u>\$ -</u>	<u>\$ 86,299</u>	<u>\$ (56,722)</u>	<u>\$ (11,420)</u>
12							
13	<u>Pro Forma Adjustments - 2019</u>						
14							
15	All	\$ (68,086)	\$ (58,278)			\$ (8,103)	\$ (134,467)
16	Trunk Line	\$ 119,862		\$ -			\$ 119,862
17	Mahoning Twp.	\$ 435,131	\$ 178,130				\$ 613,261
18							
19	Subtotal	<u>\$ 486,907</u>	<u>\$ 119,852</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ (8,103)</u>	<u>\$ 598,656</u>
20							
21	Total Adjustments	\$ 326,697	\$ 239,065	\$ -	\$ 86,299	\$ (64,825)	\$ 587,235

SUEZ WATER PENNSYLVANIA INC.

Application of Present Rates and Proposed Rates to Pro forma Adjustments
 For the Rate Year Ending December 31, 2019

Line No.	Rate Block 1000 Gallons	Number Of Bills	Total Consumption	Test Year/Present Rate	Revenue	Proposed Rate	Proposed Revenue
1							
2							
3	Customer Charge						
3	5/8	18,542	-	\$ 13.75	\$ 254,953	\$ 15.00	\$ 278,130
12	Subtotal	18,542	-		254,953		278,130
13							
14	All Usage - Test Year	-	(46,885)	7.7506	(363,386)	9.6700	(453,377)
15	Subtotal	-	(46,885)		(363,386)		(453,377)
16							
17							
18	Total Residential	18,542	(46,885)	-	(108,434)	-	(175,247)
19							
20							
21	Customer Charge						
22	5/8	-	-	13.75	-	15.00	-
23	3/4	-	-	13.75	-	15.00	-
24	1	678	-	28.50	19,323	31.09	21,079
31	Subtotal	678	-		19,323		21,079
32							
33	Test Year First Block (First 25)	-	5,369	7.7506	41,612	9.6700	51,917
34	Test Year Second Block (Over 25)	-	-	5.4321	-	7.1020	-
35	Subtotal	-	5,369		41,612		51,917
36							
37	Total Class	678	5,369		60,935		72,996
38							
39							
40	Customer Charge						
41	4	-	-	305.25	-	333.00	-
42	6	-	-	610.50	-	666.00	-
43	Subtotal	-	-		-		-
44							
45	Take or Pay Volume	-	23,942	3.6045	86,299	-	-
46	Subtotal	-	23,942		86,299		-
47							
48	Total	-	23,942		86,299		-
49							
50							
51	Customer Charge						
52	5/8	(112)	-	13.75	(1,540)	15.00	(1,680)
59	Subtotal	(112)	-		(1,540)		(1,680)
60							
61	First Block (First 160)	-	(2,800)	7.7506	(21,702)	9.6700	(27,076)
62	Second Block (Over 160)	-	(7,655)	5.4321	(41,584)	7.1020	(54,367)
63	Subtotal	-	(10,455)		(63,286)		(81,443)
64							
65	Total	(112)	(10,455)		(64,826)		(83,123)
66							
67	Total	19,108	(51,971)		(112,325)		(185,375)

SUEZ WATER PENNSYLVANIA INC.

Adjustment for Customer Growth Revenue Under Present Rates
 For the Rate Year Ending December 31, 2019

Line No.	Description	Residential	Commercial	Industrial	Public Authority	Private Fire	Total
<u>Historic TY Customer Growth Calculation</u>							
1	Actual Normalized Bills	652,728	56,712	612	2,952	1,018	714,022
2	Actual Annualized Bills	656,760	56,712	612	2,784	1,016	717,884
3	Projected Daily Usage in gallons (a)	110.20	811.00	14,515.03	3,111.67		18,548
4	Monthly Volumes per Normalization (1000 Gallons) Line 3 X30 /1000	3.31	24.33	435.45	93.35		
5	HTY Customer Annualized Growth Bills (Line 2-Line 1) Divided by 2	2,016	NA	NA	(84)	(1)	1,931
6	HTY Customer Annualized Growth Volumes (Line 4 X Line 5 / 2)	6,665	NA	NA	(7,841)	-	(1,177)
7	Priced At First Block	6,665			(2,100)		4,565
8	Priced At Second Block				(5,741)		(5,741)
9							
10							
11	Average Service Charge	\$ 13.75	\$ 28.50		\$ 13.75	\$ 110.98	
12	Revenue From Service Charge (Line 7 X Line 5)	\$ 27,720			\$ (1,155)	\$ (111)	
13	Volume Charge - First Block	7,7506	7,7506		7,7506		
14	Volume Charge - Second Block		5,4321		5,4321		
15	Revenue from Volumetric Charge (Line 9 X Line 6)						
16	Priced At First Block	\$ 51,657			\$ (16,276)		
17	Priced At Second Block				(31,188)		
18	Total Historical TY Adjustment (Line 8 + Line 10)	\$ 79,377			\$ (48,619)	\$ (111)	\$ 30,647
19							
20	Forecasted Customer Growth	562.6	28.3		(1.2)	3.5	
21	Annualized Bills (Line 12 X 12)	6,751	339		(14)	42	
22	Average Volumes Per Normalization						
23	Priced At First Block	3.31	24.33		25.00		
24	Priced At Second Block				68.35		
25	Normalized Volumes (Line 13 X Line 14)	22,319	8,248				
26	Revenue From Service Charge (Line 7 X Line 13)	\$ 92,826	\$ 9,662	\$ -	\$ (193)	\$ 4,661	\$ 106,956
27	Revenue from Volumetric Charge (Line 9 X Line 15)						
28	Priced At First Block	\$ 172,984	\$ 63,926		\$ (2,713)		\$ 234,197
29	Priced At Second Block	\$ -	\$ -		\$ (5,198)		\$ (5,198)
30	Total FTY Adjustment (Line 16 + Line 17)	\$ 265,810	\$ 73,587	\$ -	\$ (8,103)	\$ 4,661	\$ 335,956
31							
32	Forecasted Customer Growth	562.6	28.3	-	(1.2)	3.5	
33	Annualized Bills (Line 12 X 12)	6,751	339		(14)	42	
34	Average Volumes Per Normalization						
35	Priced At First Block	3.31	24.33	-	25.00	-	
36	Priced At Second Block	-	-	-	68.35	-	
37	Total	3.31	24.33	-	93.35	-	
38	Normalized Volumes (Line 13 X Line 14)	22,319	8,248		(350)		
39	Revenue From Service Charge (Line 7 X Line 13)	\$ 92,826	\$ 9,662	\$ -	\$ (193)	\$ 4,661	\$ 106,956
40	Revenue from Volumetric Charge (Line 9 X Line 15)						
41	Priced At First Block	\$ 172,984	\$ 63,926		\$ (2,713)		\$ 234,197
42	Priced At Second Block	\$ -	\$ -		\$ (5,198)		\$ (5,197)
43	Total FTY Adjustment (Line 16 + Line 17)	\$ 265,810	\$ 73,587	\$ -	\$ (8,103)	\$ 4,661	\$ 335,956
44	Total Adjustment	\$ 610,998	\$ 147,175	\$ -	\$ (64,825)	\$ 9,211	\$ 702,558

(a) For residential and commercial, see declining usage workpaper. For Industrial and Public, based on 2017 usage.

	Residential	Commercial	Industrial	Public Authority	Private Fire Protection	
48	Number of Customers					
49	Period Ending 12/31/15	53,269.3	4,669.0	51.1	248.5	1,011.1
50	Period Ending 12/31/16	53,804.7	4,686.8	51.0	248.2	1,021.9
51	Historic Test Year Period Ending 12/31/17	54,394.4	4,725.6	51.0	246.2	1,018.2
52	Increase 2015-2016	535.4	17.8	(0.1)	(0.3)	10.8
53	Increase 2016-2017	589.8	38.8	-	(2.0)	(3.8)
54	Average Growth/(Decline)	562.6	28.3	(0.0)	(1.2)	3.5

SUEZ WATER PENNSYLVANIA INC.Adjustment to Reflect Declining Usage Revenues
For the Rate Year Ending December 31, 2019

Line No.	Description	Residential	Commercial
1	Actual Normalized Bills	652,728	56,712
2	Actual 2017 Daily Usage (Gallons)	115.73	817.54
3	Projected Daily Usage in gallons - 2018	112.40	821.00
4	Difference in Daily Usage - Line 3 - Line 2	(3.33)	3.46
5	Difference in 1000 gallon Monthly Usage - Line 4 X 30 divided by 1000	(0.10)	0.10
6	Annual Declining Usage Adjustment - Line 1 X Line 5	(65,208)	5,887
7	Priced At First Block	(65,208)	5,887
8	First Block Under Present Rates	\$ 7,7506	\$ 7,7506
9	Adjustment Under Present Rates	\$ (505,397)	\$ 45,626

DECLINING USAGE REVENUE ADJUSTMENT - PRESENT RATES
FOR THE TEST YEAR ENDING DECEMBER 31, 2019

		Residential	Commercial
10	Actual Normalized Bills	652,728	56,712
11	Actual 2017 Daily Usage (Gallons)	115.73	817.54
12	Projected Daily Usage in gallons - 2019	110.20	811.00
13	Difference in Daily Usage - Line 11 - Line 12	(5.53)	(6.54)
14	Difference in 1000 gallon Monthly Usage - Line 13 X 30 divided by 1000	(0.17)	(0.20)
15	Annual Declining Usage Adjustment - Line 10 X Line 5	(108,288)	(11,127)
16	Priced At First Block	(108,288)	(11,127)
17	First Block Under Present Rates	\$ 7,7506	\$ 7,7506
18	Adjustment Under Present Rates	\$ (839,294)	\$ (86,240)
19	Incremental Adjustment over 2018	\$ (333,896)	\$ (131,866)

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Annualize Payroll Expense
For the Rate Year Ending December 31, 2019

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>
1	Payroll Expense per OCA	\$ 5,325,483 1/
2		
3	Payroll Expense per Company	<u>5,458,942 2/</u>
4	Adjustment to O&M Expenses	<u>\$ (133,459)</u>

Notes:
1/ Calculated based on Workpaper CEH-2.1
2/ Exhibit No. CEH-2 Schedule -2, Adjustment No.1.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Annualize Employee Group Health & Life Insurance
 For the Rate Year Ending December 31, 2019

Line No.	Description	Amount
	<u>Remove Proposed Employee for Mahoning Township</u>	
1	Cost per Employee	\$ 16,711 1/
2	Number of Employees	<u>1</u>
3		
4	Amount Related to Proposed Employee for Mahoning Township	<u>\$ 16,711</u>
5		
6	<u>Reflect 1/2 Year Expense for Remaining New Employees</u>	
7	Cost per Employee	\$ 16,711 1/
8	Half-Year Factor	<u>2</u>
9		
10	Half-Year Expense	8,356
11	Number of Employees	<u>4</u>
12		
13	Amount Related to Remaining Employees	<u>\$ 33,422</u>
14		
15	Total O&M Expense Adjustment	<u>\$ (50,133)</u>

Notes:
 1/ Response to OCA-IV-10.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Annualize Pension Expense
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>	<u>1/</u>
1	OCA FPFTY Pension Expense	\$ 1,409,589	
2			
3	Company FPFTY Pension Expense	<u>1,442,010</u>	
4			
5	Adjustment to O&M Expense	<u>\$ (32,421)</u>	

Notes:

1/ Exhibit No. CEH-2 Schedule -4, Adjustment No.3.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Annualize Purchased Water Expense
For the Rate Year Ending December 31, 2019

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>	<u>1/</u>
1	Reverse Inflation Increase	\$ 9,307	
2			
3	Remove SARAA Purchased Water	<u>105,000</u>	
4			
5	Adjustment to O&M Expense	<u>\$(114,307)</u>	

Notes:

1/ Exhibit No. CEH-2 Schedule 7 Adjustment No.6.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Annualize Purchased Power Expense
For the Rate Year Ending December 31, 2019

<u>Line No.</u>	<u>Description</u>	<u>Amount</u> 1/
1	Reverse Inflation Increase	<u>\$ 327,852</u>
2		
3	Adjustment to O&M Expense	<u>\$(327,852)</u>

Notes:

1/ Exhibit No. CEH-2 Schedule 8 Adjustment No.7.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Annualize Materials and Supplies Expense
 For the Rate Year Ending December 31, 2019**

Line No.	Description	12 Months Ended 12/31/2017	1/	Future Test Year	1/	Fully Projected Future Test Year	1/
1	Materials and Supplies	\$ 254,476		\$ 250,065		\$ 255,816	
2							
3	Total Materials and Supplies					255,816	
4	FPFTY Expense per Company					283,439	
5							
6	Adjustment to O&M Expense					\$ (27,623)	
7							
8							
9							
10	<u>Year</u>	<u>Materials and Supplies Expense</u>					
11	2016	\$ 235,247					
12	2017	254,476					
13							
14	2-Year Average	\$ 244,861					
15							
16	<u>Inflation Rate:</u>						
17	Future Test Year			2.125%			
18	Fully Projected Future Test Year			2.300%			

Notes:

1/ Exhibit No. CEH-2 Schedule 11, Adjustment No.10.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Normalize Management & Services Fees
 For the Rate Year Ending December 31, 2019

Line No.	Description	Amount
1	Historical Test Year Management & Service Fees	\$ 4,509,809 1/
2	Depreciation Related to Common Asset Allocation	<u>275,213 2/</u>
3		
4	Management & Service Fees Subject to Escalation	\$ 4,234,596
5	FTY Escalation	<u>102.125% 3/</u>
6		
7	FTY Management & Service Fee	\$ 4,324,581
8	FPFTY Escalation	<u>102.300% 3/</u>
9		
10	FPFTY Management & Service Fee	\$ 4,424,047
11	FPFTY Common Asset Allocation	<u>690,587</u>
12		
13	Total FPFTY Management & Service Fee	\$ 5,114,634
14	FPFTY Management & Service Fee per Company	<u>5,359,497 1/</u>
15		
16	Adjustment to O&M Expense	<u>\$ (244,863)</u>

Notes:

1/ Exhibit No. CEH-2 Schedule 12, Adjustment No.11.

2/ Response to I&E-RE-31.

3/ Exhibit No. CEH-2 Schedule 30, Adjustment No.29.

SUEZ WATER PENNSYLVANIA INC.

Calculation of Common Asset Allocation
 For the Rate Year Ending December 31, 2019

Line No.	Description	Annualized Amount	
		12/31/2018 (a)	12/31/2019 (b)
1	Plant in Service	\$42,510,450	\$42,510,450
2	Accumulated Depreciation	13,339,436	19,356,696
3	ADIT	3,534,674	3,334,427
4	Net Rate Base	25,636,339	19,819,327
5	Pre-Tax ROR (1)	8.29%	8.29%
6	Return, Interest, and Income Taxes	2,125,253	1,643,022
7	Depreciation Expense	6,127,039	5,970,944
8	Total Annualized Amount	8,252,292	7,613,966
9	Allocation Factor	9.07%	9.07%
10	Pro forma total	748,483	690,587

(1) Calculation of Proposed Pre-tax Rate of Return:

	Capital Structure	Cost Rates	Weighted Cost Rates	Pre -Tax Rates
LTD	45.82%	4.65%	2.13%	2.13%
Equity	54.18%	8.08%	4.38%	6.16%
			6.51%	8.29%
				9.99%
				21.00%
				28.89%

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Annualize Outside Contractors Fees
 For the Rate Year Ending December 31, 2019**

Line No.	Description	12 Months Ended 12/31/2017	Future Test Year	Fully Projected Future Test Year
1	Outside Contractors	\$ 748,644 1/	\$ 754,755 1/	\$ 772,114 1/
2				
3	Additional Convenience Fees			11,764 2/
4	NRW Study			75,000 3/
5	Inventory Process Study			37,500 4/
6	Total Outside Contractors			896,378
7	FPFTY Expense per Company			1,147,114 1/
8				
9	Adjustment to O&M Expense			\$ (250,736)
10				
11				
12	Year	Outside Contractor's Expense		
13	2016	729,456		
14	2017	748,644		
15				
16	Two Year Average	\$ 739,050		
17				
18	Inflation Rate:			
19	Future Test Year		2.125%	
20	Fully Projected Future Test Year		2.300%	

Notes:

- 1/ Exhibit No. CEH-2 Schedule 14, Adjustment No.13.
- 2/ \$150,000 - \$138,236 (Incremental cost = Projected annual cost minus HTY cost).
- 3/ Four-year Normalization of \$ 300,000.
- 4/ Four-year Normalization of \$ 150,000.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Annualize Transportation Expense
 For the Rate Year Ending December 31, 2019

Line No.	Description	12 Months		Fully Projected	
		Ended 12/31/2017	1/ Future Test Year	1/ Future Test Year	1/
1	Leases	\$ 304,464	\$ 285,266	\$ 377,583	
2	Car Allowance	15,800	16,136	16,507	
3	Fuel	138,998	132,582	135,631	
4	Maintenance & Repair	139,311	146,862	150,240	
5	Payroll				
6	Insurance	24,060	33,629	34,403	
7	Depreciation				
8	Disposal of Vehicle	(3,500)	(1,787)	(1,828)	
9	Other	5,998	5,279	5,400	
10					
11	Total Costs	\$ 625,129	\$ 617,967	\$ 717,936	
12	Less Cap and Billed Out	\$ (218,096)	\$ (226,390)	(231,597)	
13					
14				\$ 486,339	
15	Total Transportation Expense			560,322	
16					
17	Adjustment			\$ (73,983)	
18					
19					
20	Description	2016	2017	2 Year Average	
21					
22	Car Allowance	\$ 15,800	\$ 15,800	\$ 15,800	
23	Fuel	120,649	138,998	129,823	
24	Maintenance & Repair	148,302	139,311	143,806	
25	Payroll				
26	Insurance	41,799	24,060	32,930	
27	Depreciation				
28	Disposal of Vehicle	-	(3,500)	(1,750)	
29	Other	4,340	5,998	5,169	
30					
31	Less Cap and Billed Out	(225,263)	(218,096)	(221,679)	
32					
33	Inflation Rate:				
34	Future Test Year	2.13%			
35	Fully Projected Future Test Year	2.30%			
36					

Notes:

1/ Exhibit No. CEH-2 Schedule 18, Adjustment No.17.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Reflect FPFTY Depreciation Expense
For the Rate Year Ending December 31, 2019

Line No.	Account No.	Description	End of FTY Depreciation Expense	1/ End of FPFTY Depreciation Expense	2/ Average FPFTY Depreciation Expense	Adjustment to Depreciation Expense
1	304	Structures & Improvements	\$ 876,254	\$ 999,202	\$ 937,728	\$ (61,474)
2	305	Collecting and Impounding Reservoir	8,166	7,983	8,075	92
3	306	Lake, Rivers and Other Intakes	73,789	208,785	141,287	(67,498)
4	307	Wells & Springs	18,050	17,514	17,782	268
5	308	Infiltration Galleries and Tunnels	410	400	405	5
6	311	Pumping Equipment	528,782	587,060	557,921	(29,139)
7	320	Water Treatment	1,398,003	1,472,735	1,435,369	(37,366)
8	330	Distribution Reservoirs and Standpipes	308,192	385,353	346,773	(38,581)
9	331	Transmission & Distribution Mains	2,602,037	2,992,182	2,797,110	(195,073)
10	333	Services	725,847	736,362	731,105	(5,258)
11	334	Meters	919,115	955,415	937,265	(18,150)
12	335	Hydrants	134,145	135,573	134,859	(714)
13	339	Other Plant and Miscellaneous Equipment	8,564	8,424	8,494	70
14	340	Office Furniture & Equipment	504,887	119,602	312,245	192,643
15	341	Transportation Equipment - Trucks	254	215	235	20
16	343	Tools, Shop & Garage Equipment	154,545	158,526	156,536	(1,991)
17	344	Laboratory Equipment	4,778	4,514	4,646	132
18	346	Communications Equipment	573,126	553,841	563,484	9,643
19	347	Miscellaneous Equipment	10,948	10,332	10,640	308
20		Total	<u>\$ 8,849,892</u>	<u>\$ 9,354,018</u>	<u>\$ 9,101,955</u>	<u>\$ (252,063)</u>

Notes:

1/ Exhibit No. JJS-2.

2/ Exhibit No. JJS-3.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Payroll Taxes
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Rate</u>	<u>1/</u>	<u>Amount</u>	<u>2/</u>
1	Adjustment to Payroll			\$	(133,459)
2					
3	Social Security	6.20%		\$	(8,274)
4					
5	Medicare	1.45%		\$	(1,935)
6					
7	FUTA	0.60%		\$	(801)
8					
9	SUTA	2.39%		\$	<u>(3,190)</u>
10					
11	Total Adjustment			\$	<u>(14,201)</u>

Notes:

1/ Exhibit No. CEH-2 Schedule 32, Adjustment No.31.

2/ Schedule LKM-12.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Reflect Flow Back of Excess Deferred Income Taxes
For the Rate Year Ending December 31, 2019

<u>Line</u> <u>No.</u>	<u>Description</u>	<u>Amount</u>	<u>1/</u>
1	Amortization of Excess Deferred Income Taxes	<u>\$ 265,189</u>	
2			
3	Adjustment to Federal Income Tax	<u>\$ (265,189)</u>	
4			
5			

Notes:

1/ Exhibit No. CEH-2 Schedule -4, Adjustment No.3.

SUEZ WATER PENNSYLVANIA INC.

Interest Synchronization Adjustment
For the Rate Year Ending December 31, 2019

Line No.	Description	Amount
1	Company Rate Base	\$ 207,949,669 1/
2	Weighted Cost of Debt	2.130%
3		
4	Adjusted Interest Deduction	\$ 4,429,328
5	Interest Deduction Per Company	5,186,994 2/
6		
7	Adjustment to Synchronize Interest Expense	\$ (757,666)
8	Effective State Income Tax Rate	9.99%
9		
10	Adjustment to State Income Taxes	\$ 75,691
11		
12	Federal Income Tax Base	\$ (681,975)
13	Federal Income Tax Rate	21.00%
14		
15	Adjustment to Federal Income Taxes	\$ 143,215

Notes:

1/ Schedule LKM-2, Page 1.

2/ Exhibit No. CEH-2, Schedule-34, Adjustment No. 33.

SUEZ WATER PENNSYLVANIA INC.

Calculation of Overall Rate of Return
For the Rate Year Ending December 31, 2019

<u>Line No.</u>	<u>Description</u>	<u>Capitalization Ratio</u>	<u>Cost Rate</u>	<u>Weighted Cost</u>
1	Long-Term Debt	45.82%	4.65%	2.13%
2	Short-Term Debt	0.00%	0.00%	0.00%
3	Total Debt	<u>45.82%</u>	<u>4.65%</u>	<u>2.13%</u>
4	Preferred Stock	0.00%	0.00%	0.00%
5	Common Equity	<u>54.18%</u>	<u>8.08%</u>	<u>4.38%</u>
6				
7	Total	<u><u>100.00%</u></u>		<u><u>6.51%</u></u>

Notes:

Per OCA Witness Rothschild.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission :
v. : Docket No. R-2018-3000834
SUEZ Water Pennsylvania, Inc. :

VERIFICATION

I, LAFAYETTE K. MORGAN, Jr., hereby state that the facts set forth in my Direct Testimony, OCA Statement No. 1, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATE: July 20, 2017

Signed: Lafayette K. Morgan, Jr.
Lafayette K. Morgan, Jr.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission)
)
v.) **Docket No. R-2018-3000834**
)
SUEZ Water Pennsylvania, Inc.)

**SURREBUTTAL TESTIMONY
OF
LAFAYETTE K. MORGAN, JR.**

**ON BEHALF OF THE
OFFICE OF CONSUMER ADVOCATE**

August 31, 2018

EXETER

ASSOCIATES, INC.

10480 Little Patuxent Parkway, Suite 300
Columbia, Maryland 21044

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Introduction

1
2 Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS
3 ADDRESS?

4 A. My name is Lafayette K. Morgan, Jr. My business address is 10480 Little Patuxent
5 Parkway, Columbia, Maryland, 21044. I am a Public Utilities Consultant working
6 with Exeter Associates, Inc. Exeter is a firm of consulting economists specializing in
7 issues pertaining to public utilities.

8 Q. ARE YOU THE SAME LAFAYETTE K. MORGAN, JR. WHO
9 SUBMITTED DIRECT TESTIMONY ON JULY 20, 2018 IN THIS
10 PROCEEDING?

11 A. Yes, I am.

12 Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

13 A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimonies of
14 SUEZ's witnesses John D. Hollenbach, Constance E. Heppenstall, James C. Cagle,
15 Harold Walker, III and John J. Spanos that were filed on August 17, 2018.

16 Q. HAVE YOU PREPARED REVISED SCHEDULES TO ACCOMPANY
17 YOUR TESTIMONY?

18 A. Yes. I have prepared Surrebuttal Schedules LKM-1 through LKM-24. These
19 schedules follow the same format and overall presentation of my direct testimony.
20 However, certain schedules have been revised or updated to reflect the OCA's
21 updated recommended change in revenues based upon changes and discussions that
22 were made in the Company's rebuttal testimony. For ease in comparison to my direct
23 testimony, I have retained the same format.

Summary and Recommendations

1
2 Q. PLEASE SUMMARIZE THE REVISED RATE RELIEF YOU ARE
3 RECOMMENDING FOR SUEZ IN THIS SURREBUTTAL TESTIMONY.

4 A. In my direct testimony, I indicated that the Company's proposed additional revenue
5 of \$6,236,405 should be reduced to reflect a net decrease of \$3,483,852. In the
6 revenue requirement rebuttal testimony of Ms. Heppenstall, she indicates that some of
7 the revenue requirement items have changed as a result of further consideration or in
8 response to the adjustments proposed by the parties to this proceeding. After
9 incorporating those changes, the Company's proposed revenue increase has been
10 reduced from \$6,236,405 to \$5,352,005. After reviewing and considering the
11 Company's rebuttal testimony I am reflecting certain changes to my direct testimony.
12 These changes result in a revision of the change in revenue that I am recommending.
13 As shown on Surrebuttal Schedule LKM-1, I am recommending a decrease in
14 revenues of \$2,866,005.

15 Q. IN REBUTTAL, DID THE COMPANY AGREE WITH ANY OF YOUR
16 ADJUSTMENTS?

17 A. Yes. The Company agrees to remove the Mahoning Acquisition from the rate case,
18 as discussed in the rebuttal testimonies of Mr. Hollenbach, Ms. Heppenstall and Mr.
19 Spanos. Ms. Heppenstall also indicates the Company does not object to or agrees
20 with my adjustments to Revenue Annualization, Materials and Supplies, and
21 Transportation Expense. Where a Company witness indicates partial agreement with
22 my recommendation, I discuss that below.

23 Q. BASED UPON YOUR REVIEW OF THE COMPANY'S TESTIMONY,
24 ARE THERE OTHER ISSUES WHERE YOU AGREE WITH THE
25 COMPANY AFTER REVIEWING ITS REBUTTAL TESTIMONIES?

1 A. Yes. I have accepted the Company's position on the following issues as described
2 below:

- 3 • I have accepted the Purchased Power Expense adjustment as proposed by the
4 Company.
- 5 • I have accepted the Company's Convenience Fee for customer payments and
6 have included the \$150,000 in the revenue requirement.
- 7 • I have withdrawn my adjustment to reduce the revenue requirement to reflect
8 the Excess Deferred Income Tax amortization.

9 **Average Rate Base**

10 Q. PLEASE RESPOND TO MS. HEPPENSTALL'S REBUTTAL
11 TESTIMONY REGARDING YOUR USE OF AVERAGE PLANT IN
12 SERVICE AND RELATED COMPONENTS IN THE FPFTY RATE BASE.

13 A. In my direct testimony, I disagreed with the Company's use of the FPFTY end of
14 period balances in determining the rate base for this proceeding and explained why
15 the average balance should be used instead.

16 Ms. Heppenstall disagrees with my position and states that legal counsel has
17 advised that the Commission may permit facilities that are projected to be in service
18 during the fully projected future test year to be included in the rate base. For this
19 reason, the Company believes its use of ending balances is proper.

20 My position, regarding the FPFTY rate base, recognizes that facilities that are
21 projected to be in use during the FPFTY are eligible for rate base inclusion. However,
22 as I explained in my direct testimony, the use of the average FPFTY balances for the
23 rate base components prevents the Company from recovering costs before those costs
24 are incurred and prevents customers from paying costs related to plant that will not be
25 in service throughout 2019. This is consistent with the Commission's used and useful,

1 prudent in nature and known and measurable ratemaking concepts. By reflecting the
2 level of plant in service, on average, throughout the FPPTY period, there is a better
3 matching of actual cost of service with the revenue requirement charged to customers.
4 Prior to Act 11, the use of the end of period rate base was allowed because the future
5 test year ended at approximately the same time that rates were scheduled to take
6 effect. Hence, the over collection problem was not at risk. Therefore, the Commission
7 should reject the Company's attempt to use the end of period balances to calculate
8 rate base.

9 **Cash Working Capital**

10 Q. MR. WALKER UPDATED THE COMPANY'S CASH WORKING
11 CAPITAL CLAIM. PLEASE COMMENT.

12 A. Mr. Walker's updated cash working capital reflects the changes the Company made
13 to its cost of service components. As I indicated earlier, the Company has made
14 changes to its cost of service and updated its revenue requirement. In my direct
15 testimony, I did not take issue with the lead/lag days but only adjusted the cost of
16 service components to reflect the OCA adjustments. In the attached revised
17 schedules, I have taken a similar approach and made adjustments to cash working
18 capital to reflect the updated OCA position. These adjustments are presented in
19 Surrebuttal Schedule LKM-9. Ultimately, however, the Cash Working Capital claim
20 will be determined by the adjustments to the Company's cost of service the
21 Commission finds reasonable.

22 **Route 15 Service Territory Expansion**

23 Q. PLEASE SUMMARIZE YOUR DISAGREEMENT WITH THE
24 COMPANY'S INCLUSION OF THE ROUTE 15 SERVICE TERRITORY
25 EXPANSION IN THE COST OF SERVICE.

1 A. In my direct testimony, I stated that I do not think it is appropriate to include the costs
2 of the Route 15 expansion in the cost of service in this base rate proceeding for
3 several reasons. First, I cited the conditions that the Commission placed on the
4 Company in its approval of the service territory expansion and explained that SUEZ
5 did not identify or provide the information the Commission specifically required to be
6 identified and provided in this base rate case.¹ As I stated in my direct testimony, this
7 information is needed to determine what costs, if any, should be included in the
8 revenue requirement. Second, I pointed out that in just six months, since the
9 application proceeding in which it sought approval of the service territory expansion,
10 the Company states that it has been able to shave off an entire year from the
11 construction period. Given the early stage of the project, the difference in the
12 Company's projections and the Company's admission that construction delays are not
13 uncommon, the project completion within FPFTY is too uncertain to include the costs
14 in rate base and operating expenses. Third, I raised the concern that the Company's
15 own data does not show that the project is economic.

16 Q. HOW HAS THE COMPANY RESPONDED TO YOUR ADJUSTMENT?

17 A. In rebuttal testimony, Mr. Hollenbach claims that the only basis for my conclusion to
18 remove the cost of the project is that it is not likely to go in service as proposed and
19 will be delayed. He proffers that the design will be completed by August 2018, bids
20 will be solicited in September, the project awarded in October, and construction will
21 commence once all permits are received and be completed by the end of December
22 2019.

23 Ms. Heppenstall, in her rebuttal testimony, responds to my position that the
24 Company has not fulfilled the five conditions established by the Commission in the

¹ Docket No. A-2017-2626908 January 18, 2018 Order, pages 8-9.

1 approval of the acquisition. She provides new information to address some, but not
2 all, of the conditions. In response to the Commission's requirement for a cost
3 comparison that quantifies the estimated cost of completing the extension using an 8-
4 inch diameter ductile iron water pipe (versus the proposed 16-inch pipe), she
5 indicates the Company estimates the cost differential to be \$900,000.

6 The following information remains outstanding:

- 7 1. Information on Customer Advances related to the project.
- 8 2. A detailed explanation justifying how the proposed 16-inch diameter
9 ductile iron water main is used and useful.
- 10 3. A hypothetical calculation of bona fide customer advance amounts for
11 each of the two businesses requesting water service in the Company's
12 application for expansion in the requested territory.

13 Q. DO YOU AGREE WITH MR. HOLLENBACH'S ASSERTION THAT THE
14 ONLY BASIS FOR YOUR CONCLUSION TO REMOVE THE COST OF
15 THE EXPANSION PROJECT IS THAT IT IS NOT LIKELY TO GO IN
16 SERVICE AS PROPOSED?

17 A. No. It is important to keep in mind that the completion date provided by the Company
18 has been vague in that the Company only states that the project will be completed by
19 the end of the FPFTY. It is noteworthy to mention that Mr. Hollenbach also states
20 that "construction will commence once all permits are received," which is an
21 unknown period of time. However, the uncertainty of the project completion is not
22 the only reason for my opposition to the inclusion of these costs.

23 When a whole year is shaved off the construction of a project, some of the
24 concerns it raises are: (1) Has the project been modified from that which was
25 presented before the Commission when the approval for expanded service territory

1 was sought? (2) Has the quality or capacity of the project been downgraded now that
2 approval for the expansion has been granted? (3) By shaving off an entire year from
3 the construction period, does it not make it more likely that the project could be
4 delayed beyond December 2019? (4) Would ratepayers be overcharged if these costs
5 are included in rates, but the project is not completed for another year? (5) Is it
6 appropriate for ratepayers to bear the risk of the Company over-recovering its costs,
7 especially given that the project appears to be uneconomic?

8 Q. MS. HEPPENSTALL DOES NOT PROVIDE ANY INFORMATION
9 RELATING TO CUSTOMER ADVANCES. IS THE INCLUSION OF
10 CUSTOMER ADVANCES SIGNIFICANT?

11 A. Yes. Information regarding customer advances was clearly a concern for the
12 Commission because it was one of the conditions the Commission placed on its
13 approval of the expanded service territory. The existence of customer advances has an
14 impact on the burden placed on the rest of the existing ratepayers for recovery of the
15 project costs. As I explained in my direct testimony, the Company has not shown that
16 this project is economic. The data provided by the Company in the application
17 proceeding showed an estimated net annual loss of \$24,267. The lack of customer
18 advances means that, if the claimed project costs are allowed in revenue requirement,
19 the Company's existing customers will be subsidizing the customers in the expansion
20 territory. On the other hand, if customer advances are collected after the rates are set
21 in this proceeding, then the Company will enjoy a windfall because its net costs will
22 be lower than the costs used to establish rates. The absence of information regarding
23 customer advances, so those amounts can be reflected in rates, demonstrates that the
24 inclusion of the project costs in rates is inappropriate at this time. Consistent with my
25 recommendation, the service area expansion costs should be excluded from revenue

1 requirement. In a future rate filing, when the Company is able to provide all of the
2 information required by the Commission in the application proceeding, the Company
3 can propose to include the project costs in rates, less customer advances.

4 Q. ARE THERE ADDITIONAL REASONS THAT YOU BELIEVE THAT
5 INCLUDING THE PROJECT COSTS IN THE REVENUE
6 REQUIREMENT IN THIS CASE IS PREMATURE?

7 A. Yes. I have already discussed my concern that the project completion date has
8 changed between the application proceeding and this case. In addition, there have also
9 been three different revenue projections since the Company made its filing in the
10 application proceeding, which also suggests the revenue projections are preliminary
11 at this point.

12 Specifically, in its filing in the application proceeding, SUEZ estimated the
13 total annual revenue from serving a projected additional 200 residential, 70
14 commercial customers and 35 public fire hydrants within the requested territory will
15 be approximately \$175,983.² In response to OCA discovery in this base rate
16 proceeding, SUEZ indicated revenues would be \$144,000 (OCA-IV-18). In its
17 revenue claim for the FPPTY, the Company included revenues of only \$119,862 from
18 the expansion area based on 252 residential customers. I note that this estimate does
19 not appear to include any revenue from the forty housing units mentioned by the
20 Columbia County Housing Corporation (CCHC), which was one of the sources of
21 potential customers that SUEZ relied on to show a need for service in the expansion
22 territory.³

² Docket No. A-2017-2626908 January 18, 2018 Order, page 6.

³ Docket No. A-2017-2626908 January 18, 2018 Order, page 2. According to CCHC, The Housing Corporation
“is currently investing in a site that could support approximately 40 housing units.”

1 Q. DO YOU AGREE WITH THE PROPOSED COST INCREASES
2 PRESENTED BY THE COMPANY?

3 A. No. Regarding the utility costs, the Company calculates the cost increases based upon
4 the additional square footage of the new office building. The Company indicates that
5 the new office building has 57 percent more square footage. Therefore, SUEZ is
6 claiming a 57 percent increase in the cost of utilities. The Company provided no
7 support for its assumption that there is a linear relationship between the size of the
8 office space and the costs of gas and electric utilities. As a result, I reject the
9 Company's claim for higher utility costs.

10 Regarding property taxes, the Company is projecting an increase in property
11 taxes by multiplying the book cost of the new office building by the tax rate.
12 Typically, property taxes are not assessed on current book values. Instead a tax
13 appraised value of the property is the basis of the property tax. Consequently, I
14 disagree with the property taxes presented by the Company.

15 I should note that I have requested additional data to substantiate the
16 Company's claim. I reserve the right to modify my position after I have reviewed the
17 data response. However, I am recommending that the Commission reject the
18 increases in utilities and property tax that the Company has presented as offsets to the
19 savings to be achieved from removing the old office lease expense.

20 **Payroll and Employee Benefits Expenses**

21 Q. PLEASE RESPOND TO THE COMPANY'S DISAGREEMENT WITH
22 YOUR ADJUSTMENT TO EMPLOYEE PAYROLL AND BENEFITS
23 EXPENSE.

24 A. My adjustments to payroll expense and employee benefits expense is composed of
25 two components. One is to remove the cost of the additional employee related to the

1 Mahoning Township Acquisition and the other is to normalize the level of employees
2 consistent with the FPFTY concept.

3 The Company has agreed with my adjustment to the salary and employee
4 benefits related to the Mahoning Township employee. However, the Company
5 disagrees with my adjustment to reflect the average FPFTY expense for the other four
6 new employees. The Company attempts to support its claim by stating that these
7 employees will be working for the Company after the FPFTY. The Company
8 adjustment should be rejected by the Commission. The Company has provided no
9 information to show that all of these employees will be hired as of the beginning of
10 the FPFTY and on payroll for the entire year. My adjustments are based on the more
11 reasonable expectation that some or all of the employees will be hired and on payroll
12 at different times during the year. Therefore, the inclusion of the full amount of their
13 salary and benefits would lead to an over recovery in the FPFTY.

14 **Pension Expense**

15 Q. PLEASE RESPOND TO THE COMPANY'S REBUTTAL TESTIMONY
16 RELATING TO PENSION EXPENSE.

17 A. In my direct testimony, I stated that my adjustment to pension expense was based
18 upon the rejection of the Company's approach applying a general inflation factor to
19 the prior year's pension expense to derive the FPFTY amount. The Company
20 disagrees with my adjustment and provided a chart to support its claim that its
21 inflation factor is reasonable. That chart has been reproduced below. As shown on the
22 chart, the annual change in pension expense does not mirror inflation. In fact, the data
23 on the chart can be interpreted to suggest that pension expense is in a declining trend,
24 so pension expense should be decreased.

1 Company was able to buy less water from a high cost producer in 2017. She states
2 that I have denied the additional costs related to buying water from SARAA, and that
3 after Company internal testing of SARAA water, the Company will be purchasing
4 water from SARAA.

5 First, with regard to the support for the inflation claim for purchased water, it
6 should be made clear that the support for the 4.1 percent to which Ms. Heppenstall
7 referred was a study prepared for the U.S. Department of Energy for annual water and
8 wastewater price escalation rates to use for decision-making in its life-cycle cost
9 analyses (LCA) on water efficiency projects. The 4.1 percent increase that the study
10 supports was not used by SUEZ. Instead, SUEZ used its general inflation factors of
11 2.125% for the FTY and 2.300% for the FPPTY. Hence, none of the data that the
12 Company has presented for purchased water inflation is Company-specific.

13 Before the Company can claim an inflationary adjustment, I believe it has the
14 burden of proof to show that it has faced cost increases due to inflation. The
15 Company disregards its own data and puts more weight on general inflation trends.
16 This is not appropriate, in my opinion, because it would result in recognizing cost
17 increases when there are none. The data that I have used is Company-specific and it
18 does not support the Company's claimed inflation.

19 Based upon the foregoing, the Commission should reject the Company's
20 claim.

21 **Purchased Power Expenses**

22 Q. PLEASE RESPOND TO MS. HEPPENSTALL'S REBUTTAL RELATING
23 TO YOUR PURCHASED POWER ADJUSTMENT.

24 A. In my direct testimony, I explained that I adjusted purchased power expense to
25 remove the impact of inflation from the revenue requirement. While the Company

1 agrees with this position, Ms. Heppenstall indicates that my adjustment does not use
2 the 3-year average of this expense which was proposed by the Company. She
3 indicates that my adjustment decreases the FPFTY expense to the 2017 purchased
4 power expense account for 2017 and that I have excluded \$161,516 of purchased
5 power expense which was erroneously recorded by the Company as fuel for power
6 production.

7 The intent of my adjustment was to remove the inflation escalation component
8 of the Company's adjustment. There was no intent to exclude \$161,516 of purchased
9 power expense. The problem stems from the Company's presentation of purchased
10 power expense in its direct filing. In the filing, on Exhibit No. CEH-2, Schedule-8,
11 line 1, the Company excluded the \$161,516 from the total purchased power expense
12 of \$1,242,836. My adjustment uses the \$1,242,836 as the annual expense amount for
13 2017. However, when the \$1,242,836 amount is added back to purchased power, the
14 actual per books expense for 2017 is \$1,404,353.

15 Ms. Heppenstall indicates that she has corrected the purchased power amount
16 and derived a revised 3-year average expense of \$1,411,713. The 3-year average of
17 Purchased Power expense without increases for inflation results in a reduction of
18 \$158,974 from the filed-for expense of \$1,570,688. After reviewing her testimony
19 and calculations, I do not oppose the Company's revised purchased power claim.

20 **Management and Service Fee**

21 Q. PLEASE RESPOND TO MS. HEPPENSTALL'S REBUTTAL RELATING
22 TO MANAGEMENT AND SERVICE FEE.

23 A. In my direct testimony, I adjusted the Management and Service (M&S) Fee to revise
24 the return component of the Common Asset Allocation to reflect the OCA

1 recommended return on equity and to reduce the inflation escalation that is applied to
2 the other shared service expenses from 3 percent to 2 percent.

3 None of the Company's witnesses addressed my adjustment specifically.
4 However, Ms. Heppenstall has proposed an adjustment to reduce M&S Fees by
5 \$101,961, but she does not explain the basis of her adjustment. Even though she
6 states that Mr. Cagle addresses M&S Fees, his testimony does not explain the
7 adjustment either.

8 While I have updated the amount of my adjustment to M&S Fees in
9 Surrebuttal Schedule LKM-17 to reflect the Company's revised claim, I have not
10 changed my methodology. Based upon the methodology described in my direct
11 testimony I am recommending an adjustment to reduce M&S Fees by \$104,927.
12 Therefore, I recommend that the Commission reject the Company's claimed M&S
13 Fees of \$5,219,561.

14 **Outside Contractors Expense**

15 Q. PLEASE RESPOND TO MS. HEPPENSTALL'S REBUTTAL RELATING
16 TO YOUR OUTSIDE CONTRACTORS EXPENSE.

17 A. In my direct testimony, I explained that I adjusted this expense to reflect only the
18 incremental costs over the test year that the Company would incur for the Western
19 Union convenience fee. Ms. Heppenstall explains in her rebuttal testimony that the
20 Western Union Payments were not being paid by the Company, and therefore, the full
21 amount of the \$150,000 should be included in the revenue requirement. After
22 reviewing Ms. Heppenstall's rebuttal testimony and additional review of the data
23 request responses, I accept the Company's position and will withdraw my adjustment
24 on this issue.

1 Company's depreciation expense claim, which is based on end of year instead of
2 average plant in service balances.

3 **Payroll Taxes**

4 Q. PLEASE COMMENT ON MS. HEPPENSTALL'S REBUTTAL
5 TESTIMONY ON PAYROLL TAXES.

6 A. The amount of my adjustment to payroll taxes has changed from my direct testimony
7 because of the Company's acceptance of my adjustment to remove the effects of the
8 Mahoning Township water system. Since there is still a disagreement with the
9 Company on the employees added during the FPFTY, as I explained above, I
10 continue to disagree with the Company's payroll tax claim. My recommended
11 adjustment is presented in Surrebuttal Schedule LKM-21.

12 **Tax Change and Jobs Act**

13 Q. MR. CAGLE DISAGREES WITH YOUR ADJUSTMENT TO REFLECT
14 THE AMORTIZATION OF THE TCJA TAX LIABILITY (EXCESS
15 DEFERRED INCOME TAXES) BECAUSE HE INDICATES THAT THE
16 COMPANY ALREADY REFLECTED THE AMORTIZATION OF THE
17 LIABILITY IN ITS REVENUE REQUIREMENT. PLEASE RESPOND.

18 A. After reading Mr. Cagle's testimony, I reexamined the Company's filing and its
19 proposed treatment of the amortization of the TCJA liability. Based upon that review,
20 I agree with Mr. Cagle and will withdraw my adjustment. I note that Mr. Cagle also
21 clarified that the Company will not begin amortizing the liability until the case is
22 resolved. Based on my understanding that the amortization will not begin until 2019,
23 I agree that adding 12 months of amortization of the TCJA regulatory liability to the
24 credit mechanism discussed below is not necessary.

1 Q. MR. CAGLE CONFIRMS THAT THE COMPANY DID NOT
2 INCORPORATE THE 2018 IMPACT OF THE TCJA TAX RATE CHANGE
3 IN THE REVENUE REQUIREMENT. PLEASE COMMENT.

4 A. While Mr. Cagle recommends a 3-year flow back of the tax expense savings to
5 customers, I have recommended that the projected 2018 tax expense savings be
6 flowed back to customers through a surcredit mechanism over a period no longer than
7 the period over which the savings accrued. I also offered, as an alternative, that the
8 savings could be flowed back to customers through a one-time credit in the first
9 quarter after new rates take effect.

10 My understanding of I&E witness Grab's proposal is that the tax expense
11 savings should be returned to ratepayers through a credit mechanism over a one-year
12 period beginning at the date of implementation of new rates from this case. In the 13th
13 month after the flowback, a true-up can be made to settle any over or under recovery
14 of the credit mechanism. This is a reasonable approach and is in line with my
15 recommendation. I am not opposed to it. However, I wish to clarify two items. First,
16 the credit flowed back to customers should include the revenue requirement reduction
17 resulting from the tax expense savings for 2019 prior to the effective date of the credit
18 mechanism, *i.e.* if the credit mechanism begins on February 1, 2019, the credit should
19 include the revenue requirement reduction resulting from the tax expense savings
20 from January 1, 2018 through January 31, 2019. Second, the credit should include
21 interest accrued on the revenue requirement change during 2018 and 2019.

22 In his rebuttal, Mr. Cagle states that returning the amount through a surcredit
23 mechanism over a 12-month period is possible but proposes that a reconciliation be
24 addressed in a future rate filing. I agree with Mr. Grab that the true-up should occur
25 in the 13th month, to return the tax expense savings to customers as soon as possible

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission)
)
v.) **Docket No. 2018-3000834**
)
SUEZ Water Pennsylvania, Inc.)

**SCHEDULES ACCOMPANYING THE
SURREBUTTAL TESTIMONY
OF
LAFAYETTE K. MORGAN, JR.**

**ON BEHALF OF THE
OFFICE OF CONSUMER ADVOCATE**

August 31, 2018

SUEZ WATER PENNSYLVANIA INC.

Summary of Operating Income
For the Rate Year Ending December 31, 2019

Line No.	Description	Company Amounts at Present Rates	OCA Adjustments	Amounts After OCA Adjustments	Pro Forma Change in Revenues	Amounts After Change in Revenues
	<u>Operating Revenues</u>					
1	Operating Revenues	\$ 46,722,995	\$ (134,277)	\$ 46,588,718	\$ -	\$ 46,588,718
2	Revenue Increase	-	-	-	(2,866,005)	(2,866,005)
3	Total Operating Revenues	\$ 46,722,995	\$ (134,277)	\$ 46,588,718	\$ (2,866,005)	\$ 43,722,713
4						
	<u>Operating Expenses</u>					
6	O&M Expenses	\$ 18,363,318	\$ (595,393)	\$ 17,767,925	\$ (10,203)	\$ 17,757,722
7	Depreciation	8,615,462	(558,870)	8,056,592	-	8,056,592
	Amortization of Acquisition Adjustment	57,744	-	57,744	-	57,744
	Amortization of Regulatory Asset	(264,891)	-	(264,891)	-	(264,891)
8	Taxes Other Than Income Taxes	962,957	(9,961)	952,996	(14,436)	938,560
9	Total Operating Expenses	\$ 27,734,590	\$ (1,164,224)	\$ 26,570,366	\$ (24,639)	\$ 26,545,727
10						
11	Operating Income Before Income Taxes	\$ 18,988,405	\$ 1,029,947	\$ 20,018,352	\$ (2,841,366)	\$ 17,176,986
12						
13	Federal & State Income Taxes	\$ 3,862,623	\$ 469,301	\$ 4,331,924	\$ (820,930)	\$ 3,510,994
14						
15	Net Operating Income	\$ 15,125,782	\$ 560,646	\$ 15,686,428	\$ (2,020,436)	\$ 13,665,992
16						
17	Rate Base	\$ 237,757,639		\$ 209,923,075		\$ 209,923,075
18						
19	Return On Rate Base	6.36%		7.47%		6.51%

SUEZ WATER PENNSYLVANIA INC.

Summary of Revenue Increase at OCA Rate of Return
For the Rate Year Ending December 31, 2019

Line No.	Description	Amount	Source
1	Adjusted Rate Base	\$ 209,923,075	Surrebuttal Schedule LKM-2, Page 2
2	Required Rate of Return	6.510%	Per OCA Witness Rothchild
3			
4	Net Operating Income Required	\$ 13,665,992	
5	Net Operating Income at Present Rates	15,686,428	Surrebuttal Schedule LKM-1, Page 1
6			
7	Income Deficiency/(Surplus)	\$ (2,020,436)	
8	Revenue Multiplier	1.418508	
9			
10	Required Change in Company Revenue	\$ (2,866,005)	
11			
12	Proposed Revenue Change	\$ (2,866,005)	
13	Less: Uncollectibles	0.3560% (10,203)	
14	Revenues After Uncollectibles	(2,855,802)	
15	Gross Receipts Tax	0.0000% 0	
16	PUC / OCA & SBA Assessment	0.5037% (14,436)	
17	Income Before State Taxes	\$ (2,841,366)	
18	State Income Tax Effect Tax Rate	9.9900%	
19	Less: State Income Tax	(283,852)	
20			
21	Income Before Federal Taxes	\$ (2,557,513)	
22	Federal Income Tax	21.0000% (537,078)	
23			
24	Net Income Surplus/(Deficiency)	\$ (2,020,436)	

SUEZ WATER PENNSYLVANIA INC.

Summary of Rate Base
For the Rate Year Ending December 31, 2019

Line No.	Description	Amount per Company Filing	OCA Rate Base Adjustments	Amount After OCA Adjustments
1	Utility Plant	\$ 403,249,792	\$ (29,837,885)	\$ 373,411,908
2	Accumulated Depreciation	<u>(85,189,362)</u>	<u>3,384,139</u>	<u>(81,805,224)</u>
3	Net Plant in Service	\$ 318,060,430	\$ (26,453,746)	\$ 291,606,684
4	Additions			
5	Working Capital	\$ 842,151	\$ (789,169)	\$ 52,982
6	Materials & Supplies	<u>481,594</u>	<u>-</u>	<u>481,594</u>
7	Total Rate Base Additions	\$ 1,323,745	\$ (789,169)	\$ 534,576
8	Deductions			
9	Customer Deposits	\$ -	\$ -	\$ -
10	Customer Advances for Construction	(63,114,693)	-	(63,114,693)
11	Rate Base for Infrastructure Investment (Act 40)	-	(771,617)	(771,617)
12	Regulatory Liability	-	-	-
13	TCJA Regulatory Liability	(9,800,960)	(132,446)	(9,933,406)
14	Accumulated Deferred Income Taxes	<u>(8,710,883)</u>	<u>312,414</u>	<u>(8,398,470)</u>
15	Total Rate Base Deductions	\$ (81,626,536)	\$ (591,649)	\$ (82,218,185)
16				
17	Total Rate Base	<u>\$ 237,757,639</u>	<u>\$ (27,834,564)</u>	<u>\$ 209,923,075</u>

SUEZ WATER PENNSYLVANIA INC.

Summary of Rate Base Adjustments
 For the Rate Year Ending December 31, 2019

Line No.	Description	Source	Amount
1	Rate Base per Company Filing	Surrebuttal Schedule LKM-2, Page 1	\$ 237,757,639
2			
3			
4	<u>OCA Adjustments:</u>		
5	Reflect Average Balance for Plant and Related Items	Surrebuttal Schedule LKM-5	\$ (17,343,978)
6	Remove Mahoning Township Water System	Surrebuttal Schedule LKM-6	-
7	Remove Route 11 Expansion Territory	Surrebuttal Schedule LKM-7	(8,929,800)
8	Remove Cost of New Office Building	Surrebuttal Schedule LKM-8	-
9	Reflect the Requirements of Act 40	Surrebuttal Schedule LKM-10	(1,543,234)
10	Adjustment to Cash Working Capital	Surrebuttal Schedule LKM-9	(17,552)
11			-
12			
13	Total Ratemaking Adjustments		\$ (27,834,564)
14			
15	Adjusted Rate Base per OCA		\$ 209,923,075

SUEZ WATER PENNSYLVANIA INC.

Summary of Adjustments to Income Before Income Taxes
 For the Rate Year Ending December 31, 2019

Line No.	Amount	Source
1	\$ 15,125,782	Surrebuttal Schedule LKM-1
2		
3		<u>OCA Adjustments:</u>
4	\$ -	Surrebuttal Schedule LKM-6
5	(35,314)	Surrebuttal Schedule LKM-7
6	21,488	Surrebuttal Schedule LKM-8
7	(3,167)	Surrebuttal Schedule LKM-10
8	66,567	Surrebuttal Schedule LKM-11
9	23,766	Surrebuttal Schedule LKM-12
10	23,054	Surrebuttal Schedule LKM-13
11	81,281	Surrebuttal Schedule LKM-14
12	-	Surrebuttal Schedule LKM-15
13	-	Surrebuttal Schedule LKM-16
14	74,611	Surrebuttal Schedule LKM-17
15	79,996	Surrebuttal Schedule LKM-18
16	52,608	Surrebuttal Schedule LKM-19
17	347,483	Surrebuttal Schedule LKM-20
18	-	Surrebuttal Schedule LKM-21
19	(171,727)	Surrebuttal Schedule LKM-22
20	-	
21	560,646	
22		
23	\$ 15,686,428	

SUEZ WATER PENNSYLVANIA INC.

Summary of Adjustments to Income Before Income Taxes
 For the Rate Year Ending December 31, 2019

Line No.	Operating Revenues	O&M Expenses	Depreciation & Amortization	Taxes Other Than Income	State & Federal Income Taxes	Operating Income Before Income Taxes
1	\$ 46,722,995	\$ 18,363,318	\$ 8,408,315	\$ 962,957	\$ 3,862,623	\$ 15,125,782
2						
3	<u>OCA Adjustments:</u>					
4	\$ -	\$ -	\$ -	\$ -	-	\$ -
5	(119,862)	-	(70,200)	-	(14,348)	(35,314)
6	-	(30,219)	-	-	8,731	21,488
7	(14,415)	-	-	(9,961)	(1,287)	(3,167)
8	-	(93,614)	-	-	27,047	66,567
9	-	(33,422)	-	-	9,656	23,766
10	-	(32,421)	-	-	9,367	23,054
11	-	(114,307)	-	-	33,026	81,281
12	-	-	-	-	-	-
13	-	-	-	-	-	-
14	-	(104,927)	-	-	30,316	74,611
15	-	(112,500)	-	-	32,504	79,996
16	-	(73,983)	-	-	21,375	52,608
17	-	-	(488,670)	-	141,187	347,483
18	-	-	-	-	-	-
19	-	-	-	-	171,727	(171,727)
20						
21	\$ (134,277)	\$ (595,393)	\$ (558,870)	\$ (9,961)	\$ 469,301	\$ 560,646
22						
23	\$ 46,588,718	\$ 17,767,925	\$ 7,849,445	\$ 952,996	\$ 4,331,924	\$ 15,686,428

SUEZ WATER PENNSYLVANIA INC.

Calculation of Current of State and Federal Income Taxes
For the Rate Year Ending December 31, 2019

Line No.	Description	After Company Adj		OCA Adjustments		After OCA Adjustments		After OCA Rate Change	
		Dec-19 Federal	Dec-19 State	Dec-19 Federal	Dec-19 State	Dec-19 Federal	Dec-19 State	Dec-19 Federal	Dec-19 State
		Income Tax Current Rates	Income Tax Current Rates	Income Tax Current Rates	Income Tax Current Rates	Income Tax Proposed Rates	Income Tax Proposed Rates	Income Tax Current Rates	Income Tax Current Rates
1	Operating Income Before Income Taxes	\$ 18,988,405	\$ 18,988,405	\$ 1,029,947	\$ 1,029,947	\$ 20,018,352	\$ 20,018,352	\$ (2,841,366)	\$ (2,841,366)
2	Interest Expense	5,065,736	5,065,736	(594,375)	(594,375)	4,471,361	4,471,361	-	-
3	State Income Tax	1,140,177		162,270		1,302,447		(283,852)	
4	Repair Adjustment on 2018 Additions								
5	Repair Adjustment on 2019 Additions	2,222,921	2,222,921	-	-	2,222,921	2,222,921	-	-
9	Excess Of Tax Depreciation Over Book	388,034	598,577	-	-	388,034	598,577	-	-
10	Taxable Income	\$ 10,171,537	\$ 11,101,171	\$ 1,462,052	\$ 1,624,322	\$ 11,633,589	\$ 12,725,493	\$ (2,557,513)	\$ (2,841,366)
11	Income Tax Rate	21.00%	9.99%	21.00%	9.99%	21.00%	9.99%	21.00%	9.99%
12	Pro Forma Income Tax : Current	2,136,023	1,109,007	307,031	162,270	2,443,054	1,271,277	(537,078)	(283,852)
13	CTA Adjustment								
14	Amortization of Flow through Taxes	38,123	31,170	-	-	38,123	31,170	-	-
15	Amortization of Income Tax Credit	-		-		-		-	
16	Total - Current Income Taxes	\$ 2,174,145	\$ 1,140,177	\$ 307,031	\$ 162,270	\$ 2,481,176	\$ 1,302,447	\$ (537,078)	\$ (283,852)
	Deferred Income Tax:								
17	Repair Adjustment	2,222,921		-		2,222,921		-	
18	Less: State Deduction								
19	Income Tax Rate	21.00%		21.00%		21.00%		21.00%	
20	Deferred Income Tax - Repair Adjustment	466,813		-		466,813		-	
21	Excess Of Tax Depreciation Over Book	\$ 388,034		\$ -		\$ 388,034	\$ -	\$ -	
22	Less: State Deferred Income Tax								
23	Income Tax Rate	21.00%	9.99%	21.00%	9.99%	21.00%	9.99%	21.00%	9.99%
24	Deferred Income Tax - Tax/Book Deprec.	81,487				81,487			
25	Total Deferred Income Tax (L20+L24)	548,301				548,301			
26	Amortization of EDIT								
27	Total Income Taxes (L16+L25)	\$ 2,722,446	\$ 1,140,177	\$ 307,031	\$ 162,270	\$ 3,029,477	\$ 1,302,447	\$ (537,078)	\$ (283,852)
	Total Income Taxes		\$ 3,862,623		\$ 469,301		\$ 4,331,924		\$ (820,930)

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Rate Base to Reflect Average Balance for Plant and Related Items
 For the Rate Year Ending December 31, 2019

Line No.	Description	Balance Per Company at December 31, 2019	1/	Balance Per Company at December 31, 2018	1/	Average Balance per OCA	OCA Adjustment
1	Plant In Service	\$ 403,249,792		\$ 361,574,023		\$ 382,411,908	\$ (20,837,885)
2							
3	Accumulated Depreciation	(85,189,362)		(78,561,485)		(81,875,424)	3,313,939
4							
5	Net Plant	\$ 318,060,430		\$ 283,012,538		\$ 300,536,484	\$ (17,523,946)
6							
7	CIAC and Contributions	(63,114,693)		(63,114,693)		(63,114,693)	-
8							
9	TCJA Regulatory Liability	(9,800,960)		(10,065,851)		(9,933,406)	(132,446)
10							
11	Accumulated Deferred Income Taxes	(8,710,883)		(8,086,056)		(8,398,470)	312,414
12							
13	Net Balance	\$ 236,433,894		\$ 201,745,938		\$ 219,089,916	\$ (17,343,978)

Notes:

1/ Exhibit No. CEH-1, Schedule 1.1.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Remove Mahoning Township Water System
 For the Rate Year Ending December 31, 2019**

Line No.	Description	Depreciation	
		1/ Rate	2/ Amount
1	Adjustment to Plant in Service		\$ - 1/
2			
3	Adjustment to Accumulated Depreciation		\$ - 1/
4			
5	Net Adjustment to Rate Base		\$ -
6			
7	Operating Revenues		\$ -
8			
9	Adjustment to Depreciation Expense		- 1/
10			
11	Adjustment to Purchased Water		- 2/
12			
13	Energy/ Power Expense		- 2/
14			
15	Additional Subcontractor		- 2/
	Total Adjustment to O&M Expenses		\$ -

Notes:

1/ Schedule LKM-5, page 2.

2/ Exhibit No. CEH-2, Schedule 29, Adjustment No. 28.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Remove Route 15 Expansion Territory
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>
1	Plant in Service	\$ (9,000,000) 1/
2	Depreciation Reserve	<u>70,200</u>
3		
4	Adjustment to Rate Base	<u>\$ (8,929,800)</u>
5		
6	Operating Revenues	<u>\$ (119,862)</u>
7		
8	Adjustment to Depreciation Expense @ 1.56% 2/	<u>\$ (70,200)</u>

Note:

1/ Company response to OCA-IV-19.

2/ Company response to OCA-IV-16.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Related to Cost of Administrative Office Building
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>	<u>1/</u>
	<u>Costs Related to New Office Building:</u>		
1	Plant in Service	\$ -	
2	Depreciation Reserve	-	
3			
4	Adjustment to Rate Base	\$ -	
5			
6	Adjustment to Depreciation Expense @ 2.60% ^{2/}	\$ -	
7			
8	<u>Removal of Costs Related to Old New Office Building:</u>		
9	Amount to be Removed per OCA	\$ 60,477	
10	Amount to be Removed per Company	30,258	
11			
12	Adjustment to O&M Expense	\$ (30,219)	

Note:

1/ Exhibit CEH-2-R, Schedule-16.

2/ Exhibit No. JJS-3, Account No. 304.51.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Cash Working Capital to Reflect O&M Adjustments
 For the Rate Year Ending December 31, 2019

Line No.	Utility Operating Expenses	Net Lag Days	Amounts Ending 12/31/2019	OCA Adjustments	After OCA Adjustments	Cash Working Capital
1	Labor Expense	19.9	\$ 5,419,097	\$ (93,614)	\$ 5,325,483	\$ 290,348
2	Employee Group Health & Life	20.6	1,425,129	(33,422)	1,391,707	78,546
3	Employee Pension Benefits	-24.1	1,442,010	(32,421)	1,409,589	(93,071)
6	Purchased Water	17.9	182,928	(114,307)	68,621	3,365
7	Purchased Power	6.3	1,411,713	-	1,411,713	24,367
8	Fuel for Power Production	-3.4	23,696	-	23,696	(221)
9	Chemicals	8.2	599,527	-	599,527	13,469
10	Materials and Supplies	22.8	255,816	-	255,816	15,980
11	Management and Service Fees	18.6	5,219,561	-	5,219,561	265,983
12	Lab Testing Fees	17.8	83,542	-	83,542	4,074
13	Outside Contractors	4.6	1,147,114	(112,500)	1,034,614	13,039
14	Outside Professional Services	-16.4	68,193	-	68,193	(3,064)
15	Rental - Building/Real Property	48	30,219	(30,219)	-	-
16	Rental of Equipment	38.4	51,375	-	51,375	5,405
17	Transportation Expense	2.3	560,322	(73,983)	486,339	3,065
18	Prop& Gen Liab. Insurance	92.9	4,935	-	4,935	1,256
19	Worker Compensation	19.6	110,717	-	110,717	5,945
22	Regulatory Commission Expense	110.3	262,302	-	262,302	79,266
25	Office Expense and Utilities	29.3	540,894	-	540,894	43,420
26	Postage and Air Freight Expense	3.2	366,358	-	366,358	3,212
27	Other O&M	19.5	203,938	-	203,938	10,895
28	Real Estate Tax	60.2	318,178	-	318,178	52,478
29	Payroll Taxes	14.7	644,779	(9,961)	634,818	25,567
30	Federal Income Taxes	-3.7	3,725,392	307,031	4,032,423	(40,877)
31	State Income Taxes	4.6	1,670,247	162,270	1,832,517	23,095
32						
33						\$ 825,542
34						843,094
35						
36				Adjustment to CWC		\$ (17,552)

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Rate Base to Reflect the Requirements of Act 40
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>
1	Consolidated Tax Savings Adjustment	<u>\$ 1,543,234</u> 1/
2		
3	Adjustment to Working Capital	<u>\$ (771,617)</u>
4		
5	Adjustment to Reflect Cost Free Capital	<u>\$ (771,617)</u>

Notes:

1/ Response to I&E-RE-63.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Annualized Revenues at Present Rates
 For the Rate Year Ending December 31, 2019**

Line No.	Customer Classification	Total Pro Forma Revenue Present Rates Per Company	Total Pro Forma Revenue Present Rates Per OCA	Adjustment to Revenues
1	METERED SALES			
2	Residential	\$ 29,345,020	\$ 29,157,892	\$ (187,128)
3	Commercial	11,958,637	12,131,350	172,713
4	Industrial	1,467,311	1,467,311	-
5	Public Sales	1,835,763	1,835,763	-
6				
7	Total Sales of Water	\$ 44,606,731	\$ 44,592,316	\$ (14,415)
8				
9	Private Fire	\$ 1,446,048	\$ 1,446,048	\$ -
10	Public Fire	923,861	923,861	-
11			-	-
12	Other Operating Revenues	405,611	405,611	-
13				
14	Total	\$ 47,382,250	\$ 47,367,835	\$ (14,415)

SUEZ WATER PENNSYLVANIA INC.

Summary of Revenue Under Present Rates
For the Rate Year Ending December 31, 2019

Line No.	Customer Classification	Adjusted Revenues, Per Books Present Rates 12/31/2017 (a)	Bill Analysis Revenues, Present Rates (Schedule 5)	Adjustment Factor	Revenues Under Present Rates	Pro Forma Adjustments Present Rates (Schedule 5 and 7)	Add Back Annualized DSIC Revenue	Total Pro Forma Revenue Present Rates
1	METERED SALES							
2	Residential	\$ 26,796,924	\$ 26,824,015	0.99899003	\$ 26,796,924	\$ 326,697	\$ 2,034,272	\$ 29,157,892
3	Commercial	11,045,912	11,048,045	0.99980693	11,045,912	239,065	846,373	12,131,350
4	Industrial	1,278,641	1,278,758	0.99990886	1,278,641	86,299	102,371	1,467,311
5	Public Sales	1,772,512	1,787,388	0.99167720	1,772,512	(64,825)	128,076	1,835,763
6								
7	Total Sales of Water	\$ 40,893,989	\$ 40,938,206		\$ 40,893,989	\$ 587,235	\$ 3,111,092	\$ 44,592,316
8								
9	Private Fire	\$ 1,436,836	\$ 1,436,836	1.00000000	1,436,836	\$ 9,211		1,446,048
10	Public Fire	923,861	923,861	1.00000000	923,861			923,861
11								
12	Other Operating Revenues	405,611	405,611		405,611			405,611
13								
14	Total	\$ 43,660,297	\$ 43,704,514		\$ 43,660,297	\$ 596,446	\$ 3,111,092	\$ 47,367,835

(a) Excludes DSIC and Unbilled Revenue.
(c) See Schedule 6.
(d) See Schedule 7.

SUEZ WATER PENNSYLVANIA INC.

Summary of Application of Present Rates to Customer Bill Analysis and Pro Forma Adjustments
 For the Rate Year Ending December 31, 2019

Line No.	Rate Zone	Residential	Commercial	Industrial	Large Industrial	Public Authority	Metered Total
1	<u>Present Rate Application</u>						
2							
3	Total Revenue	\$ 26,824,015	\$ 11,048,045	\$ 664,035	\$ 614,723	\$ 1,787,388	\$ 40,938,206
4							
5	Total	\$ 26,824,015	\$ 11,048,045	\$ 664,035	\$ 614,723	\$ 1,787,388	\$ 40,938,206
6							
7	<u>Pro Forma Adjustments - 2018</u>						
8							
9	Total Adjustments	\$ (160,210)	\$ 119,213		\$ 86,299	\$ (56,722)	\$ (11,420)
10							
11	Subtotal	\$ (160,210)	\$ 119,213	\$ -	\$ 86,299	\$ (56,722)	\$ (11,420)
12							
13	<u>Pro Forma Adjustments - 2019</u>						
14							
15	All	\$ (68,086)	\$ (58,278)			\$ (8,103)	\$ (134,467)
16	Trunk Line	\$ 119,862		\$ -			\$ 119,862
17	Mahoning Twp.	\$ 435,131	\$ 178,130				\$ 613,261
18							
19	Subtotal	\$ 486,907	\$ 119,852	\$ -	\$ -	\$ (8,103)	\$ 598,656
20							
21	Total Adjustments	\$ 326,697	\$ 239,065	\$ -	\$ 86,299	\$ (64,825)	\$ 587,235

SUEZ WATER PENNSYLVANIA INC.

Application of Present Rates and Proposed Rates to Pro forma Adjustments
 For the Rate Year Ending December 31, 2019

Line No.	Rate Block 1000 Gallons	Number Of Bills	Total Consumption	Test Year/Present Rate	Revenue	Proposed Rate	Proposed Revenue
1							
2	Customer Charge						
3	5/8	18,542	-	\$ 13.75	\$ 254,953	\$ 15.00	\$ 278,130
12	Subtotal	18,542	-		254,953		278,130
13							
14	All Usage - Test Year	-	(46,885)	7.7506	(363,386)	9.6700	(453,377)
15	Subtotal	-	(46,885)		(363,386)		(453,377)
16							
17							
18	Total Residential	18,542	(46,885)	-	(108,434)	-	(175,247)
19							
20							
21	Customer Charge						
22	5/8	-	-	13.75	-	15.00	-
23	3/4	-	-	13.75	-	15.00	-
24	1	678	-	28.50	19,323	31.09	21,079
31	Subtotal	678	-		19,323		21,079
32							
33	Test Year First Block (First 25)	-	5,369	7.7506	41,612	9.6700	51,917
34	Test Year Second Block (Over 25)	-	-	5.4321	-	7.1020	-
35	Subtotal	-	5,369		41,612		51,917
36							
37	Total Class	678	5,369		60,935		72,996
38							
39							
40	Customer Charge						
41	4	-	-	305.25	-	333.00	-
42	6	-	-	610.50	-	666.00	-
43	Subtotal	-	-		-		-
44							
45	Take or Pay Volume	-	23,942	3.6045	86,299	-	-
46	Subtotal	-	23,942		86,299		-
47							
48	Total	-	23,942		86,299		-
49							
50							
51	Customer Charge						
52	5/8	(112)	-	13.75	(1,540)	15.00	(1,680)
59	Subtotal	(112)	-		(1,540)		(1,680)
60							
61	First Block (First 160)	-	(2,800)	7.7506	(21,702)	9.6700	(27,076)
62	Second Block (Over 160)	-	(7,655)	5.4321	(41,584)	7.1020	(54,367)
63	Subtotal	-	(10,455)		(63,286)		(81,443)
64							
65	Total	(112)	(10,455)		(64,826)		(83,123)
66							
67	Total	19,108	(51,971)		(112,325)		(185,375)

SUEZ WATER PENNSYLVANIA INC.

Adjustment for Customer Growth Revenue Under Present Rates
 For the Rate Year Ending December 31, 2019

Line No.	Description	Residential	Commercial	Industrial	Public Authority	Private Fire	Total
<u>Historic TY Customer Growth Calculation</u>							
1	Actual Normalized Bills	652,728	56,712	612	2,952	1,018	714,022
2	Actual Annualized Bills	656,760	56,712	612	2,784	1,016	717,884
3	Projected Daily Usage in gallons (a)	110.20	811.00	14,515.03	3,111.67		18,548
4	Monthly Volumes per Normalization (1000 Gallons) Line 3 X30 /1000	3.31	24.33	435.45	93.35		
5	HTY Customer Annualized Growth Bills (Line 2-Line 1) Divided by 2	2,016	NA	NA	(84)	(1)	1,931
6	HTY Customer Annualized Growth Volumes (Line 4 X Line 5 / 2)	6,665	NA	NA	(7,841)	-	(1,177)
7	Priced At First Block	6,665			(2,100)		4,565
8	Priced At Second Block				(5,741)		(5,741)
9							
10							
11	Average Service Charge	\$ 13.75	\$ 28.50		\$ 13.75	\$ 110.98	
12	Revenue From Service Charge (Line 7 X Line 5)	\$ 27,720			\$ (1,155)	\$ (111)	
13	Volume Charge - First Block	7.7506	7.7506		7.7506		
14	Volume Charge - Second Block		5.4321		5.4321		
15	Revenue from Volumetric Charge (Line 9 X Line 6)						
16	Priced At First Block	\$ 51,657			\$ (16,276)		
17	Priced At Second Block				(31,188)		
18	Total Historical TY Adjustment (Line 8 + Line 10)	\$ 79,377			\$ (48,619)	\$ (111)	\$ 30,647
19							
20	Forecasted Customer Growth	562.6	28.3		(1.2)	3.5	
21	Annualized Bills (Line 12 X 12)	6,751	339		(14)	42	
22	Average Volumes Per Normalization						
23	Priced At First Block	3.31	24.33		25.00		
24	Priced At Second Block				68.35		
25	Normalized Volumes (Line 13 X Line 14)	22,319	8,248				
26	Revenue From Service Charge (Line 7 X Line 13)	\$ 92,826	\$ 9,662	\$ -	\$ (193)	\$ 4,661	\$ 106,956
27	Revenue from Volumetric Charge (Line 9 X Line 15)						
28	Priced At First Block	\$ 172,984	\$ 63,926		\$ (2,713)		\$ 234,197
29	Priced At Second Block	\$ -	\$ -		(5,198)		(5,198)
30	Total FTY Adjustment (Line 16 + Line 17)	\$ 265,810	\$ 73,587	\$ -	\$ (8,103)	\$ 4,661	\$ 335,956
31							
32	Forecasted Customer Growth	562.6	28.3		(1.2)	3.5	
33	Annualized Bills (Line 12 X 12)	6,751	339		(14)	42	
34	Average Volumes Per Normalization						
35	Priced At First Block	3.31	24.33		25.00		
36	Priced At Second Block				68.35		
37	Total	3.31	24.33		93.35		
38	Normalized Volumes (Line 13 X Line 14)	22,319	8,248		(350)		
39	Revenue From Service Charge (Line 7 X Line 13)	\$ 92,826	\$ 9,662	\$ -	\$ (193)	\$ 4,661	\$ 106,956
40	Revenue from Volumetric Charge (Line 9 X Line 15)						
41	Priced At First Block	\$ 172,984	\$ 63,926		\$ (2,713)		\$ 234,197
42	Priced At Second Block	\$ -	\$ -		(5,198)		(5,197)
43	Total FTY Adjustment (Line 16 + Line 17)	\$ 265,810	\$ 73,587	\$ -	\$ (8,103)	\$ 4,661	\$ 335,956
44	Total Adjustment	\$ 610,998	\$ 147,175	\$ -	\$ (64,825)	\$ 9,211	\$ 702,558
45							

(a) For residential and commercial, see declining usage workpaper. For Industrial and Public, based on 2017 usage.

	Residential	Commercial	Industrial	Public Authority	Private Fire Protection
48	Number of Customers				
49	53,269.3	4,669.0	51.1	248.5	1,011.1
50	53,804.7	4,686.8	51.0	248.2	1,021.9
51	54,394.4	4,725.6	51.0	246.2	1,018.2
52	535.4	17.8	(0.1)	(0.3)	10.8
53	589.8	38.8	-	(2.0)	(3.8)
54	562.6	28.3	(0.0)	(1.2)	3.5

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Reflect Declining Usage Revenues
 For the Rate Year Ending December 31, 2019

Line No.	Description	Residential	Commercial
1	Actual Normalized Bills	652,728	56,712
2	Actual 2017 Daily Usage (Gallons)	115.73	817.54
3	Projected Daily Usage in gallons - 2018	112.40	821.00
4	Difference in Daily Usage - Line 3 - Line 2	(3.33)	3.46
5	Difference in 1000 gallon Monthly Usage - Line 4 X 30 divided by 1000	(0.10)	0.10
6	Annual Declining Usage Adjustment - Line 1 X Line 5	(65,208)	5,887
7	Priced At First Block	(65,208)	5,887
8	First Block Under Present Rates	\$ 7,7506	\$ 7,7506
9	Adjustment Under Present Rates	\$ (505,397)	\$ 45,626

DECLINING USAGE REVENUE ADJUSTMENT - PRESENT RATES
 FOR THE TEST YEAR ENDING DECEMBER 31, 2019

		Residential	Commercial
10	Actual Normalized Bills	652,728	56,712
11	Actual 2017 Daily Usage (Gallons)	115.73	817.54
12	Projected Daily Usage in gallons - 2019	110.20	811.00
13	Difference in Daily Usage - Line 11 - Line 12	(5.53)	(6.54)
14	Difference in 1000 gallon Monthly Usage - Line 13 X 30 divided by 1000	(0.17)	(0.20)
15	Annual Declining Usage Adjustment - Line 10 X Line 5	(108,288)	(11,127)
16	Priced At First Block	(108,288)	(11,127)
17	First Block Under Present Rates	\$ 7,7506	\$ 7,7506
18	Adjustment Under Present Rates	\$ (839,294)	\$ (86,240)
19	Incremental Adjustment over 2018	\$ (333,896)	\$ (131,866)

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Annualize Payroll Expense
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>
1	Payroll Expense per OCA	\$ 5,325,483 1/
2		
3	Payroll Expense per Company	<u>5,419,097</u> 2/
4	Adjustment to O&M Expenses	<u>\$ (93,614)</u>

Notes:

1/ Calculated based on Workpaper CEH-2.1

2/ Exhibit No. CEH-2 Schedule -2, Adjustment No.1.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Annualize Employee Group Health & Life Insurance
 For the Rate Year Ending December 31, 2019**

Line No.	Description	Amount
	<u>Remove Proposed Employee for Mahoning Township</u>	
1	Cost per Employee	\$ 16,711 1/
2	Number of Employees	<u>-</u>
3		
4	Amount Related to Proposed Employee for Mahoning Township	\$ <u>-</u>
5		
6	<u>Reflect 1/2 Year Expense for Remaining New Employees</u>	
7	Cost per Employee	\$ 16,711 1/
8	Half-Year Factor	<u>2</u>
9		
10	Half-Year Expense	8,356
11	Number of Employees	<u>4</u>
12		
13	Amount Related to Remaining Employees	\$ <u>33,422</u>
14		
15	Total O&M Expense Adjustment	\$ <u>(33,422)</u>

Notes:

1/ Response to OCA-IV-10.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Annualize Pension Expense
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>	<u>1/</u>
1	OCA FPFTY Pension Expense	\$ 1,409,589	
2			
3	Company FPFTY Pension Expense	<u>1,442,010</u>	
4			
5	Adjustment to O&M Expense	<u>\$ (32,421)</u>	

Notes:

1/ Exhibit No. CEH-2 Schedule -4, Adjustment No.3.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Annualize Purchased Water Expense
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Amount</u> 1/
1	Reverse Inflation Increase	\$ 9,307
2		
3	Remove SARAA Purchased Water	<u>105,000</u>
4		
5	Adjustment to O&M Expense	<u>\$(114,307)</u>

Notes:

1/ Exhibit No. CEH-2 Schedule 7 Adjustment No.6.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Annualize Purchased Power Expense
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Amount</u> 1/
1	Reverse Inflation Increase	\$ -
2		
3	Adjustment to O&M Expense	\$ -

Notes:

1/ Exhibit No. CEH-2 Schedule 8 Adjustment No.7.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Annualize Materials and Supplies Expense
 For the Rate Year Ending December 31, 2019**

Line No.	Description	12 Months Ended 12/31/2017	1/	Future Test Year	1/	Fully Projected Future Test Year	1/
1	Materials and Supplies	\$ 254,476		\$ 250,065		\$ 255,816	
2							
3	Total Materials and Supplies					255,816	
4	FPFTY Expense per Company					255,816	
5							
6	Adjustment to O&M Expense					\$ -	
7							
8							
9							
10	<u>Year</u>	<u>Materials and Supplies Expense</u>					
11	2016	\$ 235,247					
12	2017	254,476					
13							
14	3 Year Average	\$ 244,861					
15							
16	<u>Inflation Rate:</u>						
17	Future Test Year			2.125%			
18	Fully Projected Future Test Year			2.300%			

Notes:

1/ Exhibit No. CEH-2 Schedule 11, Adjustment No.10.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Normalize Management & Services Fees
For the Rate Year Ending December 31, 2019

Line No.	Description	Amount
1	Historical Test Year Management & Service Fees	\$ 4,509,809 1/
2	Depreciation Related to Common Asset Allocation	<u>275,213 2/</u>
3		
4	Management & Service Fees Subject to Escalation	\$ 4,234,596
5	FTY Escalation	<u>102.125% 3/</u>
6		
7	FTY Management & Service Fee	\$ 4,324,581
8	FPFTY Escalation	<u>102.300% 3/</u>
9		
10	FPFTY Management & Service Fee	\$ 4,424,047
11	FPFTY Common Asset Allocation	<u>690,587</u>
12		
13	Total FPFTY Management & Service Fee	\$ 5,114,634
14	FPFTY Management & Service Fee per Company	<u>5,219,561 1/</u>
15		
16	Adjustment to O&M Expense	<u>\$ (104,927)</u>

Notes:

1/ Exhibit No. CEH-2-R, Schedule 12, Adjustment No.11.

2/ Response to I&E-RE-31.

3/ Exhibit No. CEH-2 Schedule 30, Adjustment No.29.

SUEZ WATER PENNSYLVANIA INC.

Calculation of Common Asset Allocation
 For the Rate Year Ending December 31, 2019

Line No. Description	Annualized Amount	
	12/31/2018 (a)	12/31/2019 (b)
1 Plant in Service	\$42,510,450	\$42,510,450
2 Accumulated Depreciation	13,339,436	19,356,696
3 ADIT	3,534,674	3,334,427
4 Net Rate Base	25,636,340	19,819,327
5 Pre-Tax ROR (1)	8.29%	8.29%
6 Return, Interest, and Income Taxes	2,125,253	1,643,022
7 Depreciation Expense	6,127,039	5,970,944
8 Total Annualized Amount	8,252,292	7,613,966
9 Allocation Factor	9.07%	9.07%
10 Pro forma total	748,483	690,587

(1) Calculation of Proposed Pre-tax Rate of Return:

	Capital Structure	Cost Rates	Weighted Cost Rates	Pre -Tax Rates
LTD	45.82%	4.65%	2.13%	2.13%
Equity	54.18%	8.08%	4.38%	6.16%
			6.51%	8.29%
				9.99%
				21.00%
				28.89%

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Annualize Outside Contractors Fees
 For the Rate Year Ending December 31, 2019

Line No.	Description	12 Months Ended 12/31/2017	Future Test Year	Fully Projected Future Test Year
1	Outside Contractors	\$ 748,644 1/	\$ 754,755 1/	\$ 772,114 1/
2				
3	Additional Convenience Fees			150,000 2/
4	NRW Study			75,000 3/
5	Inventory Process Study			37,500 4/
6	Total Outside Contractors			1,034,614
7	FPPTY Expense per Company			1,147,114 1/
8				
9	Adjustment to O&M Expense			\$ (112,500)
10				
11				
12	Year	Outside Contractor's Expense		
13	2016	729,456		
14	2017	748,644		
15				
16	Two Year Average	\$ 739,050		
17				
18	Inflation Rate:			
19	Future Test Year		2.125%	
20	Fully Projected Future Test Year		2.300%	

Notes:

1/ Exhibit No. CEH-2 Schedule 14, Adjustment No.13.

2/ ~~\$150,000 - \$138,236 (Incremental cost - Projected annual cost minus HTY cost).~~

3/ Four-year Amortization of \$ 300,000.

4/ Four-year Amortization of \$ 150,000.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Annualize Transportation Expense
For the Rate Year Ending December 31, 2019

Line No.	Description	12 Months Ended 12/31/2017	1/ Future Test Year	1/ Fully Projected Future Test Year	1/
1	Leases	\$ 304,464	\$ 285,266	\$ 377,583	
2	Car Allowance	15,800	16,136	16,507	
3	Fuel	138,998	132,582	135,631	
4	Maintenance & Repair	139,311	146,862	150,240	
5	Payroll				
6	Insurance	24,060	33,629	34,403	
7	Depreciation				
8	Disposal of Vehicle	(3,500)	(1,787)	(1,828)	
9	Other	5,998	5,279	5,400	
10					
11	Total Costs	\$ 625,129	\$ 617,967	\$ 717,936	
12	Less Cap and Billed Out	\$ (218,096)	\$ (226,390)	(231,597)	
13					
14				\$ 486,339	
15	Total Transportation Expense			560,322	
16					
17	Adjustment			\$ (73,983)	
18					
19					
20	Description	2016	2017	2 Year Average	
21					
22	Car Allowance	\$ 15,800	\$ 15,800	\$ 15,800	
23	Fuel	120,649	138,998	129,823	
24	Maintenance & Repair	148,302	139,311	143,806	
25	Payroll				
26	Insurance	41,799	24,060	32,930	
27	Depreciation				
28	Disposal of Vehicle	-	(3,500)	(1,750)	
29	Other	4,340	5,998	5,169	
30					
31	Less Cap and Billed Out	(225,263)	(218,096)	(221,679)	
32					
33	Inflation Rate:				
34	Future Test Year	2.13%			
35	Fully Projected Future Test Year	2.30%			
36					

Notes:

1/ Exhibit No. CEH-2 Schedule 18, Adjustment No.17.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Reflect FPFTY Depreciation Expense
For the Rate Year Ending December 31, 2019

Depreciable Group	2018 Projected Cost ^{1/} (a)	2019 Projected Cost ^{2/} (b)	Average Projected Cost (c)=Avg.(a)&(b)	Accrual Rate ^{2/} (d)	OCA Depreciation Expense (f)=(c)x(d)	SUEZ Depreciation Expense ^{2/} (g)	OCA Adjustment (h)
STRUCTURES AND IMPROVEMENTS							
304.2 PUMPING	\$ 3,721,078	\$ 3,721,078	\$ 3,721,078	2.22	\$ 82,608	\$ 82,531	\$ 77
304.3 WATER TREATMENT PLANT							
BLOOMSBURG TREATMENT PLANT	181,381	181,381	181,381	4.51	8,180	8,185	(5)
BLOOMSBURG TREATMENT PLANT - NEW	5,829,778	5,829,778	5,829,778	2.32	135,251	135,084	167
SIXTH STREET PLANT	4,160,027	4,160,027	4,160,027	2.73	113,569	113,621	(52)
RICHARD C. RABOLD	1,619,181	1,619,181	1,619,181	2.49	40,318	40,357	(39)
MARKET STREET	101,360	101,360	101,360	4.37	4,429	4,432	(3)
OLD HUMMELSTOWN PLANT	86,584	86,584	86,584	-	0	0	0
HUMMELSTOWN MEMBRANE PLANT	4,410,546	4,410,546	4,410,546	2.37	104,530	104,571	(41)
OTHER TREATMENT FACILITIES	3,087,574	3,087,574	3,087,574	2.28	70,397	70,316	81
TOTAL WATER TREATMENT PLANT	19,476,431	19,476,431	19,476,431	2.45	476,674	476,566	108
304.4 TRANSMISSION AND DISTRIBUTION	282,963	282,963	282,963	2.90	8,206	8,220	(14)
304.51 OFFICES							
BLOOMSBURG TREATMENT PLANT	9,036,736	9,246,556	9,141,646	2.32	212,086	214,075	(1,989)
OTHER OFFICES	900,934	902,220	901,577	2.60	23,441	23,422	19
TOTAL OFFICES	9,937,670	10,148,776	10,043,223	2.36	235,527	237,497	(1,970)
304.52 STORES, SHOP AND GARAGE							
SUMMIT VIEW MAINTENANCE BUILDING	1,377,181	3,796,913	2,587,047	4.09	105,810	155,397	(49,587)
OTHER MAINTENANCE BUILDINGS	186,828	461,118	323,973	3.58	11,598	16,519	(4,921)
TOTAL ACCOUNT STORES, SHOP AND GARAGE	1,564,009	4,258,031	2,911,020	5.91	117,408	171,916	(54,508)
304.53 MISCELLANEOUS	351,118	351,600	351,359	4.57	16,057	16,060	(3)
TOTAL STRUCTURES AND IMPROVEMENTS	35,333,269	38,238,879	36,786,074	2.70	936,480	992,790	(56,310)
305 COLLECTING AND IMPOUNDING RESERVOIRS	434,632	434,632	434,632	1.84	7,997	7,983	14
306 LAKE, RIVER AND OTHER INTAKES							
ROCKVILLE INTAKE	1,519,927	4,662,260	3,091,094	3.57	110,352	166,366	(56,014)
HUMMELSTOWN INTAKE	1,335,192	1,335,192	1,335,192	2.19	29,241	29,235	6
OTHER INTAKES	509,725	509,725	509,725	2.59	13,202	13,184	18
TOTAL LAKE, RIVER AND OTHER INTAKES	3,364,844	6,507,176	4,936,010	4.23	152,795	208,785	(55,990)
307 WELLS AND SPRINGS	1,028,042	1,028,042	1,028,042	1.70	17,477	17,514	(37)
308 INFILTRATION GALLERIES AND TUNNELS	13,358	13,358	13,358	2.99	399	400	(1)
PUMPING EQUIPMENT							
311.2 ELECTRIC PUMPING EQUIPMENT	14,889,846	16,323,712	15,606,779	3.58	558,723	584,088	(25,365)
311.3 OIL ENGINE PUMPING EQUIPMENT	314,156	314,156	314,156	1.22	3,833	3,833	(0)
TOTAL PUMPING EQUIPMENT	15,204,002	16,637,868	15,920,935	3.69	562,555	587,921	(25,366)
320.1 WATER TREATMENT PLANT							
STRUCTURES AND IMPROVEMENTS							
BLOOMSBURG TREATMENT PLANT	338,354	338,354	338,354	0.36	1,218	1,217	1
BLOOMSBURG TREATMENT PLANT - NEW	13,501,912	13,979,070	13,740,491	2.81	386,108	393,097	(6,989)
SIXTH STREET PLANT	10,577,146	10,677,578	10,627,362	2.07	219,986	220,784	(798)
RICHARD C. RABOLD	1,756,585	1,756,585	1,756,585	1.59	27,930	27,973	(43)
MARKET STREET	192,622	192,622	192,622	1.83	3,525	3,522	3
OLD HUMMELSTOWN PLANT	858,434	858,434	858,434	-	-	-	-
HUMMELSTOWN MEMBRANE PLANT	9,469,382	9,469,382	9,469,382	2.10	198,857	198,548	309
OTHER TREATMENT FACILITIES	892,814	892,814	892,814	1.83	16,338	16,326	12
TOTAL STRUCTURES AND IMPROVEMENTS	37,587,249	38,164,839	37,876,044	2.27	853,962	861,467	(7,505)
320.2 PAINTING	447,525	447,525	447,525	8.76	39,203	39,209	(6)
320.3 CHEMICAL EQUIPMENT	6,743,250	8,440,371	7,591,811	6.78	514,725	572,364	(57,639)
TOTAL WATER TREATMENT PLANT	44,778,024	47,052,735	45,915,380	3.21	1,407,890	1,473,040	(65,150)
330 DISTRIBUTION RESERVOIRS AND STANDPIPES	11,140,102	13,384,165	12,262,134	2.77	339,661	370,840	(31,179)
331 TRANSMISSION AND DISTRIBUTION MAINS	159,413,415	187,429,065	173,421,240	1.56	2,705,371	2,924,600	(219,229)
333 SERVICES	39,848,032	40,576,967	40,212,499	1.79	719,804	728,191	(8,387)
334 METERS	20,103,309	21,325,665	20,714,487	4.44	919,723	946,838	(27,115)
335 HYDRANTS	7,774,001	7,868,389	7,821,195	1.67	130,614	131,295	(681)
339 OTHER PLANT AND MISCELLANEOUS EQUIPMENT	539,255	539,255	539,255	1.56	8,412	8,424	(12)
OFFICE FURNITURE AND EQUIPMENT							
340.1 COMPUTERS AND SOFTWARE	3,298,776	2,646,181	2,972,478	3.05	90,661	80,752	9,909
340.11 SOFTWARE - LARGE	3,665,579	3,665,579	3,665,579	0.15	5,498	5,653	(155)
340.2 FURNITURE	659,446	659,446	659,446	5.03	33,170	33,197	(27)
TOTAL OFFICE FURNITURE AND EQUIPMENT	7,623,801	6,971,206	7,297,503	1.64	129,329	119,602	9,727
341 TRANSPORTATION EQUIPMENT - TRUCKS	1,057	1,057	1,057	20.33	215	215	(0)
TOOLS, SHOP AND GARAGE EQUIPMENT							
343.1 SHOP AND GARAGE EQUIPMENT	1,147,657	1,147,657	1,147,657	4.28	49,120	49,132	(12)
343.2 TOOLS AND WORK EQUIPMENT	2,066,263	2,187,579	2,126,921	5.02	106,771	109,862	(3,091)
TOTAL TOOLS SHOP AND GARAGE EQUIPMENT	3,213,920	3,335,236	3,274,578	4.86	155,891	158,994	(3,103)
344 LABORATORY EQUIPMENT	129,280	127,368	128,324	3.54	4,543	4,514	29
346 COMMUNICATION EQUIPMENT	6,929,738	7,076,787	7,003,262	7.83	548,355	554,240	(5,885)
347 MISCELLANEOUS EQUIPMENT	147,854	147,854	147,854	6.99	10,335	10,332	3
TOTAL	\$357,019,936	\$398,695,706	\$ 377,857,821	2.45	\$ 8,757,848	\$ 9,246,518	\$ (488,670)

Notes:

1/ Rebuttal Exhibit No. JJS-2.

2/ Rebuttal Exhibit No. JJS-3.

SUEZ WATER PENNSYLVANIA INC.

Adjustment to Payroll Taxes
For the Rate Year Ending December 31, 2019

<u>Line No.</u>	<u>Description</u>	<u>Rate</u>	<u>1/</u>	<u>Amount</u>	<u>2/</u>
1	Adjustment to Payroll			\$	(93,614)
2					
3	Social Security	6.20%		\$	(5,804)
4					
5	Medicare	1.45%		\$	(1,357)
6					
7	FUTA	0.60%		\$	(562)
8					
9	SUTA	2.39%		\$	<u>(2,238)</u>
10					
11	Total Adjustment			\$	<u>(9,961)</u>

Notes:

1/ Exhibit No. CEH-2 Schedule 32, Adjustment No.31.

2/ Schedule LKM-10.

SUEZ WATER PENNSYLVANIA INC.

**Adjustment to Reflect Flow Back of Excess Deferred Income Taxes
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>	<u>1/</u>
1	Amortization of Excess Deferred Income Taxes	\$ -	
2			
3	Adjustment to Federal Income Tax	\$ -	
4			
5			

Notes:

1/ Exhibit No. CEH-2 Schedule -4, Adjustment No.3.

SUEZ WATER PENNSYLVANIA INC.

**Interest Synchronization Adjustment
For the Rate Year Ending December 31, 2019**

<u>Line No.</u>	<u>Description</u>	<u>Amount</u>
1	Company Rate Base	\$ 209,923,075 1/
2	Weighted Cost of Debt	2.130%
3		
4	Adjusted Interest Deduction	\$ 4,471,361
5	Interest Deduction Per Company	5,065,736 2/
6		
7	Adjustment to Synchronize Interest Expense	\$ (594,375)
8	Effective State Income Tax Rate	9.99%
9		
10	Adjustment to State Income Taxes	\$ 59,378
11		
12	Federal Income Tax Base	\$ (534,997)
13	Federal Income Tax Rate	21.00%
14		
15	Adjustment to Federal Income Taxes	\$ 112,349

Notes:

1/ Schedule LKM-2, Page 1.

2/ Exhibit No. CEH-2-R, Schedule-34, Adjustment No. 33.

SUEZ WATER PENNSYLVANIA INC.

Calculation of Overall Rate of Return
For the Rate Year Ending December 31, 2019

<u>Line No.</u>	<u>Description</u>	<u>Capitalization Ratio</u>	<u>Cost Rate</u>	<u>Weighted Cost</u>
1	Long-Term Debt	45.82%	4.65%	2.13%
2	Short-Term Debt	0.00%	0.00%	0.00%
3	Total Debt	<u>45.82%</u>	<u>4.65%</u>	<u>2.13%</u>
4	Preferred Stock	0.00%	0.00%	0.00%
5	Common Equity	<u>54.18%</u>	<u>8.08%</u>	<u>4.38%</u>
6				
7	Total	<u><u>100.00%</u></u>		<u><u>6.51%</u></u>

Notes:

Per OCA Witness Rothschild.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission :
v. : Docket No. R-2018-3000834
SUEZ Water Pennsylvania, Inc. :

VERIFICATION

I, LAFAYETTE K. MORGAN, Jr., hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement No. 1-SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATE: August 31, 2018

Signed: Lafayette K. Morgan Jr.
Lafayette K. Morgan, Jr.

**BEFORE
THE PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission :

:

v.

:

Docket No. R-2018-3000834

:

SUEZ Pennsylvania Inc. :

:

**DIRECT TESTIMONY
OF
AARON L. ROTHSCHILD**

**ON BEHALF OF
THE OFFICE OF CONSUMER ADVOCATE**

July 20, 2018

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I. STATEMENT OF QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is Aaron L. Rothschild and my address is 15 Lake Road, Ridgefield, CT 06877.

Q. WHAT IS YOUR OCCUPATION?

A. I am a financial consultant specializing in cost of capital.

Q. WHAT IS YOUR EDUCATION AND EXPERIENCE?

A. I have a B.A. (1994) degree from Clark University in mathematics and an M.B.A. (1996) from Vanderbilt University. I provided financial analysis in the telecom industry in the United States and Asia Pacific from 1996 to 2001 and I have prepared rate of return testimonies since 2002. See Appendix A for my resume.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I am testifying on behalf of the Office of Consumer Advocate (“OCA”) to provide my recommendations to the Pennsylvania Public Utility Commission (“Commission”) in the SUEZ PA Pennsylvania Inc. (“SUEZ PA” or the “Company”) rate proceedings regarding: 1) cost of equity, 2) capital structure, and 3) overall cost of capital.

II. SUMMARY OF CONCLUSIONS

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. I recommend the following for the Company:

- An overall cost of capital of 6.51%;
- A cost of equity of 8.08%;
- A capital structure containing 54.18% common equity and 45.82% long-term debt;
- A long-term debt cost rate of 4.65%.

**TABLE 1: ALR RECOMMENDATION - SUEZ WATER PENNSYLVANIA INC.
Overall Cost of Capital**

	Capital Structure Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	45.82%	4.65%	2.13%
Common Equity	<u>54.18%</u>	8.08%	<u>4.38%</u>
	100.0%		6.51%

1

2 **Q. ARE THERE ELEMENTS OF THE COMPANY'S COST OF CAPITAL**
3 **POSITION WHICH YOU ARE ADOPTING?**

4 **A.** Yes. My overall rate of return recommendation is based upon SUEZ PA's proposed
5 capital structure of 45.82% debt and 54.18% common equity. I have also accepted SUEZ
6 PA's 4.65% cost rate for long-term debt. I have used the same Water Proxy Group of six
7 publicly-traded water utilities ("Water Proxy Group") as the Company's cost of capital
8 witness, Dylan W. D'Ascendis.¹

9 **Q. PLEASE SUMMARIZE HOW YOU DETERMINED YOUR 8.08% COST OF**
10 **EQUITY RECOMMENDATION.**

11 **A.** To arrive at my recommendations, I applied the Discounted Cash Flow Model ("DCF"),
12 including a Constant Growth and a Non-Constant Growth method to the Water Proxy
13 Group using data available through May or June 2018. I also used a Capital Asset
14 Pricing Model ("CAPM") analysis, as a check on the reasonableness of the DCF
15 indicated results. I then adjust the cost of equity indicated for the Water Proxy Group

¹ Mr. D'Ascendis sometimes refers to the same group of six water utilities as his "Utility Proxy Group."

1 downward to reflect SUEZ PA's lower financial risk, based on SUEZ PA's higher
2 common equity ratio relative to the Water Proxy Group average.

3 **Q. WHAT ARE THE KEY CONSIDERATIONS IN YOUR COST OF EQUITY**
4 **ANALYSIS?**

5 **A.** Because the cost of equity is not a published figure like a bond yield, some interpretation
6 is required to determine the appropriate market price. My cost of equity recommendation
7 is based on my computation of what the market indicates investors require (return on
8 investment) to provide capital to companies with comparable risk to SUEZ PA. In my
9 CAPM, I use current market data, which measures investors' expectations directly,
10 instead of using interest rate forecasts and historical data. As Mr. D'Ascendis explains,
11 "marketplace data must be relied on in assessing a common equity cost rate"² and the
12 cost of equity in this proceeding should be based on investor's expectations.³ However,
13 as explained below, Mr. D'Ascendis' cost of equity recommendation of between 10.40%-
14 11.50% is not market-based. My market-based perspective uses the forecasts represented
15 in market prices. This is superior to approaches that use "expert" forecasts, instead of
16 what the market expects as indicated by market data, for the following two reasons: 1) the
17 actual cost of equity SUEZ PA will pay when it raises money will be determined by the
18 market and not by financial publications and 2) evidence supports that predicting capital
19 markets (e.g. interest rates, stock prices) is virtually impossible.⁴

20 I determined that the cost of equity for the average company in the Water Proxy
21 Group is 8.25%.⁵ This result is within the range of my Constant Growth and Non-

² D'Ascendis' Direct Testimony, Statement No. 5, page 5, lines 13-14.

³ D'Ascendis' response to OCA-II-11, a. and b.

⁴ Daniel Kahneman, *Thinking Fast and Slow* (New York: Farrar, Straus and Giroux, 2011): 215.

⁵ Schedule ALR 2.

1 Constant Growth DCF results, which are between 7.61% and 8.27%.⁶ My CAPM result
 2 of between 7% and 8%⁷ provides a check on the reasonableness of my DCF results.

TABLE 2: Cost of Equity Model Results

	Stock Price	
	Average for Year 05/31/18	As of 05/31/18
DCF - CONSTANT GROWTH	7.61%	8.27%
DCF - NON-CONSTANT GROWTH	7.66%	7.67%
CAPM	7%-8%	

3 Source: Schedule ALR 2

4 **Q. IS YOUR COST OF EQUITY RECOMMENDATION APPROPRIATE IN**
 5 **CURRENT CAPITAL MARKET CONDITONS?**

6 **A.** Yes. As explained in my general assessment of capital markets (see Section IV below),
 7 market data supports a historically low cost of equity for regulated utility companies like
 8 SUEZ PA. The following facts indicate that my 8.08% cost of equity recommendation for
 9 SUEZ PA is consistent with market data:

- 10 • High stock prices relative to book value and earnings;
- 11 • Historically low long-term interest rates;
- 12 • Low credit spreads;
- 13 • High U.S. Capacity Utilization.

⁶ Ibid.

⁷ Schedule ALR 7, pages 1-5.

1 **Q. DOES THE COMPANY’S COST OF EQUITY ESTIMATE CONFORM WITH**
2 **THE COMMISSION’S PREFERRED APPROACH?**

3 **A.** No. The Commission has a long-standing preference for cost of equity based on DCF
4 analyses.⁸ Mr. D’Ascendis has identified a cost of equity rate for SUEZ PA within the
5 range of 10.40% to 11.50%.⁹ The lowest end of this range, 10.40%, is significantly
6 above his DCF-based estimate of 9.10%. Mr. D’Ascendis’ recommended range is based
7 in part upon the averaged result (12.12%) of two risk premium methods and the averaged
8 result (11.31%) of both CAPM and empirical CAPM (“ECAPM”) analyses, as applied to
9 the Water Proxy Group. Mr. D’Ascendis conducted the same multiple analyses and
10 averaging to arrive at a 12.63% cost of equity estimate for a second Proxy Group
11 comprised of non-price regulated companies.¹⁰ In effect, results of variations on Risk
12 Premium (“RP”) and CAPM analyses are directly incorporated twice over in the
13 Company’s cost of equity estimate. Mr. D’Ascendis’ final recommended range of
14 10.40% to 11.50% is after an upward adjustment or adder of 0.20% for supposed size
15 risk, based on an estimate of SUEZ PA’s capitalization as if a stand-alone company,
16 compared to the water utilities in the Water Proxy Group which include national water
17 utility holding companies.

18 **Q. HOW DOES THE COMPANY’S PROPOSED COST OF EQUITY COMPARE TO**
19 **MARKET EXPECTATIONS?**

20 **A.** As shown in Table 3 below, Mr. D’Ascendis’ 10.40%-11.50% cost of equity
21 recommendation is considerably higher than return expectations (6.6-9.28%) published

⁸ Pa. PUC v. City of Dubois, Dkt. No. R-2016-2554150, Order at 88, 96-97 (2017), Order on Recons. at 21-22 (2017); Pa. PUC v. PPL Electric Utilities Corp., Dkt. R-20102-2290597, Order at 80-82 (2012).

⁹ D’Ascendis Schedule DWD-1, page 3.

¹⁰ D’Ascendis Direct Testimony, Statement No. 5, p. 37, Sch. DWD-1, page 3.

1 by major consulting firms, brokerage houses and market data publications. As I will
2 explain further, Mr. D'Ascendis' cost of equity recommendation is above current investor
3 expectations. This is due to flaws in his models and because he rejected the interest rate
4 forecasts incorporated in market prices in his RPM and CAPM methods. As such, these
5 methods should be accorded no weight as a check on the reasonableness of his DCF
6 method. I show in Chart 5 later in my testimony that these non-market-based forecasts
7 used by Mr. D'Ascendis have not been accurate. Furthermore, analysts' earnings
8 forecasts used by Mr. D'Ascendis¹¹ in his DCF analyses have been shown to be overly
9 optimistic.¹²

10 **Q. DO YOU AGREE WITH MR. D'ASCENDIS' USE OF A SECOND PROXY**
11 **GROUP AND ASSOCIATED COST OF EQUITY ESTIMATE?**

12 **A.** No, I do not. I do not agree with Mr. D'Ascendis' use of a non-price regulated proxy
13 group because they are not comparable in risk to SUEZ PA. A regulated utility company
14 like SUEZ PA can apply for a rate increase when economic conditions change, while
15 non-price regulated companies have no such option.

16 **Q. DO YOU AGREE WITH MR. D'ASCENDIS' UPWARD RISK ADJUSTMENT OF**
17 **0.20%?**

18 **A.** No, I do not. Conceptually, Mr. D'Ascendis' adjustment for size differences in
19 capitalization is not justified.

20 **Q. WHAT COST OF EQUITY AND OVERALL RATE OF RETURN HAS SUEZ PA**
21 **EMPLOYED IN ITS BASE RATE FILING?**

¹¹ As shown on Schedule ALR 3, pages 2 and 3, I include Value Line's future expected return on book equity and Zacks consensus 5-year EPS growth rate forecast into my analysis but I also consider recent actual returns on book equity because, as the cited study shows, investors know these forecasts can be overly optimistic.

¹² Marc H. Goedhart, Rishi Raj and Abhishek Saxena, *Equity Analysts: Still too bullish*, Spring 2010.

1 A. According to the Company's *Statement of Reasons Proposed Base Rate Increase*, "The
 2 Company is requesting an overall rate of return of 7.95%, which includes a return on
 3 equity of 10.75% and a cost of debt rate of 4.65%."¹³ Mr. D'Ascendis recommends a
 4 cost of equity for SUEZ PA within a range of 10.40% to 11.50%. He does not address
 5 why a 10.75% cost of equity is appropriate for SUEZ PA.
 6

TABLE 3: COST OF EQUITY COMPARISON		
SUEZ PA Witness D'Ascendis Recommendation (April 2018)	Nominal 10.40% - 11.50%	[1]
Rothschild - Water Proxy Group (July 2018)	8.08%	[2]
Charles Schwab - Long-term Market Returns (March 2018)		
U.S. Large Capitalization Stocks	6.50%	[3]
U.S. Small Capitalization Stocks	7.20%	[3]
McKinsey Global Institute (May 2016)	6.6-8.7%	[4]

Sources:

- [1] Mr D'Ascendis's Direct Testimony, Statement No. 5, page 2, lines 15-16.
- [2] Schedule ALR 2
- [3] Charles Schwab - Why Market Returns May Be Lower in the Future, March 13, 2017
- [4] Diminishing Returns: Why Investors May Need to Lower Their Expectation, McKinsey Global Institute, May 2016, Exhibit A4
 Real returns are presented at 4.0 to 5.0 (slow growth scenario) and 5.5 to 6.5 (Growth-recovery scenario).
 Adding a 2.2% inflation expectation puts Mckinsey's return estimates at 6.6 to 8.7

10 **III. CAPITAL STRUCTURE, COST OF DEBT AND OVERALL RATE OF RETURN**

11 **Q. WHAT IS THE COMPANY'S REQUESTED CAPITAL STRUCTURE?**

12 A. The Company is requesting that the actual capital structure of SUEZ Water Resources
 13 ("SWR"), SUEZ PA's parent, at January 31, 2018 be used to set rates in this proceeding.

¹³ SUEZ PA *Statement of Reasons Proposed Base Rate Increase*; see also SUEZ PA Exhibit CEH-1, Sch. 1.2.

1 The requested capital structure consists of 45.82% long-term debt, 0.00% short-term debt
2 and 54.18% common equity.¹⁴

3 **Q: WHAT CAPITAL STRUCTURE ARE YOU RECOMMENDING FOR SUEZ PA?**

4 **A.** I recommend using the actual capital structure of SWR, as requested by the Company,
5 containing 54.18% common equity and 45.82% long-term debt. (See Table 4) Because
6 the Water Proxy Group average capital structure has a lower common equity ratio than
7 SWR, I have reduced my cost of equity estimate of 8.25% for the Water Proxy Group by
8 0.17% to a cost of equity of 8.08% for SUEZ PA, to account for lower financial risk.¹⁵ As
9 shown in Table 4 below, SUEZ PA is requesting more common equity (54.18%) than the
10 Water Proxy Group average. A higher common equity ratio indicates lower debt, lower
11 interest payments and therefore lower financial risk.¹⁶

TABLE 4: Capital Structure Comparison

	<u>Long-Term Debt</u>	<u>Short-Term Debt</u>	<u>Preferred Stock</u>	<u>Common Equity</u>
SUEZ PA Requested [1]	45.82%	0.00%	0.00%	54.18%
Water Proxy Group [2]	40.46%	9.48%	0.13%	49.92%

[1] Mr D'Ascendis's Direct Testimony, Statement No. 5, page 9, lines 14-19.

[2] Schedule ALR 8, page 1

12
13 **Q. WHAT DID YOU USE FOR THE COST OF DEBT?**

14 **A.** I used the Company's proposed cost of long-term debt of 4.65%.¹⁷

15

¹⁴ D'Ascendis Direct Testimony, Statement No. 5, page 10, lines 14-19.

¹⁵ I found a 0.04% reduction in the DCF cost of equity results for every 1% increase in the common equity ratio.

¹⁶ 54.18% (SUEZ PA requested common equity) – 49.92% (Water Proxy Group common equity ratio) = 4.26%.
4.26% X 0.04% = 0.17% reduction in SUEZ PA's cost of equity to account for the lower financial risk from a higher common equity ratio than the Water Proxy Group.

¹⁷ D'Ascendis Direct Testimony, Statement No. 5, page 10, lines 16-20.

1 Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.

2 A. My overall recommendations for the Company's capital structure and rate of return are
3 provided in Table 1, which is reproduced below.

	Capital Structure Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	45.82%	4.65%	2.13%
Common Equity	<u>54.18%</u>	8.08%	<u>4.38%</u>
	100.0%		6.51%

4

5

6 **IV. COST OF EQUITY IN TODAY'S FINANCIAL MARKET**

7 Q. HOW DOES YOUR COST OF EQUITY RECOMMENDATION RELATE TO
8 THE CURRENT FINANCIAL MARKET?

9 A. The United States economy has been experiencing high stock prices, low unemployment,
10 reasonable global growth, low bond yields, and low inflation expectations. In July 2017,
11 a Wall Street Journal writer described the current economy as a "Goldilocks'
12 economy."¹⁸ These favorable economic conditions have led to high price-to-earnings
13 ratios for water utility stocks (See Chart 2) which indicate, consistent with DCF cost of
14 equity results that the cost of equity for water utility companies is at historical lows.
15 Rates should be set in this proceeding based on the current low cost of capital
16 environment and re-evaluated should conditions change in the future. Since the

¹⁸ "Everything Is Awesome! Now Is the Time to Sell", Wall Street Journal, July 6, 2017.

1 beginning of 2018, the trade policy has added some risks to companies with exposure to
2 international markets. However, regulated water companies have limited exposure to the
3 adverse effects of a possible trade war. In fact, regulated water companies present an
4 opportunity for investors looking for a way to shed trade policy risk. As I will explain
5 below, despite increased concerns about tariffs, the favorable times for raising capital
6 (including for regulated water utility companies) remain. The current capital markets
7 indicate that an 8.08% return on equity for investing in a regulated utility like the SUEZ
8 PA is conservatively high. Equity investors are paying a higher price for earnings than
9 the historical average, interest rates remain low by historical standards, and yield spreads
10 are low. Lower than average yield spreads indicate a cost of equity lower than the
11 historical average. As discussed below, despite some increased investor volatility
12 expectations earlier this year,¹⁹ as indicated by the Market Volatility Index (“VIX”),²⁰ all
13 other major market indicators support a relatively low cost of equity. Later in my
14 testimony, I present the results of financial models (e.g. DCF and CAPM). It is important
15 to consider these results in the context of current financial market conditions as follows:

- 16 1. **STOCKS ARE EXPENSIVE.** As the S&P 500, Dow Jones Industrial Average
17 and other stock indices increase, investors are paying more for the same earnings,
18 including for utility stocks, than the average of the past 10 years,²¹ indicating that
19 the cost of equity is lower than average.
- 20 2. **INTEREST RATES.** Long-term U.S. Treasury yields are near historic lows (see
21 Chart 5 in “Interest Rates” section of my testimony below), and Federal Reserve

¹⁹ As shown in Chart 7, investors’ volatility expectations are significantly lower than during the financial crisis of 2008.

²⁰ The VIX index is a market indicator that allows us to see what investors expect volatility to be in the future, as discussed in more detail later in my testimony.

²¹ As of May 31, 2018, the S&P 500 has a Price-to-earnings ratio (25) nearly twice the average (15.70) since 1880.

1 Chair Jerome Powell said in a press release conference on March 21, 2018 that,
2 “We’re trying to take the middle ground, and the committee continues to believe
3 that the middle ground consists of further gradual increases in the federal-funds
4 rate.”²² Before the Fed announcement about the recent rate increase, traders in
5 futures markets already anticipated the Fed would raise rates a total of three times
6 this year and placed a roughly 40% probability on at least four interest-rate
7 increases this year.²³ Futures market data indicates that market prices reflect
8 investor expectations regarding Fed policy and therefore there is no need to use
9 Blue Chip interest rate forecasts as a proxy for the risk-free rate in a CAPM as
10 Mr. D’Ascendis has done.

11 3. **LOW CREDIT SPREADS.** The spread between the yield investors demand to
12 purchase U.S. Corporate Bonds and U.S. Treasury bonds remain at historical
13 lows, which is consistent with relatively high U.S. capacity utilization. Low credit
14 spreads and high capacity utilization indicate a low cost of equity.

15 4. **VOLATILITY EXPECTATIONS.** Historically low credit spreads and high
16 U.S. capacity utilization²⁴ (see Chart 9) persist despite some increased investor
17 volatility expectations. As explained below, this indicates the cost of equity
18 remains at historically low levels.

19

²² “Fed Raises Rates and Signals Faster Pace in Coming Years” The Wall Street Journal March 21, 2018 (emphasis added).

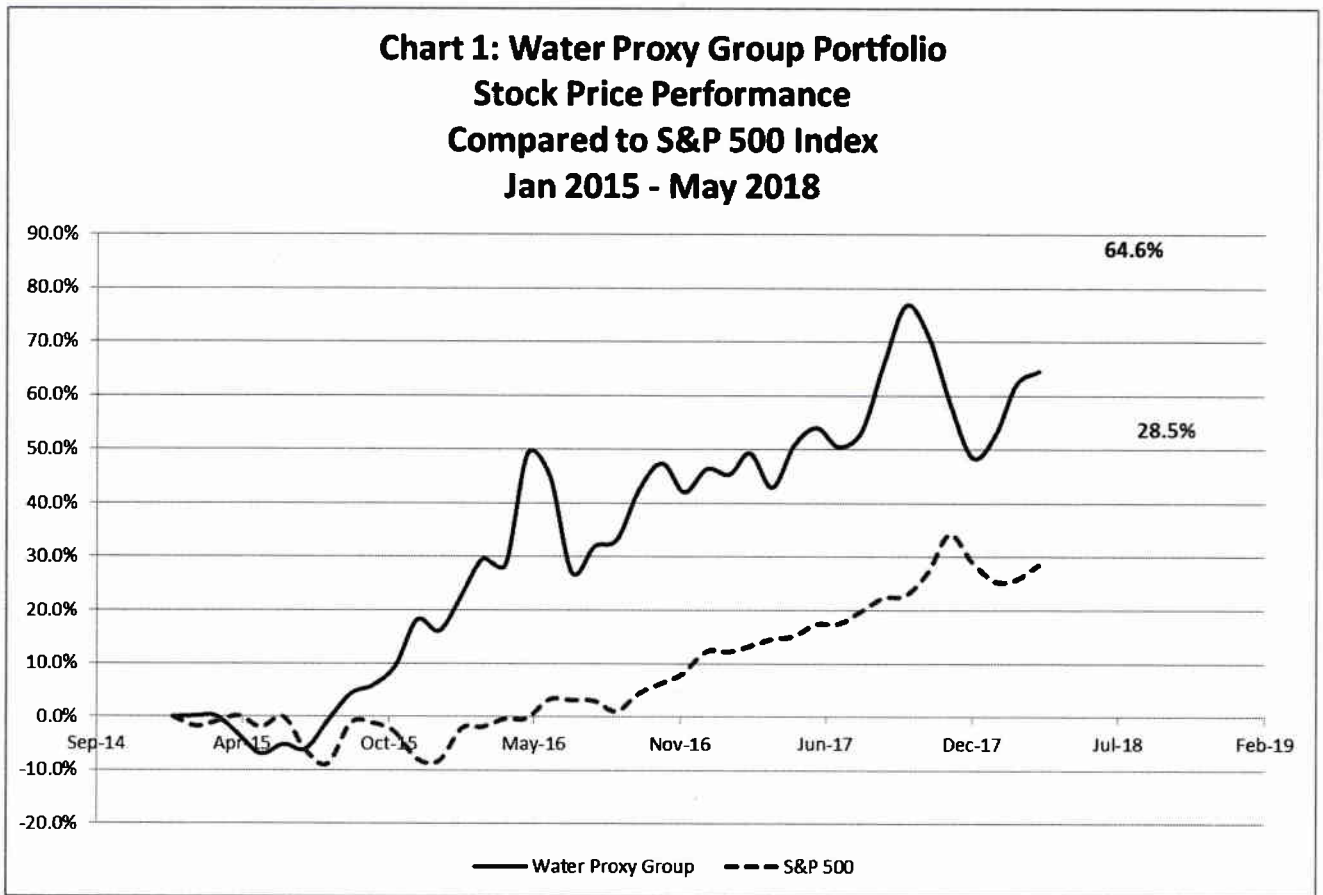
²³ “Fed Raises Rates and Signals Faster Pace in Coming Years” The Wall Street Journal March 21, 2018.

²⁴ The percentage of resources used by manufacturing, mining, and electric and gas utilities companies for their facilities in the United States.

1 **A. Stocks Price Trends**

2 **Q. WHAT, IF ANYTHING, DOES THE STOCK MARKET DATA INDICATE WITH**
3 **REGARD TO THE COST OF EQUITY?**

4 **A.** As stock prices have increased significantly in recent years, the price-to-earnings ratios
5 have increased as well. This indicates that the cost of equity may be decreasing along
6 with the higher stock prices. As shown in Chart 1 below, the S&P 500 Index value and
7 the stock prices of the Water Proxy Group have increased significantly since SUEZ PA's
8 predecessor United Water Pennsylvania, Inc. ("UW PA") filed testimony in their last rate
9 case (R-2015-2462723). The Water Proxy Group has increased by almost 64.6% while
10 the S&P 500 has increased by 28.5%.

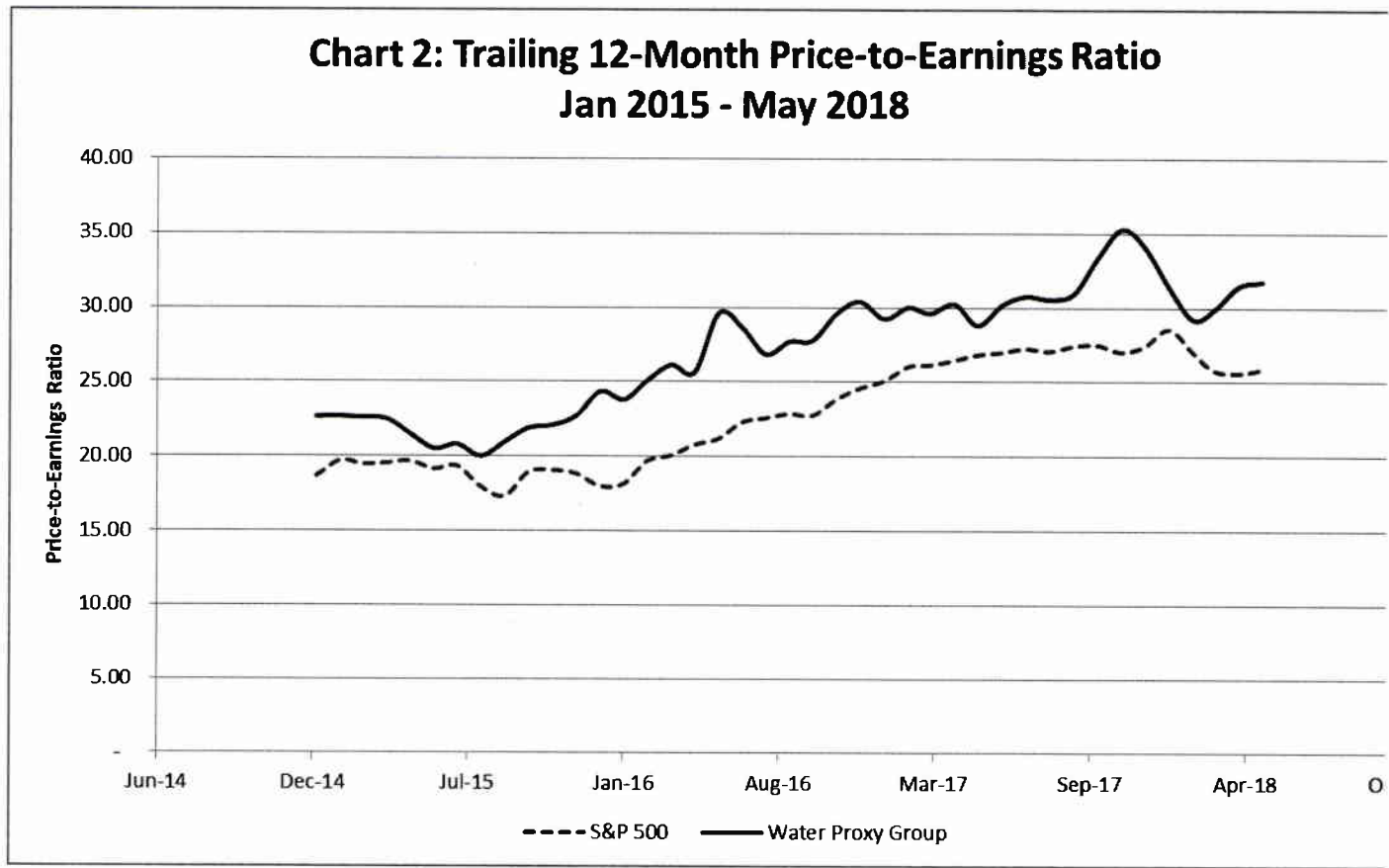


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1 Q. WHAT ARE THE PRICE-TO-EARNINGS RATIOS INDICATING FOR THE
 2 BROADER MARKET AND THE WATER PROXY GROUP?

3 A. As shown in Chart 2 below, the price-to-earnings ratio of the S&P 500 has increased
 4 from about 20 to over 25 between January 2015 and May 2018. Over this same time
 5 period the price-to-earnings ratio of the Water Proxy Group has increased from about 23
 6 to over 30 as of May 2018. As investors are willing to pay more (higher price-to-
 7 earnings ratio) for the same earnings this indicates that the cost of equity is decreasing.
 8 The price-to-earnings ratios indicates that equity costs are lower for SUEZ PA than when
 9 it filed their last rate case (R-2015-2462723) in 2015.²⁵



10

²⁵ Price-to-earnings ratios have been increasing since before SUEZ PA’s 2015 rate case, which indicates the cost of equity has been on a long-term down trends. The ten-year (2008-2018) average of the S&P’s price-to-earnings ratio 17, significantly lower than it is today – over 25 as of May, 2018.

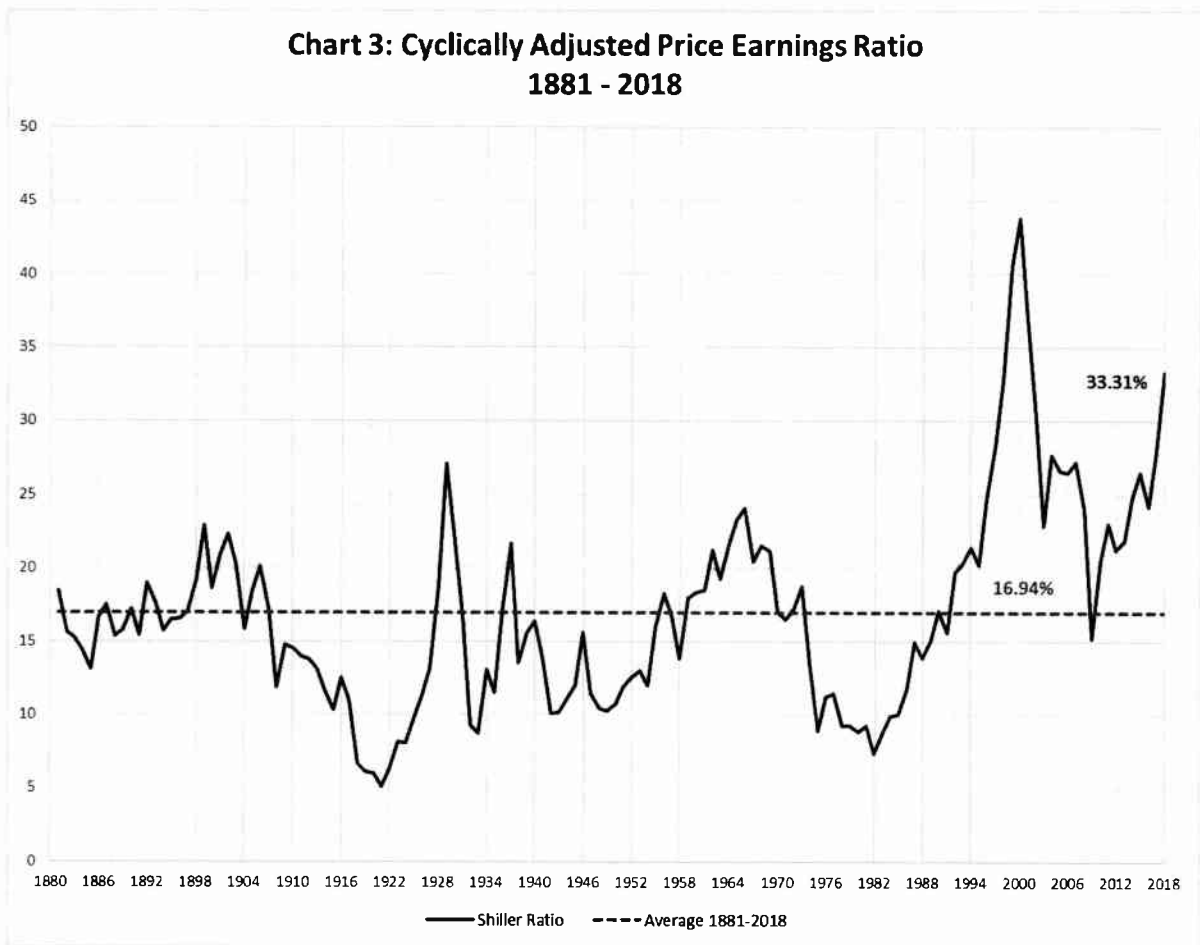
1 **Q. DOES ADDITIONAL EVIDENCE INDICATE STOCKS ARE EXPENSIVE?**

2 **A.** Yes. The Shiller ratio is a common way to measure if stock return expectations are
3 relatively high or low. A higher Shiller ratio indicates lower returns expectations and
4 possibly a lower cost of equity. A low Shiller ratio indicates that stocks may be relatively
5 cheap, investors can expect higher returns and the cost of equity is possibly higher. A
6 Wall Street Journal article stated the Shiller ratio is “one of the most widely followed
7 ways of measuring stock valuations.”²⁶ The Shiller ratio is known as the cyclically
8 adjusted price to earnings ratio and is the price-to-earnings ratio based on average
9 inflation-adjusted earnings from the previous 10 years.

10 As shown in Table 3 below, the Shiller ratio (currently over 30) is high by
11 historical measures and has been increasing in recent months. The long-term average of
12 the Shiller Ratio since 1881 is 16.94.²⁷ The currently high Shiller ratio is consistent with
13 other indicators (e.g. increasing Water Proxy Group stock prices and price-to-earnings
14 ratios) that support a historically low cost of equity.

²⁶ “Stock Prices: Is ‘Quite High’ Too High?, Wall Street Journal, May 15, 2015.

²⁷ <http://www.gurufocus.com/shiller-PE.php>



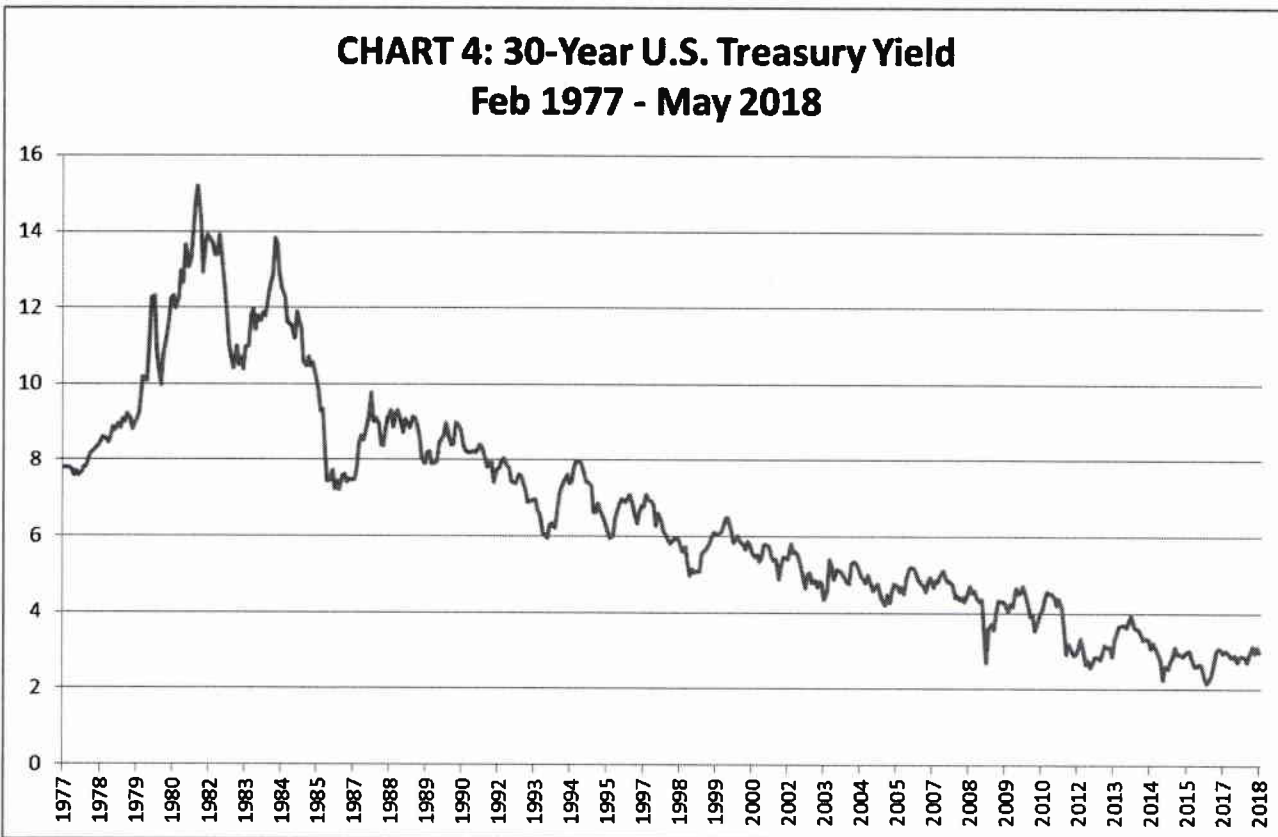
1

2 **B. Interest Rates**

3 **Q. DO INVESTORS EXPECT LONG TERM U.S. GOVERNMENT BOND YIELDS**
 4 **TO STAY AT THESE LOW LEVELS?**

5 **A.** Yes. The Fed has been gradually increasing the yields on short term U.S. Treasuries and
 6 although there were increases in yields on long-term U.S. government bonds in the recent
 7 months, it is still within the range it has been in for the past three years, which has been
 8 between 2.18% and 3.12%. As of May 31, 2018, the yield on the 30-Year U.S. Treasury
 9 bond is at 3.00%, only about 20 basis points higher than when SUEZ PA filed its last rate

1 case in 2015.²⁸ As shown in Chart 4 below, yields on 30-year U.S. treasuries remain low
2 by historical measures:



3

4 **Q. CAN YOU PLEASE PUT THE CURRENT INTEREST RATE ON 30-YEAR U.S.**
5 **TREASURY BONDS INTO HISTORICAL PERSPECTIVE?**

6 **A.** Chart 4 above shows that the yield on 30-year U.S. Treasury bonds has been in a long-
7 term downward trend since the very early 1980's when the annual yield peaked just
8 below 14%. As of May 31, 2018, the yield on 30-year Treasury bonds remains at the
9 historically low yield of approximately 3.0% that has persisted since the end of 2016.

²⁸ The yield on 30-Year U.S. Treasury bond averaged 2.815% in 2015.

1 Q. PLEASE COMMENT ON HOW RECENT ACTION TAKEN BY THE FEDERAL
2 RESERVE TO RAISE THE FEDERAL FUNDS RATE RELATE TO BOND
3 YIELDS SHOWN IN CHART 4.

4 A. The yields on 30-year U.S. Treasury bonds are market based and therefore reflect
5 investors' expectations. Since bond prices and yields are inversely related, an investor
6 who expected long-term interest rates to increase soon would not purchase 30-year U.S.
7 treasuries because they would lose money. In a liquid market like those for 30-Year U.S.
8 Treasury bonds, the yield reflects interest rate expectations of the marketplace. The
9 current yield on 30-year U.S. Treasury bonds is based upon a market with investors who
10 are aware of the comments by the Federal Reserve. On June 13, 2018, the Board of
11 Governors of the Federal Reserve voted to raise the target Federal Funds rate 0.25% from
12 1.50-1.75% to 1.75-2.0%. The Committee stated the following:

13 The Committee expects that further gradual increases in the target range for the
14 federal funds rate will be consistent with sustained expansion of economic
15 activity.²⁹
16

17 Fed-funds futures are indicating that investors believe the Federal Reserve will
18 continue to increase short-term interest rates consistent with the Committee's June press
19 release. For example, the market-implied probability that the 3-month Federal Funds rate
20 will reach 2.75-3.00% is almost zero (0.30%).³⁰ If investors expected short-term interest
21 rates to increase significantly in the short-term, the market-implied probability of the 3-
22 month Federal Funds rate reaching 3% would be higher.

23 It is important to recognize that current long-term interest rates represent a direct
24 observation of investor expectations and there is no need to use "expert" forecasts such as

²⁹ Federal Reserve Press Release, June 13, 2018.

³⁰ Chicago Mercantile Exchange & Chicago Board of Trade (CME Group Inc.), July 4, 2018.

1 Blue Chip to determine the appropriate risk-free rate to use in a CAPM or any other cost
2 of equity calculations.

3 **Q. DO YOU KNOW WHAT INTEREST RATES WILL BE IN THE FUTURE?**

4 **A.** No. Although Jerome Powell, the Federal Reserve Board Chair, has said that he expects
5 further gradual increases in federal fund rates, he emphasized the uncertainty surrounding
6 forecasting the economy and the financial markets in a recent speech, stating:

7 You could imagine narratives in which that [forecast] would make sense, but
8 honestly, I wouldn't put too much on that.³¹

9 Many economists and forecasters will continue to be quoted in the press prognosticating
10 on possible developments that are truly unpredictable. The Nobel Laureate Economist
11 Daniel Kahneman stated the following regarding forecasting:

12 It is wise to take admissions of uncertainty seriously, but declarations of high
13 confidence mainly tell you that an individual has constructed a coherent story in
14 his mind, not necessarily that the story is true.³²

15 Kahneman also found that the trading industry is based on an "illusion of skill."

16 SUEZ PA's actual cost of capital is based on the current capital markets, and the
17 Commission should not give weight to forecasts that claim to be smarter than the market,
18 as such forecasts have been repeatedly found to be unreliable. More fundamental to
19 economic regulation, the substitution of analysts' forecasts for market-based indicators
20 violates ratemaking principles; namely that the cost of equity should be market based.³³

21 **Q. ARE YOU AWARE OF ANY STUDIES THAT HAVE SHOWN THE**
22 **CHALLENGES OF FORECASTING FINANCIAL MARKETS?**

³¹ "Fed Raises Rates and Signals Faster Pace in Coming Years" The Wall Street Journal March 21, 2018.

³² Daniel Kahneman, *Thinking Fast and Slow* (New York: Farrar, Straus and Giroux, 2011): 212.

³³ The U.S. Supreme Court in the *Hope* and *Bluefield* cases, established that the cost of equity should support a utility's credit, enable raising money, assure financial soundness and "be commensurate with returns on investments in other enterprises having corresponding risks."

1 A. Yes. A Duke University study published in 2010 demonstrated U.S. financial executives
2 were over- confident in their ability to predict financial markets. The Chief Financial
3 Officers (“CFOs”) in the study estimated the returns of Standard and Poor’s Index over
4 the following year. The 80% confidence interval provided by the CFOs contained only
5 33% of the realized returns.³⁴ The correlation between their estimates and the true value
6 of returns was slightly less than zero.

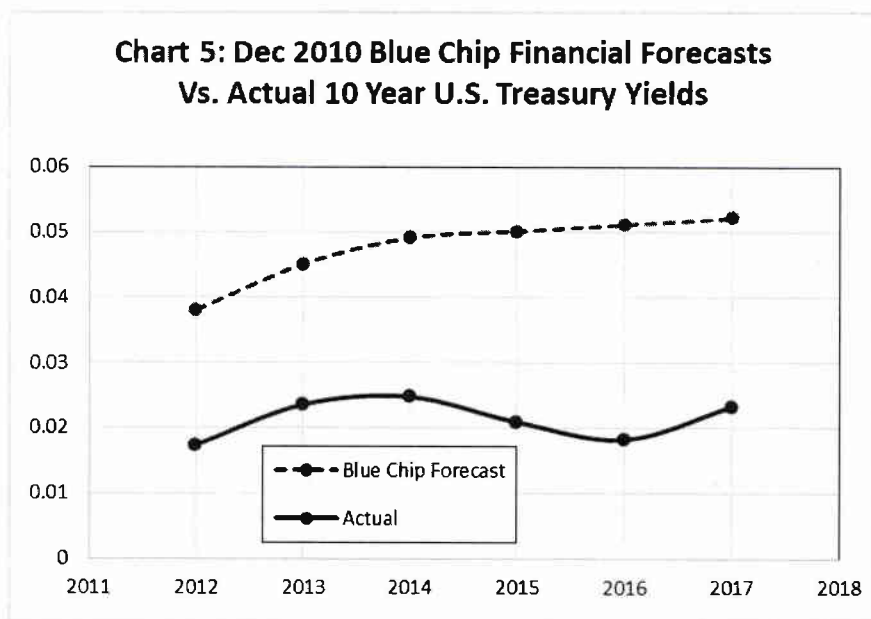
7 An additional 2010 study conducted by McKinsey and Company to determine the
8 accuracy of analysts’ earnings forecasts found that the analysts were overly optimistic,
9 slow to revise their forecasts, and prone to making increasingly inaccurate forecasts
10 during economic downturns. Moreover, as indicated by P/E (“price/earnings”) ratios,
11 investors’ expectations were more conservative.³⁵

12 **Q. HAVE THE BLUE CHIP INTEREST-RATE FORECASTS USED BY MR.**
13 **D’ASCENDIS BEEN ACCURATE?**

14 A. No. As Chart 5 below shows, Blue Chip Financial forecasted in 2012 that 30-Year U.S.
15 Treasury bonds would be over 5% by 2018 but they continue to hover around 3%.

³⁴ Itzhak Ben-David, John R. Graham, Campbell R. Harvey, *Managerial Miscalibration*, July 2010, page 30.

³⁵ Marc H. Goedhart, Rishi Raj and Abhishek Saxena, *Equity Analysts: Still too bullish*, Spring 2010, page 14.



1

2

The time period chosen in Chart 5 was chosen to provide a concrete example.

3

Blue Chip’s interest rate forecasts have been inaccurate persistently for decades. A recent paper published by the Congressional Budget Office determined Blue Chip consensus forecasts exhibited “significant positive bias” between 1984 and 2012 and “have become more biased and less accurate over time.”³⁶

6

7 **C. Low Credit Spreads**

8

Q. WHAT DO LOW U.S. TREASURY YIELDS MEAN FOR THE COST OF EQUITY?

9

10

A. Historical market data indicates that a low interest rate environment, like we have now, indicates a low cost of equity. Chart 6 below shows that as interest rates decrease, the yield credit spread between Baa rated corporate bonds and U.S Treasuries, which is a proxy for the cost of equity, has remained relatively stable (except for the great

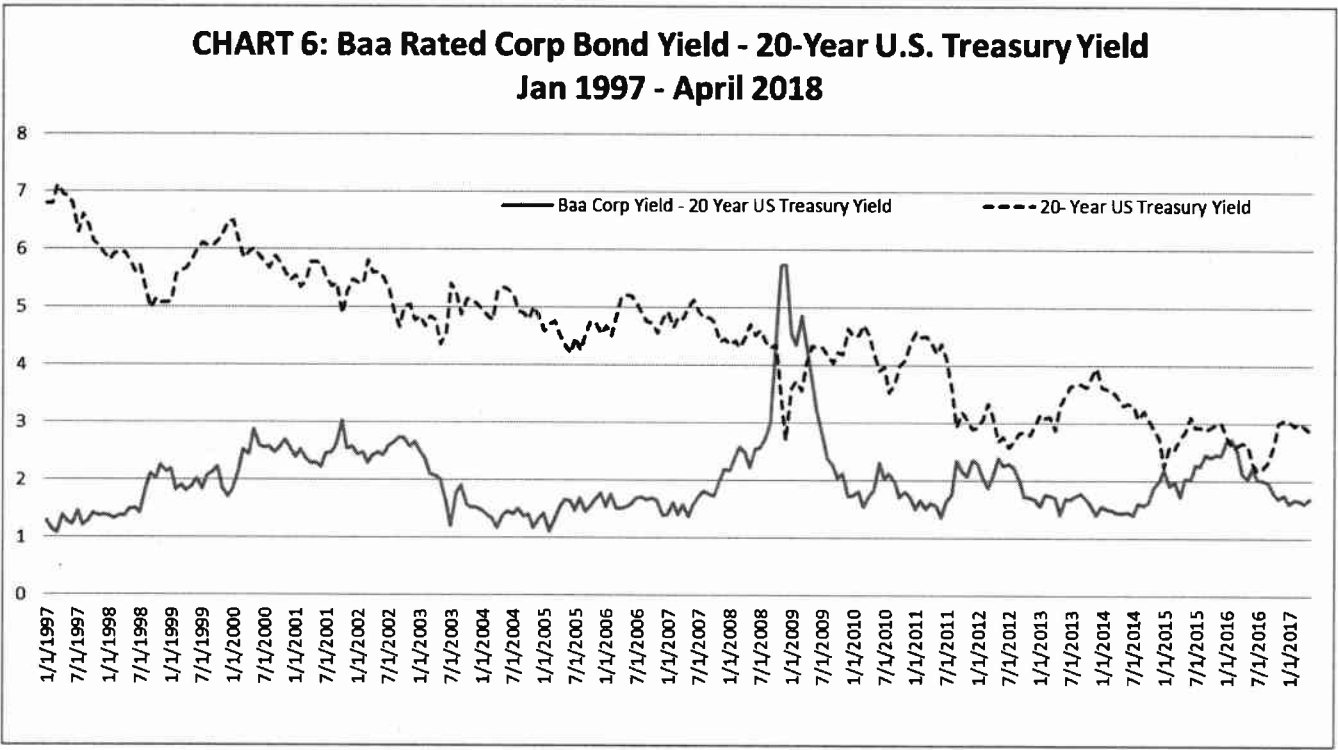
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³⁶ Did Treasury Debt Markets Anticipate the Persistent Decline in Long-Term Interest Rates?, Congressional Budget Office, Edward N. Gamber, page 2. This paper can be found at: <https://www.cbo.gov/system/files/115th-congress-2017-2018/workingpaper/53153-interestrateswp.pdf>

1 recession). This chart indicates that the cost of equity decreases as interest rates decrease
2 because the extra yield investors demand, to purchase Baa rated corporate bonds and
3 equities, is over a lower “risk free”³⁷ rate of return.



4

5 **D. Volatility Expectations**

6 **Q. WHAT IS YOUR BASIS FOR CLAIMING THAT INVESTORS VIEW THE**
7 **MARKETS AS LESS RISKY?**

8 **A.** The Market Volatility Index (“VIX”) is a market indicator that allows us to see what
9 investors expect volatility to be in the future. Volatility, uncertainty and risk are
10 synonymous. Therefore, the VIX index can be a valuable tool to determine investors’
11 assessment of the riskiness of financial markets. This is a more direct route than trying to
12 monitor world events, analysts’ forecasts and surveys. This direct route has not only

³⁷ The return on investments with no chance of loss. For example, short-term U.S. Government bonds are virtually risk-free rate because the U.S. Government can print money to avoid default.

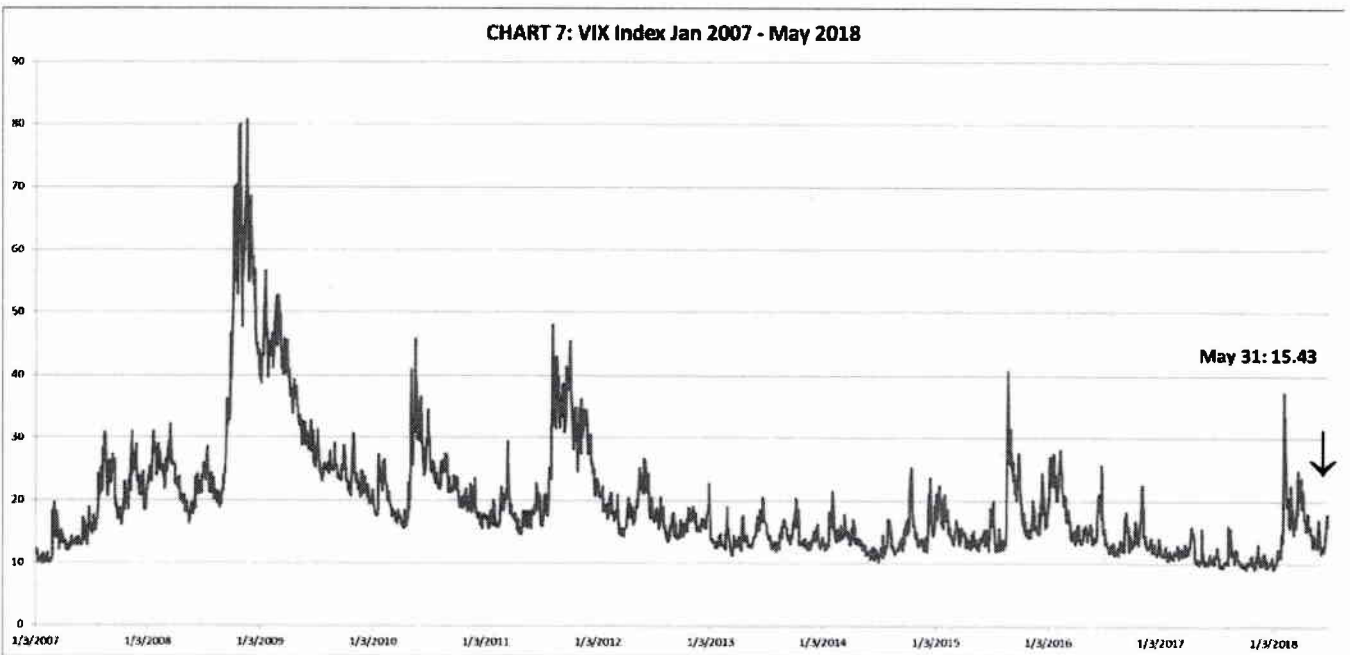
1 proven to be more accurate than forecasts and interpretations, but is also aligned with the
2 principle that the cost of capital is a market-based concept.

3 **Q. PLEASE EXPLAIN FURTHER WHAT THE VIX INDEX IS AND HOW IT IS**
4 **ESTABLISHED.**

5 **A.** The Chicago Board Options Exchange (“CBOE”) VIX is based on options on the S&P
6 500 Index and reflects the market consensus expected volatility in the S&P 500 over the
7 next 30 days on an annual basis. It is sometimes known as the “fear index.”

8 **Q. WHAT IS THE MARKET PRICE OF THE VIX CURRENTLY, AND HOW DOES**
9 **THIS COMPARE TO PRICES DURING THE GREAT RECESSION?**

10 **A.** As of May 31, 2018, the VIX Index was trading at 15.43, indicating that investors expect
11 an annualized change of 15.43% over the next 30 days. At the height of the financial
12 crisis in 2008, the VIX Index was trading at over 80, indicating that investors expected an
13 annualized change of over 80% over the same 30 day period. As can readily be seen in
14 the chart below, the VIX Index is significantly lower than it was during the financial
15 crisis and is nearing pre-crisis levels.



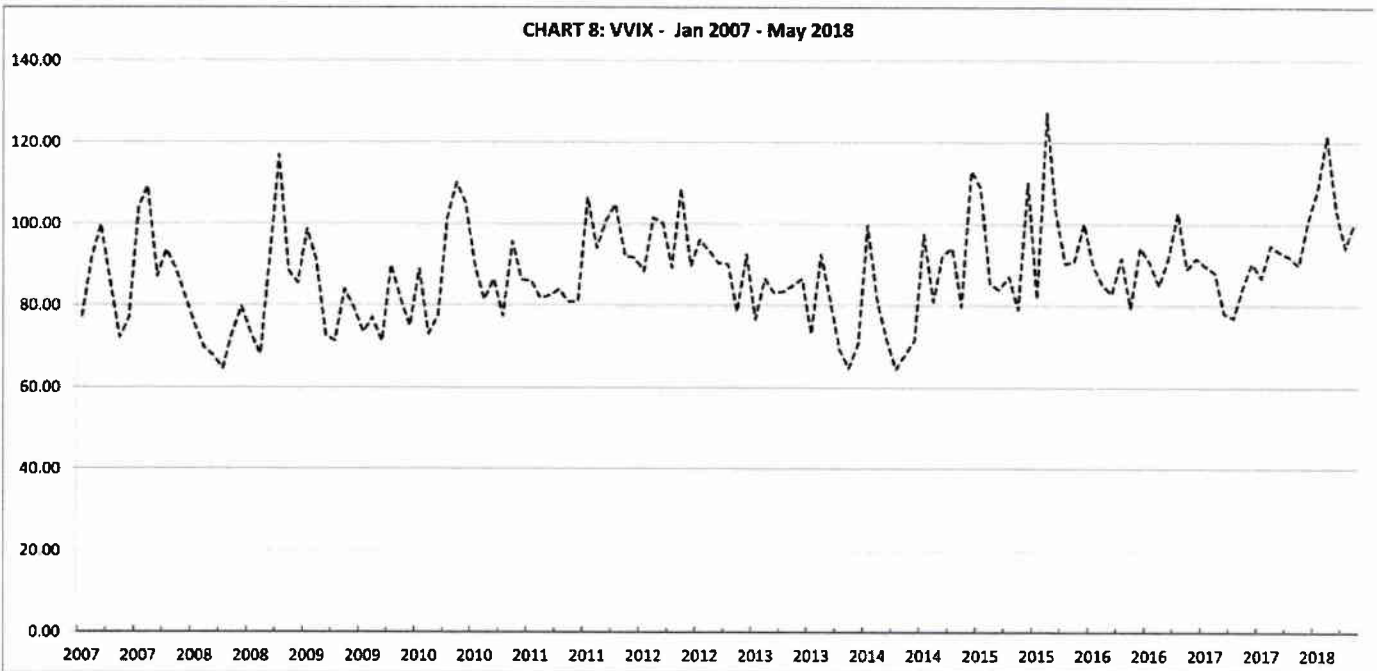
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2 **Q. IS THERE MARKET DATA AVAILABLE THAT SHOWS WHAT THE**
 3 **MARKET EXPECTATION IS FOR “VOLATILITY OF VOLATILITY” TO BE**
 4 **OVER THE NEXT 30 DAYS?**

5 **A.** Yes. A volatility index, under the ticker symbol “VVIX,” (see Chart 8b, below) is based
 6 on the same methodology as the VIX but structured to measure the market’s expectation
 7 of the volatility of the VIX itself.

8 **Q. IS THE VVIX ALSO INDICATING THAT INVESTORS’ EXPECTATIONS OF**
 9 **VOLATILITY ARE UP?**

10 **A.** Yes. As of May 31, 2018, the VVIX was trading at 100.63 indicating investors expect an
 11 annualized change of 100.63% over the next 30 days on an annual basis. This is
 12 significantly lower than during the financial crisis in 2008.



1

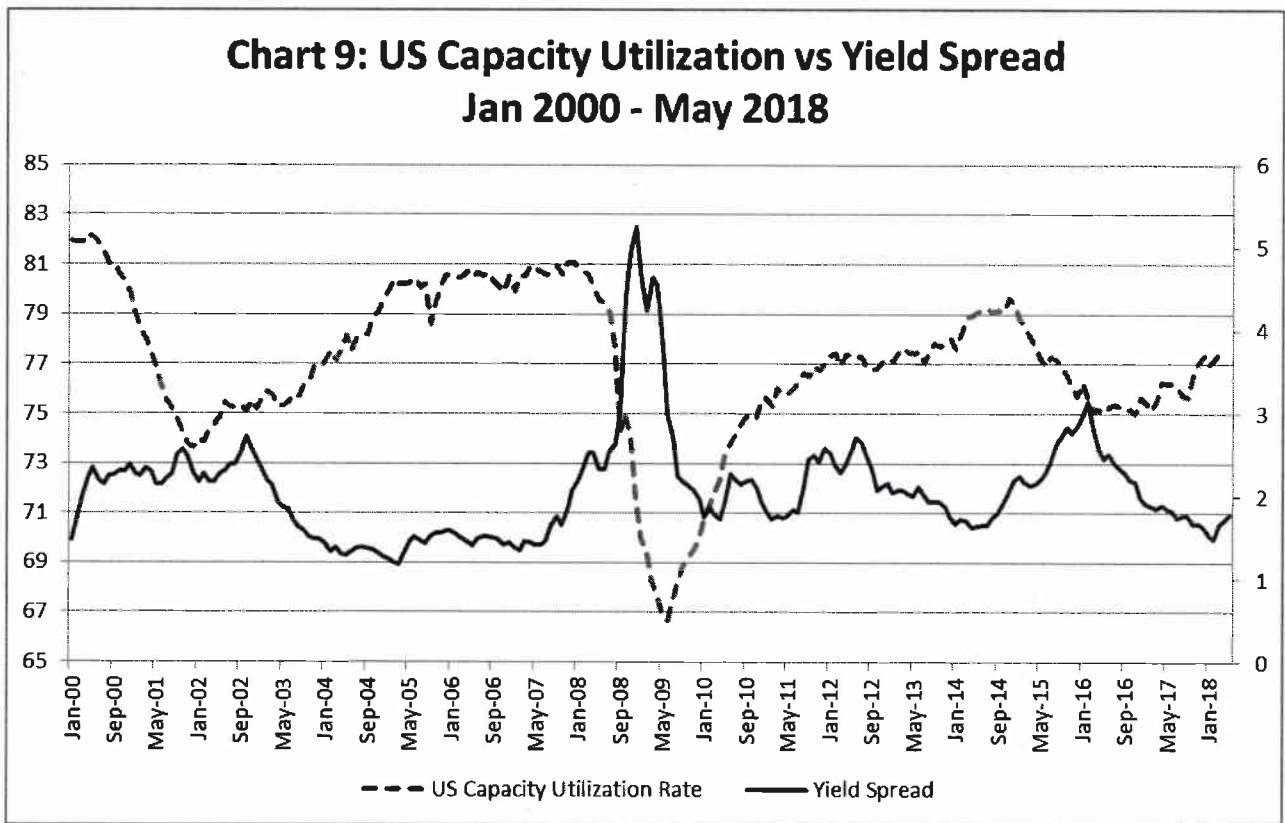
2 **Q. WHAT, IF ANYTHING, DOES A HIGH VIX INDEX INDICATE WITH**
 3 **REGARD TO THE COST OF EQUITY?**

4 **A.** Generally, as the VIX increases, investors view the market as more risky. However, it is
 5 important to consider the level of the VIX Index in the context of other market data and
 6 the overall market. High stock prices (as indicated by price-to-earnings ratios), low credit
 7 spreads, and high U.S. capacity utilization indicate that investors' increased volatility
 8 expectation is not leading to a higher cost of equity. As shown in Chart 9 below, there is
 9 an inverse correlation between U.S. capacity utilization rates and credit spreads.³⁸
 10 Capacity utilization is the ratio between actual output of corporations and the maximum
 11 that could be produced with existing plant and equipment. During the worst of the
 12 financial crisis (2008-2009) investors demanded a return of over 5% more to invest in
 13 Corporate bonds (Baa) than U.S. Treasury Bonds. While this yield spread was high, U.S.

³⁸ With stable operational cash flow, creditors are likely confident they will be paid.

1 corporations were utilizing less of their installed productive capacity. During the financial
 2 crisis, yield spreads were high, volatility expectations were high (Chart 7) and capacity
 3 utilization was low. As shown in Chart 9 below, U.S. companies were putting about 80%
 4 of their productive capacity to use before the financial crisis and as low as 67% during
 5 the crisis. This same chart shows that U.S. companies are utilizing over 77% of capacity
 6 today. Relatively low yield spreads and high capacity utilization indicates that the cost of
 7 equity is low and investors do not have much to fear regarding the health of the economy.
 8 To the degree the VIX is sometimes an indirect measure of “fear” it does not appear to be
 9 the case currently.

**Chart 9: US Capacity Utilization vs Yield Spread
 Jan 2000 - May 2018**



10

1 V. COST OF EQUITY CALCULATION

2 A. Overview

3 Q. PLEASE PROVIDE YOUR DEFINITION OF THE COST OF CAPITAL.

4 A. The cost of capital is the return investors require to provide capital to SUEZ PA based on
5 current capital markets. My cost of equity (“COE”) recommendation is my opinion of the
6 return investors require to provide equity capital to SUEZ PA based on current capital
7 markets. My current market-based framework is superior to methodologies based
8 primarily on historical data (e.g. beta and equity risk premium based on historical data)
9 and opinions³⁹ of what the market-based cost of equity will be in the future, for two
10 reasons:

- 11 • The cost of equity that SUEZ PA has to pay investors is based on capital markets.
12 Interest rates remain at historical low levels after a persistent downtrend since the
13 early 1980s (See Chart 4 above). It is possible interest rates will increase, but if the
14 marketplace expected interest rates to change, then that would already be part of
15 current prices.
- 16 • Capital markets are unpredictable. Regarding capital markets’ unpredictability,
17 investment guru Warren Buffet recently gave the following advice to investors:

18 They should not listen to a lot of the jabbering about what the market is going to
19 do tomorrow, or next week or next month because nobody knows.⁴⁰

20 Research I present later in my testimony supports Mr. Buffet’s advice to investors and
21 my opinion that the cost of equity should be based on current capital markets.

³⁹ Often using forecasted interest or stock price movements.

⁴⁰ PBS News Hour, June 26, 2017, Part 1 – America should stand for more than just wealth, says Warren Buffett.

1 My cost of equity recommendation is consistent with the ratemaking principles
2 established by the U.S. Supreme Court in the *Hope*⁴¹ and *Bluefield*⁴² cases, which
3 established that the cost of equity should support a utility's credit, enable raising money,
4 assure financial soundness and "be commensurate with returns on investments in other
5 enterprises having corresponding risks."⁴³ In *Bluefield*, the Supreme Court stated:

6 The return should be reasonably sufficient to assure confidence in the
7 financial soundness of the utility and should be adequate, under efficient
8 and economic management, to maintain and support its credit and able to
9 raise the money necessary for the proper discharge of its public duties.
10 Rate of return may be too high or too low by changes affecting
11 opportunities for investment, the money market and business conditions
12 generally.⁴⁴

13 Mr. D'Ascendis, for the most part, defines the cost of capital as "market-based."⁴⁵
14 He explains that he uses "market prices."⁴⁶ However, he relies on Blue Chip interest rate
15 forecasts instead of current market yields in his Capital Asset Pricing Model ("CAPM")
16 analysis, and the risk premium portion of his CAPM analysis includes historical
17 premiums⁴⁷ instead of investors' expectations as revealed in current market prices.
18

19 Current market prices of stocks and bonds reflect investors' forecasts for long-
20 term interest rates and capital markets in general. If, indeed, investors in aggregate should
21 be expecting an increase in interest rates, adding a separate factor for this on top of what
22 is already indicated in market prices would amount to a double-count.

⁴¹ *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*").

⁴² *Bluefield Water Works Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923) ("*Bluefield*").

⁴³ *Hope*, 320 U.S. at 603.

⁴⁴ *Bluefield*, 262 U.S. at 693.

⁴⁵ D'Ascendis Direct Testimony, Statement No. 5, page 12, lines 13-15.

⁴⁶ *Ibid.*

⁴⁷ *Ibid.* Schedule DWD-5, page 2 of 2.

1 Q. WHICH COMPANIES DID YOU INCLUDE IN YOUR COMPARABLE GROUP
2 OF UTILITY COMPANIES TO DETERMINE YOUR COST OF EQUITY
3 RECOMMENDATION?

4 A. I included the following six utility companies, referred to as the Water Proxy Group: (1)
5 American States Water, (2) American Water Works, (3) Aqua America, (4) California
6 Water Service Group, (5) Middlesex Water Company, and (6) York Water Company.⁴⁸

7 Q. HOW DID YOU ARRIVE AT YOUR COST OF EQUITY
8 RECOMMENDATIONS?

9 A. I used both a constant growth and non-constant growth Discounted Cash Flow (“DCF”)
10 method. My constant growth DCF method determines growth based on the sustainable
11 retention procedure. My non-constant growth method is based on estimated dividend
12 growth for the next 5-years and capital gains. Additionally, I used a CAPM based on
13 current market data as a check. I explain the theory behind both the DCF and CAPM
14 methods below.

15 **B. Discounted Cash Flow**

16 Q. HOW DID YOU ARRIVE AT YOUR DCF-BASED COST OF EQUITY
17 RECOMMENDATION?

18 A. I used the constant growth form of the Discounted Cash Flow (“DCF”) method that
19 determines growth based on the sustainable retention growth procedure. I used a non-
20 constant DCF method as a check. My constant growth form DCF analysis indicates a
21 cost of equity range of between 7.61% and 8.27% for the Water Proxy Group.⁴⁹ The
22 results of my non-constant DCF method indicates a cost of equity of 7.67% for the Water

⁴⁸ See, D’Ascendis Schedule DWD-2, page 1.

⁴⁹ See Schedule ALR 2.

1 Proxy Group.⁵⁰ Based on these results from my constant growth and non-constant
2 growth DCF methods I concluded that an 8.25% cost of equity for the Water Proxy
3 Group is conservatively high.

4 **Q. WHAT IS THE DISCOUNTED CASH FLOW METHOD?**

5 **A.** The Discounted Cash Flow, or DCF method, is an approach to determining the cost of
6 equity which recognizes that investors purchase common stock to receive future cash
7 payments. These payments come from: (a) current and future dividends, and (b) proceeds
8 from selling stock. A rational investor will buy stock to receive dividends and to
9 ultimately sell the stock to another investor at a gain. The price the new owner is willing
10 to pay for stock is related to the future flow of dividends and the future expected selling
11 price. The value of the stock is the discounted value of all future dividends until the stock
12 is sold plus the value of proceeds from the sale of the stock. For example, if the cost of
13 equity is 9% and the dividend is \$1 per share, then the \$1 dividend paid out next year is
14 today worth $\$1/[\$1+.09]$ which equals \$0.92 reflecting the discounted present value.

15 **Q. HAVE INVESTORS ALWAYS USED THE DCF METHOD?**

16 **A.** While investors who buy stock have always done so for future cash flow, the DCF
17 approach first appeared in the 1937 Harvard Ph.D. thesis of John Burr Williams titled *The*
18 *Theory of Investment Value*. “Williams’ model for valuing a security calls for the investor
19 to make a long-run projection of a company’s future dividend payments ...”⁵¹ The
20 Williams DCF model separately discounts each and every future expected cash flow. Its
21 accuracy is therefore unaffected by non-constant growth rates. Myron Gordon and Eli

⁵⁰ See Schedule ALR 4.

⁵¹ P. BERNSTEIN, *Capital Ideas: The Improbable Origins of Modern Wall Street* (The Free Press, © 1992).

1 Shapiro who helped to make this method widely used, referred to Williams' work in their
2 paper published in 1956 "Equipment Analysis: The Required Rate of Profit."

3 **Q. HOW DID INVESTORS EVALUATE STOCKS BEFORE WILLIAMS**
4 **INTRODUCED THE DCF METHOD?**

5 **A.** Before the DCF method, investors used methods such as P/E ratios (or its reciprocal the
6 E/P ratio, or earnings yield), or dividend yield (D/P). While these methods are still used
7 today, knowledgeable investors are aware that they are very incomplete and provide only
8 rough guidelines to investment value.

9 The appropriate P/E ratio for a company with high growth prospects can be much
10 higher than for a company with meager growth opportunities. Therefore, P/E ratios alone
11 do not predict the total return an investor expects to earn from purchasing stock in that
12 company. Similarly, the D/P analysis cannot distinguish important differences between
13 companies with similar D/P ratios but vastly different prospects for future dividend
14 payments. By concentrating on both current dividends and future expected dividend
15 payments, the Williams or non-constant DCF model filled in the major gaps in the P/E
16 ratio and D/P methods. I will discuss the use of the non-constant growth form of the DCF
17 model in detail later in my testimony.⁵²

⁵² I use the result of my non-constant growth method as a check on my constant growth DCF result. See Schedule ALR2 for the results of both of these methods.

1 **1. Constant Growth Form of the DCF Model**

2 **Q. YOU STATE YOU USED THE CONSTANT GROWTH FORM OF THE DCF**
3 **MODEL. WHAT IS THE CONSTANT GROWTH FORM OF THE DCF MODEL?**

4 **A.** The constant growth form of the DCF model is a form of the DCF method that can be
5 used in determining the cost of equity when investors can reasonably expect that growth
6 of retained earnings and dividends will be constant.

7 **Q. WHAT ARE RETAINED EARNINGS?**

8 **A.** Retained earnings are funds that a company keeps to grow and invest in business or pay
9 off debt.

10 **Q. WHY DO INVESTORS LOOK AT THE GROWTH OF RETAINED EARNINGS?**

11 **A.** Retained earnings show investors whether the company is growing which, in turn, is a
12 measure of the future indicator of the value of a company's stock.

13 **Q. DESCRIBE HOW THE CONSTANT GROWTH MODEL WORKS.**

14 **A.** The constant growth model is described by this equation $k = D/P + g$, where:⁵³

15 k = cost of equity;

16 D =Dividend rate; and

17 P =Market price of stock.

18 In the above equation:

19 g =the growth rate, where $g = br + sv$;

20 b =the earnings retention rate;

21 r =rate of return on common equity investment;

22 v =the fraction of funds raised by the sale of stock that increases the book value of
23 the existing shareholders' common equity; and

⁵³ M. GORDON, *Cost of Capital to a Public Utility*, at 32-33 (MSU Public Utility Studies 1974).

1 s=the rate of continuous new stock financing.

2 The constant growth model is therefore correctly recognized to be:

3
$$k=D/P + (br +sv)$$

4 **Q. WHAT OTHER FACTORS IMPACT THE USE OF THE CONSTANT GROWTH**
5 **FORM OF THE DCF MODEL?**

6 **A.** Sufficient care must be taken to be sure that the growth rate “g” is representative of the
7 constant sustainable growth required for the answer from the constant growth form of the
8 DCF model to be meaningful. In order to obtain a creditable constant growth DCF result,
9 the mathematical relationship between earnings, dividends, book value and stock price
10 must be respected.

11 For example, suppose one is faced with a situation where Value Line forecasts are
12 being used as a source for inputs and Value Line projects different growth rates for
13 earnings per share and dividends per share. Under such conditions, the earnings per share
14 growth rate does not provide a reasonable proxy for earnings per share growth, and
15 dividends per share and stock price growth as well. Consider the following:

16 1. It is the lower dividend growth rate that makes it possible for more
17 earnings to be retained, which in turn makes the earnings per share growth rate
18 higher than it would be if dividends had in fact been modeled by Value Line to
19 keep pace with earnings per share growth.

20 2. The lower dividend growth rate than both the earnings per share growth
21 rate and the stock price growth rate means that the dividend yield will be going
22 down. Yet, the constant growth form of the DCF model has no mechanism to
23 account for the lower dividend yield investors would get if the Value Line
24 projections were correct.

1 Using an earnings per share growth rate in the constant growth form of the DCF
2 model will therefore result in an overstatement of the cost of equity whenever the
3 earnings per share growth rate that has been modeled by the analyst was derived along
4 with an expectation of a lower dividend growth rate. This is because under these
5 conditions, the dividend yield portion of the constant growth form of the equation will be
6 overstated.

7 The basic difference between the use of an analysts' earnings per share growth
8 rate in the constant growth DCF formula and using the "br" (b=the earnings retention rate
9 X the rate of return on common equity investment) approach is that the "br" form, if
10 properly applied, eliminates the mathematical error caused by an inconsistency between
11 the expectations for earnings per share growth and dividends per share growth. Because
12 of the elimination of mathematical problems in the constant growth form due to
13 inconsistencies between the earnings per share and dividends per share growth rate, the
14 accuracy of the results of a properly applied "br" approach will be superior and often
15 materially superior to the answer obtained from other approaches to the constant growth
16 form of the DCF model. This is not to say that even a properly applied "br" approach will
17 be perfect. The self-correcting nature of a properly applied "br" to forecasted differences
18 in earnings per share and dividends per share growth rates is a big help in mitigating the
19 resultant computational error but should not be viewed as the perfect way to quantify the
20 impact of expected non-constant growth rates.

21 **Q. HOW CAN INACCURACIES IN THE DCF RESULT, CAUSED BY**
22 **FORECASTED DIFFERENCES BETWEEN THE EPS GROWTH RATE AND**
23 **THE DIVIDENDS PER SHARE GROWTH RATE, BE ELIMINATED?**

1 A. One way to correct such a problem is to reject the constant growth DCF model in favor of
2 the non-constant growth DCF model. The non-constant growth DCF model separately
3 discounts the anticipated cash flow in each subsequent year so that changes in the
4 dividend payout ratio and anticipated changes in the earned return on book equity can
5 both be quantified in a way that retains mathematical accuracy. The simplest way to
6 avoid adding this extra complexity in a way that, especially for regulated public utilities,
7 will generally retain mostly all of the accuracy obtainable from the non-constant growth
8 model is to quantify growth by using “br” + “sv,” in which:

9 1. The retention rate “b” is the earnings retention ratio computed to be
10 consistent with the dividend rate used in the D/P term of the constant growth DCF
11 formula, and

12 2. It is recognized that at any point in time, the price investors are willing to
13 pay for a company’s stock relates to what earnings are expected at that time. The
14 only relevant estimate of the return on equity “r” that should be used in the DCF
15 formula is the one that investors expect to be on average earned at the time of the
16 quantification of the stock price used in the DCF formula.

17 By following these two relatively simple guidelines, the accuracy of the DCF
18 method will in most cases be highly dependent on the estimate for the value of the future
19 expected return on book equity, “r.”

20 **Q. ARE YOU AWARE OF CLAIMS ALLEGING THAT THE “BR” APPROACH TO**
21 **THE CONSTANT GROWTH DCF MODEL IS FLAWED BECAUSE IT RELIES**
22 **ON THE VALUE OF THE FUTURE EXPECTED RETURN ON BOOK EQUITY**
23 **“r” TO ESTIMATE WHAT THE EARNED RETURN ON EQUITY SHOULD BE?**

1 A. Yes. There are multiple reasons why this concern is unfounded:

2 1. The constant growth form of the equation using br is:

3
$$k = D/P + (br + sv).$$

4 In this equation, k is the variable for the cost of equity, and r is the future
5 expected return on equity. The cost of equity, "k," is not the same variable as the
6 future expected earned return on equity, "r." In fact, there often is a large
7 difference between the two.

8 2. The correct value to use for "r" is the return on book equity expected by
9 investors as of the time the stock price and dividend data is used to quantify the
10 D/P term in the equation. Therefore, even if future events occur that may change
11 what investors expect for "r", the computation of the cost of equity "k" remains
12 correct as of the time the computation was made.

13 3. The ability of a commission decision to influence future cash flow
14 expectations is not unique to the retention growth approach to the DCF method.
15 The five-year analysts' earnings per share growth rate is a computation that is
16 directly influenced by what earnings per share will be in five years. A change in
17 what analysts expect will be the allowed return on equity for earnings generated
18 five years from now will change not only the expected earnings per share five
19 years from now, but will also change the five year earnings per share growth rate.

20 **Q. CAN CHANGES IN THE OVERALL EARNED RETURN IMPACT GROWTH**
21 **ABOVE AND BEYOND WHATEVER GROWTH RESULTS FROM EARNINGS**
22 **RETENTION?**

1 A. Yes, but one-time changes in EPS caused by a perceived change in the future expected
2 earned returns are unsustainable. The new perceived earned return on book equity should
3 be part of the computation, but the one-time growth spurt to get there is no more
4 indicative of the sustainable growth required in the constant growth DCF formula than
5 the temporary negative growth that occurs when a company has a bad year.

6 **Q. HOW HAVE YOU IMPLEMENTED THE CONSTANT GROWTH FORM OF**
7 **THE DCF MODEL IN THIS CASE?**

8 A. I have applied the constant growth form of the DCF model by staying true to the
9 mathematically derived " $k=D/P + (br + sv)$ " form of the DCF model. I have also taken
10 care to fully allocate all future expected earnings to either future cash flow in the form of
11 dividends ("D") or to retained earnings (the retention rate, "b"). This extra accuracy is
12 obtained only when the retention rate "b" is derived from the values used for "D" and "r"
13 rather than independently.

14 **Q. PLEASE EXPLAIN HOW YOU OBTAINED THE VALUES TO INPUT INTO**
15 **THE CONSTANT GROWTH FORM OF THE DCF METHOD.**

16 A. The DCF model generally calls for the use of the dividend expected over the next year.
17 A reasonable way to estimate next year's dividend rate is to increase the quarterly
18 dividend rate by $\frac{1}{2}$ of the current actual quarterly dividend rate. This is a good
19 approximation of the rate that would be obtained if the full prior year's dividend were
20 escalated by the entire growth rate.⁵⁴

⁵⁴ For example, assume a company paid a dividend of \$0.50 in the first quarter a year ago, and has a dividend growth rate of 4 % per year. This dividend growth rate equals $(1.04)^4 - 1 = 0.00985$ % per quarter. Thus, the dividend is \$.5049 in the second quarter, \$.5099 in the third quarter, and \$.5149 in the fourth quarter. If that 4 % per annum growth continues into the following year, then the dividend would be \$0.5199 in the 1st quarter, \$0.5251 in the 2nd quarter, \$0.5303 in the 3rd quarter, and \$0.5355 in the 4th quarter. Thus, the total dividends for the following year equal \$2.111 ($0.5199 + 0.5251 + 0.5303 + 0.5355$). I computed the dividend yield by taking the current quarter (the

1 I obtained the stock price “P” used in my DCF analysis from the closing prices of
2 the stocks on May 31, 2018. I also obtained an average stock price for the 12 months
3 ending May 31, 2018 by averaging the high and low stock prices for the year.

4 I based the value of the future expected return on equity, “r”, on the average
5 return on book equity expected by Value Line. I also made a computation that was based
6 on a review of both the earned return on equity consistent with analysts’ consensus
7 earnings growth rate expectations and on the actual earned returns on equity. For a stable
8 industry such as utility companies, investors will look at typical actual earned returns on
9 equity as one meaningful input into what can be expected for future earned returns on
10 book equity. See Schedule ALR 4, page 1.

11 This return on book equity expectation used in the DCF method to compute
12 growth must *not* be confused with the cost of equity. Since the stock prices for the
13 comparative companies are considerably higher than their book value, the return
14 investors expect to receive on their market price investment is considerably less than
15 whatever is the anticipated return on book value. If the market price is low, the cost of
16 equity will be higher than the future expected return on book equity, and if the market
17 price is high, then the return on book equity will be less than the cost of equity.

18 In addition to growing through the retention of earnings, utility companies also
19 grow by selling new common stock. I quantified this growth caused by the sale of new
20 common stock above book value by multiplying the amount that the actual market-to-
21 book ratio exceeds 1.0 by the compound annual growth rate of stock that Value Line

\$0.5149 in the 4th quarter in this example), and multiplying it by 4 to get an annual rate of \$2.06. I then escalated this \$2.06 by ½ the 4 % growth rate, which means it is increased by 2 %. $\$2.06 \times 1.02 = \2.101 , which is within one cent of the \$2.111 obtained in the example.

1 forecasts. The results of that computation are shown on line 4 of Schedules ALR 4, page
2 1.

3 Pure financial theory tends to prefer concentrating on the results from the most
4 current price because investors cannot purchase stock at historical prices. Others are
5 concerned about the potential distortion of using just a spot price. I present both so the
6 Commission can use the perspective it determines is most appropriate. As shown in
7 Schedule ALR 2, my DCF method, applied to the Water Proxy Group, the DCF result
8 based on the year-end stock price and the DCF result based on average prices for the year
9 ending May 31, 2018 is 7.61% and 8.12%. As of May 31, 2018 the result is 7.77% and
10 8.27%. Schedule ALR 4, page 1 shows more of the specifics of how I implemented the
11 constant growth form of the DCF model for the Water Proxy Group.

12 **Q. PLEASE EXPLAIN HOW YOU DETERMINED WHAT VALUE TO USE FOR**
13 **“R” WHEN COMPUTING GROWTH IN YOUR CONSTANT GROWTH FORM**
14 **OF THE DCF MODEL.**

15 **A.** The inputs I considered are shown in Footnote [A] of Schedule ALR 4, page 1. The value
16 of “r” that is appropriate to use in the DCF formula is the value anticipated by investors
17 to be maintained on average in the future. This schedule shows that the average future
18 return on equity forecast by Value Line on average for the Water Proxy Group for 2019-
19 2021-23 is 12.50%. The same footnote also shows that the future expected return on
20 equity derived from the Zacks consensus forecast is 11.76%, and that the actual returns
21 on equity earned on average by the Water Proxy Group were 10.71% in 2015, 10.57% in
22 2016 and 10.66% in 2017. Based on the combination of the forecast return on equity

1 derived from the Zacks consensus, the recent historical actual earned returns and Value
2 Line's forecast, I made the DCF growth computation using a 12.00%⁵⁵ value of "r".

3 **Q. WHAT COST OF EQUITY IS INDICATED BY THE CONSTANT GROWTH**
4 **FORM OF THE DCF METHOD THAT YOU RELY ON FOR YOUR**
5 **RECOMMENDATION?**

6 **A.** The result of my DCF analysis using the Constant Growth form of the DCF indicates a
7 cost of equity range of between 7.61% and 8.27% for the Water Proxy Group.⁵⁶ Since
8 these DCF findings use analysts' forecasts to derive sustainable growth (in part) and on
9 analysts' forecasts of dividend growth and book value growth in the non-constant form of
10 the DCF method, the results should be considered as conservatively high. This is because,
11 as previously mentioned above, analysts' forecasts of such growth have been notoriously
12 overstated.

13 It should be noted that the results I have obtained are not as influenced by over-
14 optimistic analysts' forecasts as would have been the case had I merely used analysts'
15 five-year earnings growth rate forecasts as a proxy for long-term growth. This is because
16 the DCF methods I use compute sustainable growth rates rather than growth rates that can
17 exaggerate the growth rate due to assuming that a relatively short-term forecast (five-
18 years) will remain indefinitely.

19

⁵⁵ I used 12% in consideration of historical returns, allowed returns and Value Line projected returns for the Water Proxy Group.

⁵⁶ Schedule ALR -2.

1 **2. Non-Constant Growth Form of the DCF Model**

2 **Q. WHAT IS THE NON-CONSTANT GROWTH FORM OF THE DCF MODEL?**

3 **A.** The non-constant growth form of the DCF model is a method that accounts for growth
4 rates that change over time.

5 **Q. PLEASE EXPLAIN HOW YOU IMPLEMENTED THE NON-CONSTANT**
6 **GROWTH FORM OF THE DCF MODEL.**

7 **A.** The non-constant growth form of the DCF model determines the return on investment
8 expected by investors based on an estimate of each separate annual cash flow the investor
9 expects to receive. For the purpose of this computation, I incorporated Value Line's
10 detailed annual forecasts to arrive at the specific non-constant growth expectations that an
11 investor who trusts Value Line would expect. This implementation is shown on Schedule
12 ALR 4, page 2. In the first stage cash flow entry is the cash outflow an investor would
13 experience when buying a share of stock at the market price. The subsequent years of
14 cash flow are equal to the dividends per share that Value Line forecasts. For the
15 intermediate years of the forecast period in which Value Line does not provide a specific
16 dividend, the annual dividends were obtained by estimating that dividend growth would
17 persist at a compound annual rate. The cash flow at the end of the forecast period
18 consists of both the last year's dividend forecast by Value Line and the proceeds from the
19 sale of the stock. The stock price used to determine the proceeds from selling the stock
20 was obtained by estimating that the stock price would grow at the same rate Value Line
21 forecasts book value to grow.

22

1 **Q. WHY DID YOU USE BOOK VALUE GROWTH TO PROVIDE THE ESTIMATE**
2 **OF THE FUTURE STOCK PRICE?**

3 **A.** For any given earned return on book equity, earnings are directly proportional to the book
4 value. Furthermore, book value growth is the net result after the company produces
5 earnings, pays a dividend and also perhaps either sells new common stock at market price
6 or repurchases its own common stock at market price.

7 Once these cash flows are entered into an Excel spreadsheet, the compound
8 annual return an investor would achieve as a result of making this investment was
9 obtained by using the Internal Rate of Return (IRR) function built into the spreadsheet.
10 As shown on Schedule ALR 4, page 2 this multi-stage DCF model produced an average
11 indicated cost of equity of 7.67% for the Water Proxy Group.

12 **Q. YOUR NON-CONSTANT GROWTH DCF MODEL USES ANNUAL EXPECTED**
13 **CASH FLOWS. SINCE DIVIDENDS ARE PAID QUARTERLY RATHER THAN**
14 **ANNUALLY, HOW DOES THIS SIMPLIFICATION IMPACT YOUR RESULTS?**

15 **A.** I used the annual model because it is easier to input the data and for observers to visualize
16 what is happening. By modeling cash flows to be annual rather than when they actually
17 are expected to occur causes a small overstatement of the cost of equity.

18 **Q. WHY IS IT A SMALL OVERSTATEMENT IF YOU HAVE MODELED**
19 **DIVIDENDS TO BE RECEIVED SOME MONTHS AFTER INVESTORS**
20 **ACTUALLY EXPECT TO GET THEM?**

21 **A.** The process of changing from an annual model to a quarterly model would require two
22 changes, not just one. A quarterly model would show dividends being paid sooner and
23 would also show earnings being available sooner. A company that receives their earnings

1 sooner, rather than at the end of the year, has the opportunity to compound them. Since
2 revenues and therefore earnings are essentially received every day, a company that is
3 supposed to earn an annual rate of 9.00% on equity would only have to earn 8.62% if the
4 return were compounded daily.⁵⁷ This reduction from 9.00% to 8.62% would then be
5 partially offset by the impact of the quarterly dividend payment to bring the result of
6 switching from the simplifying annual model closer to, but still a bit below 9.00%.

7 **Q. BY USING CASH FLOW EXPECTATIONS AS THE VALUATION**
8 **PARAMETER, DOES THE NON-CONSTANT DCF MODEL STILL RELY ON**
9 **EARNINGS?**

10 **A.** Yes. It relies on an expectation of future cash flows. Future cash flows come from
11 dividends during the time the stock is owned and capital gains from the sale of the stock
12 once it is sold. Since earnings impact both dividends and stock price, the non-constant
13 DCF model still relies on earnings.

14 Every dollar of earnings is used for the benefit of stockholders, either in the form
15 of a dividend payment or earnings reinvested for future growth in earnings and/or
16 dividends. Earnings paid out as a dividend have a different value to investors than
17 earnings retained in the business. Recognizing this difference and properly considering it
18 in the quantification process is a major strength of the DCF model, and is why the non-
19 constant DCF model as I have set forth is an improvement over either the P/E ratio or
20 D/P methods.

21 **Q. WHY IS THERE A DIFFERENCE TO INVESTORS IN THE VALUE OF**
22 **EARNINGS PAID OUT AS A DIVIDEND COMPARED TO THE VALUE OF**
23 **EARNINGS RETAINED IN THE BUSINESS?**

⁵⁷ $(1+.0862/365)^{365}=1.09=9.00\%$.

1 A. The return on earnings retained in the business depends upon the opportunities available
2 to that company. If a regulated utility reinvests earnings in needed used and useful utility
3 assets, then those reinvested earnings have the potential to earn at whatever return is
4 consistent with ratemaking procedures allowed and the skill of management in prudently
5 operating the system.

6 When an investor receives a dividend, he can either reinvest it in the same or
7 another company or use it for other things, such as paying down debt or paying living
8 expenses. Although an investor could theoretically use the proceeds from any dividend
9 payments to simply buy more stock in the same company, when an investor increases his
10 investment in a company by purchasing more stock, the transaction occurs at market
11 price. However, when the same investor sees his investment in a company increase
12 because earnings are retained rather than paid as a dividend, the reinvestment occurs at
13 book value. Stated within the context of the DCF terminology: earnings retained in the
14 business earn at the future expected return on book equity “r,” and dividends used to
15 purchase new stock earn at the rate “k.” When the market price exceeds book value (that
16 is, the market-to-book ratio exceeds 1.0), retained earnings are worth more than earnings
17 paid out as a dividend because “r” will be higher than “k.” Conversely, when the market
18 price is below book value, “k” will be higher than “r,” meaning that earnings paid out as
19 a dividend earn a higher rate than retained earnings.

20 **Q. IF RETAINED EARNINGS WERE MORE VALUABLE WHEN THE MARKET-**
21 **TO-BOOK RATIO IS ABOVE 1.0, WHY WOULD A COMPANY WITH A**
22 **MARKET-TO-BOOK RATIO ABOVE 1.0 PAY A DIVIDEND RATHER THAN**
23 **RETAIN ALL OF THE EARNINGS?**

1 A. Retained earnings are only more valuable than dividends if there are sufficient
2 opportunities to profitably reinvest those earnings. Regulated utility companies are only
3 allowed to earn the cost of capital on assets that are used and useful in providing utility
4 service. Investing in assets that are not needed may not produce any return at all. For
5 unregulated companies, opportunities to reinvest funds are limited by the demands of the
6 business. For example, how many new computer chips can Intel profitably develop at the
7 same time?

8 **Q. UNDER THE NON-CONSTANT DCF MODEL, IS IT NECESSARY FOR**
9 **EARNINGS AND DIVIDENDS TO GROW AT A CONSTANT RATE FOR THE**
10 **MODEL TO BE ABLE TO ACCURATELY DETERMINE THE COST OF**
11 **EQUITY?**

12 A. No. Because the non-constant form of the DCF model separately discounts each and
13 every future expected cash flow, it does *not* rely on any assumptions of constant growth.
14 The dividend yield can be different from period to period, and growth can bounce around
15 in any imaginable pattern without harming the accuracy of the answer obtained from
16 quantifying those expectations. When the non-constant DCF model is correctly used, the
17 answer obtained is as accurate as the estimates of future cash flow.

18 **Q. WHAT COST OF EQUITY DOES YOUR NON-CONSTANT GROWTH DCF**
19 **METHOD INDICATE?**

20 A. My non-constant growth DCF method indicates a cost of equity of 7.67%.⁵⁸

21

⁵⁸ Schedule ALR- 4, page 1.

1 C. Capital Asset Pricing Model

2 Q. WHAT IS THE CAPITAL ASSET PRICING MODEL (CAPM)?

3 A. The CAPM of Sharpe (1964), Lintner (1965), and Black (1972), is a theory about how
4 expected return (e.g. electric utility stocks) and capital assets are related. Like the DCF
5 method, it can be used to predict the return expected by stock investors or cost of equity.
6 Capital assets include stocks, bonds, real estate, et cetera. Here, I am using the CAPM as
7 a check on DCF results.

8 Q. WHAT IS CAPM THEORY?

9 A. The CAPM predicts that the cost of equity of a security has a positive linear relationship
10 to how sensitive the stock's returns are to the returns of the overall market.⁵⁹ This is
11 referred to as the security market line. For example, the CAPM predicts that a stock that
12 tends to increase/decrease 2% when the overall market (e.g. S&P 500)
13 increases/decreases 1% has a higher cost of equity than a stock that increases/decreases
14 0.5% when the overall market increases/decreases 1%.

15 The relationship between the expected returns of a stock and the overall market is
16 measured by a stock's beta.⁶⁰ I determined that the market implied beta for the Water
17 Proxy Group ranged between 0.73 and 1.05 in the past 3-months, averaging 0.91. A beta
18 under 1.0 indicates that the Water Proxy Group has a lower cost of equity than the overall
19 market (S&P 500).

20 The CAPM is a theoretical framework and does not require a specific formula or
21 mechanical process. William Sharpe⁶¹ explains that the CAPM's assumptions provide

⁵⁹ The covariance between a stock and the overall market.

⁶⁰ A stock's beta is calculated by dividing its covariance with the overall market by the variance of the overall market.

⁶¹ William Sharpe won the Noble Prize in Economics in 1990 for developing the CAPM

1 “no implications concerning either the signs or the magnitudes of the coefficients and the
2 associated pricing relationship.”⁶² However, a mathematical formula provides a concrete
3 representation of the CAPM’s theoretical framework. In general, the formula often
4 involves adding a risk premium (RP) to a risk-free rate of interest (Rf). The CAPM cost
5 of equity (K) result can be expressed as the following equation:

$$K = R_f + \beta * [E(R_m) - (R_f)]$$

7 Terms:

- 8 • K: Cost of equity;
- 9 • Rf: risk free rate of interest (e.g. 30-year U.S. Treasury yield);
- 10 • Beta (β): the systematic or market risk of a stock;
- 11 • E (Rm): return on the overall market (e.g. S&P 500, Dow Jones);
- 12 • [E(Rm) – (Rf)]: market risk premium.

13 **Q. WHAT IS BETA AND HOW DOES IT RELATE TO RISK?**

14 **A.** Beta is a measurement of the correlation between the risk of a given stock or industry
15 category and the risk of the market as a whole. A portfolio made up of companies with a
16 beta that averages 1.0 tends to have price swings that match the market in magnitude. A
17 portfolio with an average beta of 1.5 tends to move 1.5% for every 1% the market moves.
18 A portfolio with average beta of 0.8 tends to move 0.8% for every 1% the market moves.

19 **Q. WHY DO INVESTORS DEMAND A RISK PREMIUM TO INVEST IN STOCKS?**

20 **A.** Investors prefer to avoid uncertainty. Investments with more uncertain returns (*i.e.*
21 greater volatility or risk) require higher compensation to induce investors to take on
22 additional risk.

⁶² CAPITAL ASSET PRICES WITH AND WITHOUT NEGATIVE HOLDINGS, Noble Lecture, December 7, 1990 by William F. Sharpe, page 320.

1 **Q. FOR WHAT TYPE OF RISK DO INVESTORS DEMAND COMPENSATION?**

2 **A.** Investors demand compensation for risks they cannot eliminate through diversification.
3 Investors buy stocks as part of diversified portfolios. This behavior, or portfolio effect,
4 causes the diversifiable risks of each company to cancel out. Unanticipated failure is
5 offset by unanticipated success. If all the diversifiable risks of all the companies in an
6 investor's portfolio cancel out, only non-diversifiable risk remains. Examples of non-
7 diversifiable risk could be a worldwide recession or a sudden shortage of crude oil.

8 **Q. PLEASE EXPLAIN HOW YOU IMPLEMENTED THE CAPM.**

9 **A.** As shown on Schedule ALR 7, pages 1-5, I used the CAPM to estimate SUEZ PA's cost
10 of equity with the following inputs:

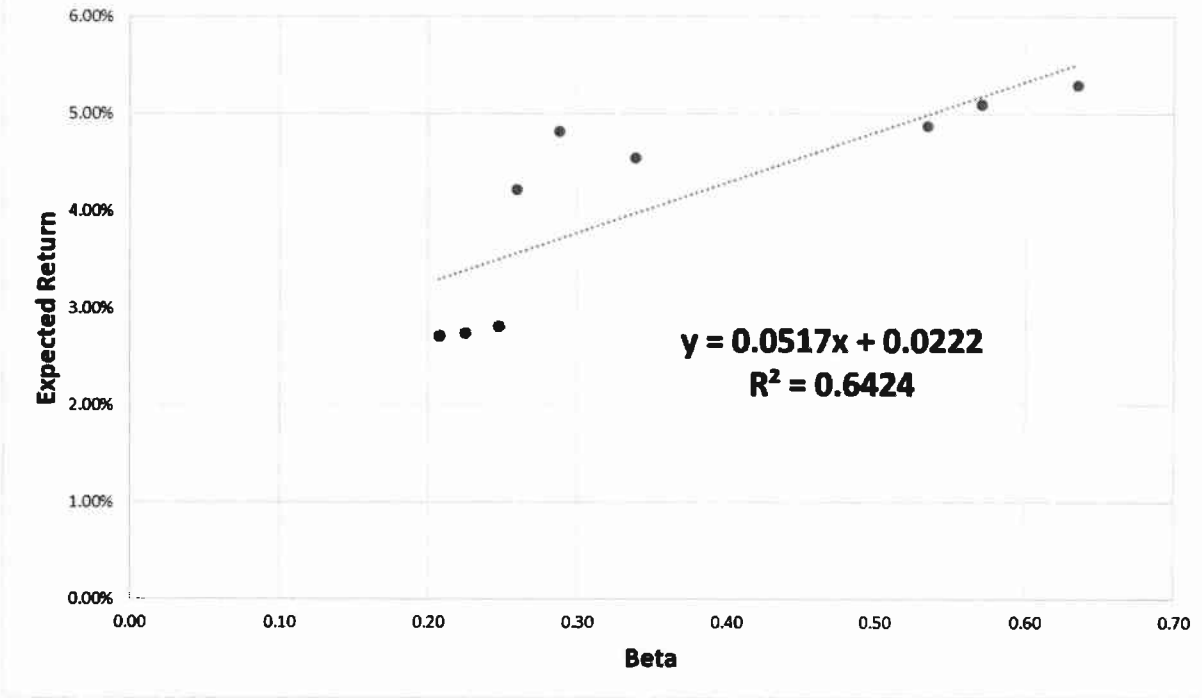
- 11 1. Option implied betas for each of the companies in the Water Proxy Group⁶³;
- 12 2. Option implied betas for two BlackRock Bond Funds⁶⁴;
- 13 3. Yields on BlackRock Bond Funds.

14 Based on the option implied betas of the bond funds and their market yields, I was able to
15 determine the security market line shown in Chart 10 below.

⁶³ An option implied beta was not calculated for Exelon Corp. because option pricing data is not provided by Yahoo Finance

⁶⁴ BlackRock Bond Funds were used because they are large funds which have options pricing data.

**Chart 10: Option Implied Security Market Line
April - June 2018**



1

2

3

4

5

6

Utilizing this options implied security market line, the CAPM indicates the Water Proxy Group, with a beta an average beta of 0.91 over the past 3 months, has a cost of equity between 7%-8%.⁶⁵ This market-based CAPM result supports my DCF results of between 7.61% and 8.27% for the Water Proxy Group.⁶⁶

⁶⁵ Schedule ALR 7, pages 1-5.

⁶⁶ Schedule ALR 2.

1 VI. ADDITIONAL COMMENTS ON MR. D'ASCENDIS' TESTIMONY

2 Q. PLEASE SUMMARIZE THE TESTIMONY OF MR. D'ASCENDIS.

3 A. Mr. D'Ascendis has recommended that the Company be allowed a return on equity of
4 within a range of 10.40% and 11.50% and an overall cost of capital within a range of
5 7.76% to 8.36%.⁶⁷ He arrived at his recommendation based upon his own versions of the
6 Discounted Cash Flow ("DCF") Model, Risk Premium approach ("RPM") and Capital
7 Asset Pricing Model ("CAPM"). Mr. D'Ascendis testified that, "the use of multiple
8 generally accepted common equity cost rate models...adds reliability and accuracy when
9 arriving at a recommended common equity cost rate."⁶⁸ Mr. D'Ascendis applied his three
10 cost of equity methods to the same group of six water utility companies in my Water
11 Proxy Group. Mr. D'Ascendis refers to this group as the Water Proxy Group.⁶⁹ He also
12 applies his cost of equity models to a group of non-price regulated companies ("Non-
13 Price Regulated Proxy Group").⁷⁰ His cost of equity recommendation (10.40%-11.50%)
14 includes an upward adjustment of 0.20% to account for his claim that SUEZ PA has
15 greater business risk than the companies in his Water Proxy Group.⁷¹

16 Mr. D'Ascendis concluded that SUEZ PA's relative smaller size, in relation to his
17 Water Proxy Group, is the cause of the greater business risk that justifies his 0.20%
18 upward adjustment to his cost of equity recommendation.⁷²

19 Below are the results of Mr. D'Ascendis' three cost of equity methods.
20

⁶⁷ D'Ascendis Direct Testimony, Statement No. 5, page 2, lines 10-18.

⁶⁸ Ibid. page 5, lines 16-18.

⁶⁹ Ibid. page 3, lines 13-16.

⁷⁰ Ibid, page 3, line 17 and page 4, lines 1-3.

⁷¹ Ibid. page 4, lines 22-23.

⁷² Ibid. page 4, lines 22-26

1

Method	Water Proxy Group
DCF	9.10%
RPM	12.12%
CAPM	11.31%

2

3 **Q. WHAT IS YOUR OVERALL REACTION TO MR. D'ASCENDIS' TESTIMONY?**

4 **A.** Mr.D'Ascendis' final recommended range of range of common equity cost rates of
5 10.40%-11.50%⁷³ overstates the cost of equity. Technical issues aside, his
6 recommendation is not consistent with the Commission's long-standing preference for
7 DCF model results. He provides as much weight to the results of the average of his two
8 Risk Premium analyses and two CAPM analyses as his 9.10% DCF result.⁷⁴

9 **Q. SHOULD THE COST OF EQUITY FOR SUEZ PA BE BASED UPON MR.**
10 **D'ASCENDIS' SECOND PROXY GROUP?**

11 **A.** No. Mr. D'Ascendis' Non-Price Regulated Proxy Group of seventeen companies should
12 not be used because the companies in this group are not comparable in risk to SUEZ PA.
13 As a regulated utility, SUEZ PA has accepted an obligation to serve within its certificated
14 service territory in exchange for the opportunity to recover its costs and earn a return on
15 its investments. Non-price regulated companies have a different economic
16 framework. Non-price regulated companies face the risk that their customers will no

⁷³ Ibid, page 4, Table 2.

⁷⁴ Ibid.

1 longer purchase their product if they raise prices to cover increasing costs. SUEZ PA, on
2 the other hand, can file for a rate increase to address increasing costs.

3 **Q. IS MR. D'ASCENDIS' DCF RESULT OF 9.10% AN APPROPRIATE COST OF**
4 **EQUITY FOR SUEZ PA?**

5 **A.** No. Mr. D'Ascendis' 9.10% DCF result, as applied to his proxy group of 6 water utility
6 companies, is above the market based cost of equity because his DCF analysis relies on
7 an unsustainable 6.91%⁷⁵ growth component. Below I will explain why the analyst five-
8 year EPS growth rate forecasts used by Mr. D'Ascendis' are not sustainable and lead to
9 above market cost of equity results.

10
11 **DCF Method**

12 **Q. DOES MR. D'ASCENDIS CONSIDER THE DCF METHOD HIS PRIMARY**
13 **METHOD FOR DETERMINING THE COST OF EQUITY?**

14 **A.** No. He explains that his recommendation is based on his DCF model, CAPM and RPM
15 analyses, with no indication of particular weight.⁷⁶

16 **Q. WHAT FORM OF THE DCF MODEL DOES MR. D'ASCENDIS USE?**

17 **A.** He uses the constant growth form of the DCF model.⁷⁷

18 **Q. DOES MR. D'ASCENDIS PROPERLY APPLY THE SIMPLIFIED OR**
19 **CONSTANT DCF METHOD?**

20 **A.** No. Mr. D'Ascendis adds a growth component to a divided yield even though his growth
21 analysis relies completely on analyst five-year EPS per share growth forecasts.⁷⁸ It is

⁷⁵ Ibid. Schedule DWD-1, page 1 of 7. 6.91% = average of Five Year Growth in EPS shown in column "[6]".

⁷⁶ Ibid, page 3, lines 13-17.

⁷⁷ Ibid, page 13, lines 14-15.

⁷⁸ Ibid. page 14, lines 22-23.

1 only a DCF method if the dividend yield is computed properly, and the growth rate used
2 is derived from a careful study of what future sustainable growth in cash flow is
3 anticipated by investors.

4 **Q. HOW DID MR. D'ASCENDIS CALCULATE HIS GROWTH RATE FOR HIS**
5 **DCF METHOD?**

6 **A.** On page 14, lines 14-23 of Mr. D'Ascendis' testimony he says that he uses analysts' five-
7 year EPS forecast as the growth component of his DCF analysis because "Investors...are
8 likely to rely on...Value Line, Reuters, Zacks, and Yahoo Finance" and "Investors
9 realize that analysts have significant insight."

10 Below are the five-year projected earnings per share rates by the four investment
11 research firms he chose:

12	Value Line:	8.42%
13	Reuters:	7.20%
14	Zacks:	6.13%
15	Yahoo Finance:	5.77%

16 Source: Schedule ALR 9.

17 **Q. IS MR. D'ASCENDIS' METHODOLOGY TO DETERMINE THE GROWTH**
18 **RATE TO USE IN HIS DCF MODEL APPROPRIATE?**

19 **A.** No. As stated above, Mr. D'Ascendis uses analyst five-year earnings per share growth
20 without attempting to reconcile the retention rate used for computing growth with the
21 retention rate he used to compute the dividend yield. This is analogous to failing to
22 reconcile the money you are taking out of your checking account with your future
23 balance, i.e. the basic balancing of a checkbook.

1 Q. CAN YOU PLEASE SUMMARIZE WHY A FUTURE ORIENTED "B X R"
2 METHOD IS SUPERIOR TO A FIVE-YEAR EARNINGS PER SHARE
3 GROWTH RATE FORECAST IN PROVIDING A LONG-TERM SUSTAINABLE
4 GROWTH RATE?

5 A. Yes. The primary cause of sustainable earnings growth is the retention of earnings. A
6 company is able to create higher future earnings by retaining a portion of the prior year's
7 earnings in the business and purchasing new business assets with those retained earnings.
8 There are many factors that can cause short-term swings in earnings growth rates, but
9 long-term sustainable growth is caused by retaining earnings and reinvesting those
10 earnings. Factors that cause short-term swings include anything that causes a company to
11 earn a return on book equity at a rate different from the long-term sustainable rate.
12 Assume, for example, that a particular utility company is regulated so that it is provided
13 with a reasonable opportunity to earn 9.0% on its equity. Should the company experience
14 an event such as the loss of several key customers, or unfavorable weather conditions,
15 which cause it to earn only 6.0% on equity in a given year, the drop of 9% earned return
16 on equity to a 6% earned return on equity would be concurrent with a very large drop in
17 earnings per share. In fact, if a company did not issue any new shares of stock during the
18 year, a drop from a 9% earned return on book equity to a 6% earned return on book
19 equity would result in a 33.3% decline in earnings per share over the period.⁷⁹ However,
20 such a drop in earnings would not be any indication of what is a long-term sustainable
21 earnings per share growth rate. If the drop were caused by weather conditions, the drop in
22 earnings would be immediately offset once normal weather conditions return. If the drop

⁷⁹ By definition, earned return on equity is earnings divided by book value. Therefore, whatever level of earnings is required to produce earnings of 6% of book would have to be 33.3% lower than the level of earnings required to produce a return on book equity of 9%.

1 were from the loss of some key customers, the company would replace the lost earnings
2 by filing for a rate increase to bring revenues up to the level required for the company to
3 have a reasonable opportunity to recover its cost of equity.

4 For the above reasons, changes in earnings per share growth rates that are caused
5 by non-recurring changes in the earned return on book equity are inconsistent with long-
6 term sustainable growth, but changes in earnings per share because of the reinvestment of
7 additional assets is a cause of sustainable earnings growth. The “ $b \times r$ ” term in the DCF
8 equation computes sustainable growth because it measures only the growth which a
9 company can expect to achieve when its earned return on book equity “ r ” remains in
10 equilibrium. If analysts have sufficient data to be able to forecast varying values of “ r ” in
11 future years, then a complex, or multi-stage DCF method must be used to accurately
12 quantify the effect. Averaging growth rates over sub-periods, such as averaging growth
13 over the first five years with a growth rate expected over the subsequent period, will not
14 provide an appropriate representation of the cash flows expected by investors in the
15 future and, therefore, will not provide an acceptable method of quantifying the cost of
16 equity using the DCF method. The choices are either a constant growth DCF, in which
17 one “ $b \times r$ ” derived growth rate should be used, or a complex DCF method in which the
18 cash flow anticipated in each future year is separately estimated. Mr. D’Ascendis has
19 done neither.

20 **Q. WHY ARE ANALYSTS’ FIVE-YEAR CONSENSUS GROWTH RATES NOT**
21 **INDICATIVE OF LONG-TERM SUSTAINABLE GROWTH RATES?**

22 **A.** Analysts’ five-year earnings per share growth rates are earnings per share growth rates
23 that measure earnings growth from the most currently completed fiscal year to projected

1 earnings five years into the future. These growth rates are not indicative of future
2 sustainable growth rates, in part, because the sources of cash flow to an investor are
3 dividends and stock price appreciation. While both stock price and dividends are
4 impacted in the long-run by the level of earnings a company is capable of achieving,
5 earnings growth over a period as short as five years is rarely in synchronization with the
6 cash flow growth from increases in dividends and stock prices. For example, if a
7 company experiences a year in which investors perceive that earnings temporarily dipped
8 below normal trend levels, stock prices generally do not decline at the same percentage
9 that earnings decline, and dividends are usually not cut just because of a temporary
10 decline in a company's earnings. Unless both the stock price and dividends mirror every
11 down swing in earnings, they cannot be expected to recover at the same growth rate that
12 earnings recover. Therefore, growth rates such as five-year projected growth in earnings
13 per share are not indicative of long-term sustainable growth rates in cash flow. As a
14 result, they are inapplicable for direct use in the simplified DCF method.

15 **Q. IS THE USE OF FIVE-YEAR EARNINGS PER SHARE GROWTH RATES IN**
16 **THE DCF MODEL ALSO IMPROPER?**

17 **A.** Yes. A raw, unadjusted, five-year earnings per share growth rate is usually a poor proxy
18 for either short-term or long-term cash flow that an investor expects to receive. When
19 implementing the DCF method, the time value of money is considered by equating the
20 current stock price of a company to present value of the future cash flows that an investor
21 expects to receive over the entire time that he or she owns the stock. The discount rate
22 required to make the future cash flow stream, on a net present value basis, equal to the
23 current stock price is the cost of equity. The only two sources of cash flow to an investor

1 are dividends and the net proceeds from the sale of stock at whatever time in the future
2 the investor finally sells. Therefore, the DCF method is discounting future cash flows
3 that investors expect to receive from dividends and from the eventual sale of the stock.
4 Five-year earnings growth rate forecasts are especially poor indicators of cash flow
5 growth even over the five years being measured by the five-year earnings per share
6 growth rate number.

7 **Q. WHY IS A FIVE-YEAR EARNINGS PER SHARE GROWTH RATE A POOR**
8 **INDICATOR OF THE FIVE-YEAR CASH FLOW EXPECTATION FROM**
9 **DIVIDENDS?**

10 **A.** The board of directors changes dividend rates based upon long-term earnings
11 expectations combined with the capital needs of a company. Most companies do not cut
12 the dividend simply because a company has a year in which earnings were below
13 sustainable trends, and similarly they do not increase dividends simply because earnings
14 for one year happened to be above long-term sustainable trends. Therefore, over any
15 given five-year period, earnings growth is frequently very different from dividend
16 growth. In order for earnings growth to equal dividend growth, at a minimum, earnings
17 per share in the first year of the five-year earnings growth rate period would have to be
18 exactly on the long-term earnings trend line expected by investors. Since earnings in most
19 years are above or below the trend line, the earnings per share growth rate over most five-
20 year periods is different from what is expected for dividend growth.

21

1 **Q. WHY IS THE FIVE-YEAR EARNINGS PER SHARE GROWTH RATE A POOR**
2 **INDICATION OF FUTURE STOCK PRICE GROWTH?**

3 **A.** If a company happens to experience a year in which earnings decline below what
4 investors believe are consistent with the long-term trend, then the stock price does not
5 drop as much as earnings drop. Similarly, if a company happens to experience a year in
6 which earnings are higher than the investor-perceived long-term sustainable trend, then
7 the stock price will not increase as much as earnings. In other words, the P/E ratio of a
8 company will increase after a year in which investors believe earnings are below
9 sustainable levels, and the P/E ratio will decline in a year in which investors believe
10 earnings are higher than expected. Since it is stock price that is one of the important cash
11 flow sources to an investor, a five-year earnings growth rate is a poor indicator of cash
12 flow both because it is a poor indicator of stock price growth over the five years being
13 examined and is equally a poor predictor of dividend growth over the same period.

14 **Q. ARE YOU SAYING THAT ANALYSTS' CONSENSUS EARNINGS PER SHARE**
15 **GROWTH RATES ARE USELESS AS AN AID TO PROJECTING THE**
16 **FUTURE?**

17 **A.** No. Analysts' EPS growth rates are, however, very dangerous if used in a simplified DCF
18 without proper interpretation. While they are not useful if used in their "raw" form, they
19 can be useful in computing estimates of what earned return on equity investors expect
20 will be sustained in the future, and as such, are useful in developing long-term sustainable
21 growth rates.

22

23

1 **Risk Premium Method**

2 **Q. ARE THE RESULTS OF MR. D'ASCENDIS' RISK PREMIUM ANALYSES**
3 **USEFUL EVEN AS A CHECK?**

4 **A.** No. First, Mr. D'Ascendis does not use the results of his two risk premium analyses as a
5 check. Instead he takes the results of his two risk premium analyses, as applied to the
6 Water Proxy Group, and again to his Second Non-Utility Proxy Group, and gives the
7 averages full weight in his cost of equity determination. Flaws in Mr. D'Ascendis' risk
8 premium analysis and choice of inputs make the results, as applied to the Water Proxy
9 Group, unsuitable for use as a check on a DCF based cost of equity.

10 **Q. PLEASE EXPLAIN MR. D'ASCENDIS' VERSION OF THE RISK PREMIUM**
11 **METHODS, AS PRESENTED IN HIS DIRECT TESTIMONY.**

12 **A.** Mr. D'Ascendis applies the following two risk premium methods: Predictive Risk
13 Premium Model (PRPM) and "total market approach."⁸⁰ His PRPM is based on research
14 showing that the level of volatility in equity returns can be used to predict future levels of
15 risk premiums.⁸¹ The model inputs include historical returns of the common equity of the
16 companies in his "Utility Proxy Group" (i.e. Water Proxy Group) minus the historical
17 monthly yield on long-term U.S. Treasury securities through March 2018.⁸² Statistical
18 software was used to determine the projected equity risk premium for each of the water
19 companies in Mr. D'Ascendis' Utility Proxy Group, which range between 7.96% for
20 American States Water to 11.79% for York Water.⁸³ The risk-free rate component of

⁸⁰ D'Ascendis Direct Testimony, Statement No. 5, page 16, lines 9-13.

⁸¹ Ibid. page 16, lines 14-20 and page 17, lines 1-2.

⁸² Ibid. page 17, lines 7-9.

⁸³ Ibid. Schedule DWD-4, page 2 of 12.

1 3.69% is based on the consensus forecast derived from Blue Chip Financial Forecasts.⁸⁴
2 Adding the predicted risk premium to the risk free rate for each of the six companies in
3 his proxy group results in a PRPM based 13.43% cost of equity.⁸⁵

4 Mr. D'Ascendis' total market approach RPM adds a prospective public utility
5 bond yield to an equity risk premium.⁸⁶ The equity risk premium is based on beta-
6 adjusted total market equity risk premium and an equity risk premium based upon S&P
7 Utilities Index.⁸⁷ He determines the prospective bond yield based on the consensus
8 forecasts of about 50 economists of Aaa rated corporate bonds (4.66%) and then
9 increases this result by 0.28% to be equivalent to A2 rated public utility bonds (4.94%).⁸⁸
10 He adds an additional 0.06% to the prospective bond yield to get a 5.0% "adjusted
11 Prospective Bond Yield"⁸⁹ because his Utility Proxy Group has a lower A3 bond rating.⁹⁰
12 He calculated equity risk premium of 5.80% based on the average of the following two
13 approaches:

14 Beta approach: 6.64%

15 Average of historical risk premiums (6.51%) and market return projects
16 from Value Line (7.87%) and Bloomberg (9.93%) applied to the adjusted
17 beta (0.82) of his proxy group.⁹¹

18 S&P Utility Index and Moody's A-rated public utility bonds: 4.95%

19 Average of historical risk premiums (4.61%) and forecasted equity risk
20 premiums (4.86% and 5.37%).

⁸⁴ Ibid. page 17, lines 17.

⁸⁵ Ibid. Schedule DWD-4, page 2 of 12.

⁸⁶ Ibid. page 18, lines 5-9.

⁸⁷ Ibid.

⁸⁸ Ibid. page 18, lines 10-23 and page 19, lines 1-3.

⁸⁹ Ibid. Schedule DWD-4, page 3 of 12.

⁹⁰ Ibid. page 19, lines 4-10.

⁹¹ Ibid. Schedule DWD-4, page 7 of 12.

1 Adding this 5.80% equity risk premium to the risk free rate for each of the six companies
2 in his proxy group results in a RPM based 10.80% cost of equity.⁹²

3 Mr. D'Ascendis used the average (12.12%) of the two risk premium results as
4 support for his cost of equity recommendation.

5 **Q. PLEASE COMMENT ON MR. D'ASCENDIS' RISK PREMIUM METHODS.**

6 **A.** Mr. D'Ascendis' equity risk premium of 5.80%⁹³ is out of line with market data,
7 academic studies and surveys of CFOs and global managers. The Campbell and Harvey
8 Survey of CFOs (2014) showed an average equity risk premium estimate of 3.73%. From
9 a historical perspective, Roger Ibbotson has stated that the historical equity risk premium
10 is the geometric difference between company stock returns and U.S. Treasury returns.⁹⁴
11 Calculated this way, the historical risk premium for large company stocks is 4.40% with
12 long-term government bond returns as the risk free rate.⁹⁵

13 Mr. D'Ascendis' states the following regarding his PRPM:

14 The PRPM is not based on an estimate of investor behavior, but rather on the evaluation
15 of the results of that behavior (i.e., the variance of historical equity risk premiums)

16 The results of my CAPM are a better measure of the equity risk premium than Mr.
17 D'Ascendis' PRPM because it is based on the results of investor expectations as
18 indicated by the prices investors pay for stock options. Cost of equity results based on
19 past behavior, like Mr. D'Ascendis PRPM, are inferior to direct measures of investors'
20 expectations.

21
22

⁹² Ibid. Schedule DWD-4, page 3 of 12.

⁹³ Ibid. Schedule DWD-5, Page 2 of 2.

⁹⁴ Ibbotson SBBI® 2013 Classic Yearbook, page 64.

⁹⁵ 10.0 (compound annual return of large company stocks – 1926-2015) – 5.6 (compound annual return of long-term government bonds). 2016 SBBI Yearbook.

1 **CAPM Method**

2 **Q. ARE THE RESULTS OF MR. D'ASCENDIS' CAPM AND ECAPM ANALYSES**
3 **USEFUL EVEN AS A CHECK?**

4 **A.** No. First, as noted above, Mr. D'Ascendis gives weight to results of each his cost model
5 analyses – DCF, RPM variations, and CAPM variations – in reaching his cost of equity
6 recommendation. Flaws in Mr. D'Ascendis' CAPM analyses and choice of inputs make
7 the results, as applied to the Water Proxy Group, unsuited to use as a check on a DCF
8 based cost of equity.

9 **Q. PLEASE SUMMARIZE MR. D'ASCENDIS' CAPM METHOD.**

10 **A.** Mr. D'Ascendis explains that, "The model is applied by adding a risk-free rate of return
11 to a market risk premium, which is adjusted proportionally to reflect the systematic risk
12 of the individual security relative to the total market as measured by the beta coefficient."

13 The traditional CAPM model is expressed as:

14 $R_s = R_f + p(R_m - R_f)$... Where:

15 R = Return rate on the common stock

16 R_f = Risk-free rate of return

17 R_m = Return rate on the market as a whole

18 P = adjusted beta (volatility of the security relative to the market
19 as a whole)" ⁹⁶

20 He uses a risk-free rate of 3.69% based on the Blue Chip consensus forecast of 30-Year
21 U.S. Treasury bond yields.⁹⁷ The risk premium portion of his CAPM analysis (shown on

⁹⁶ Ibid. page 26, lines 21-23 and page 27, lines 1-8.

⁹⁷ Ibid. page 28, lines 6-9.

1 Schedule DWD-5, Page 2 of 2) is 9.12%⁹⁸ which is derived from an average of the
2 following components:

- 3 • Historical: 7.61% (Ave of Measure 1, 2 and 3);

4 Measure 1: 6.80%

5 The arithmetic mean monthly returns of large company stocks
6 relative to long-term U.S. Treasury bond yields from 1926-2016;

7 Measure 2: 8.49%

8 Regression analysis applied to the monthly historical returns on the
9 S&P 500 relative to historical yields on long-term U.S. Government
10 Securities (1926-2016);

11 Measure 3: 7.55%

12 Application of PRPM⁹⁹ to historical data (1926-2016).

- 13 • Value Line Projected: 8.84% (Ave of Measure 4 and 5);

14 Measure 4: 5.65%

15 Value Line projected return on market (9.34%)¹⁰⁰ – Projected Risk
16 Free Rate (3.69%).

17 Measure 5: 12.04%

18 Value Line projected return on S&P 500 (15.73%) – Projected
19 Risk Free Rate (3.69%).

- 20 • Bloomberg Projected MRP: 10.90%;

21 Measure 6: 10.90%

⁹⁸ Ibid. Schedule DWD-5, page 2 of 2.

⁹⁹ See description of Mr. D'Ascendis' PRPM in my critique of his Risk Premium Method above.

¹⁰⁰ 3-5 years hence.

1 Bloomberg projected return on S&P 500 (14.59%) – Projected
2 Risk Free Rate (3.69%).

3 **Q. PLEASE SUMMARIZE MR. D'ASCENDIS' ECAPM METHOD.**

4 **A.** Mr. D'Ascendis' ECAPM is based on a security market¹⁰¹ line that is not as steeply
5 sloped as described by the CAPM formula.¹⁰² The revised security market line used in
6 his ECAPM results in higher cost of equity (11.53%) results for water utility companies
7 than his "traditional CAPM" (11.10%).¹⁰³

8 **Q. DO YOU AGREE WITH THE RESULTS OF MR. D'ASCENDIS' CAPM AND**
9 **ECAPM ANALYSES?**

10 **A.** No, I do not agree with results of either of Mr. D'Ascendis' CAPM analyses because I
11 believe that they significantly and inaccurately overstate the Company's cost of equity.
12 The arithmetic average return that Mr. D'Ascendis uses overstates the historical risk
13 premium by 300 basis points. Mr. D'Ascendis used the arithmetic mean returns of
14 11.97% for large company stocks between 1926 and 2016.¹⁰⁴ The 2016 SBBI Yearbook
15 shows that investors actually earned a compounded annual return of 10.0%¹⁰⁵ between
16 1926 and 2015. The arithmetic mean return of 11.97%¹⁰⁶ is possibly valuable to stock
17 brokers and fund managers attempting to predict future bonuses, but not for calculating
18 the cost of equity. A Dow Jones Newswire article stated, "Some financial advisers rely
19 too heavily on a formula known as the arithmetic average, which can be misleading when

¹⁰¹ The security market line is systematic risk, as measured by beta, plotted against expected return of the market.

¹⁰² D'Ascendis Direct Testimony, Statement No. 5, page 27, lines 11-14.

¹⁰³ Ibid. Schedule DWD-5, page 1 of 2.

¹⁰⁴ D'Ascendis Direct Testimony, Statement No. 5, DWD-5, Page 2 of 2.

¹⁰⁵ 2016 SBBI Yearbook, page 6-17.

¹⁰⁶ D'Ascendis Direct Testimony, Statement No. 5, Schedule DWD-5, Page 2 of 2.

1 investing for the long term. Financial advisors who use this formula may be overstating
2 your potential profit and leading you to take risks you might otherwise avoid...”¹⁰⁷

3 His projected market risk premium includes a DCF model that is not based on
4 sustainable growth. As discussed earlier in this testimony, it is a mathematical error to
5 use unsustainable growth rates in the constant growth form of the DCF model. His DCF
6 analysis for the S&P 500 includes long-term growth estimates for individual companies
7 that are as high as 75.82% and an average of 11.62%.¹⁰⁸ As discussed earlier, expecting
8 Halliburton to grow at 75.82% indefinitely, as Mr. D’Ascendis calculates his model, is
9 equivalent to investors expecting Halliburton’s market capitalization will be over \$30
10 trillion in 12 years,¹⁰⁹ or more than the total market capitalization of all the companies in
11 the S&P 500 as of April 30, 2018.¹¹⁰ It is not reasonable to conclude that investors expect
12 Halliburton, or any individual company, to grow 75.82% indefinitely. Therefore, Mr.
13 D’Ascendis’ CAPM results are unreliable and likely to significantly overstate SUEZ
14 PA’s cost of equity.

15
16 **MR. D’ASCENDIS’ RISK ADJUSTMENT**

17 **Q. IS MR. D’ASCENDIS’ ADDER FOR A SMALL SIZE EFFECT AN**
18 **APPROPRIATE PART OF A COST OF EQUITY ANALYSIS FOR A PUBLIC**
19 **UTILITY?**

20 **A.** No. Mr. D’Ascendis’ 0.20% premium adder for the small size of SUEZ PA relative to the
21 average capitalization of the Water Proxy Group is not justifiable. Mr. D’Ascendis claims

¹⁰⁷ Kaja Whitehouse, To Financial Advisors and Fuzzy Math, Dow Jones Newswires October 8, 2003.

¹⁰⁸ D’Ascendis Direct Testimony, Statement No. 5, D’Ascendis Electronic Exhibit, “MRP WP2”.

¹⁰⁹ \$40.1 Billion X (1+.74)¹² = \$30.899 Trillion.

¹¹⁰ The total Market capitalization of the S&P 500 was \$22.56 Trillion as of April 30, 2018. Yahoo Finance.

1 that Ibbotson Associates' conclusions regarding the size of company and expected
2 return¹¹¹ are relevant to SUEZ PA's cost of equity. Ibbotson Associates states that small
3 utility companies may require a higher return because of the following reasons:

- 4 • Smaller customer base;
- 5 • Limited financial resources;
- 6 • Lack of diversification across customers, energy sources, and geography.¹¹²

7 The Ibbotson quote provided by Mr. D'Ascendis does not apply to SUEZ PA
8 because SUEZ PA is inseparable from an interdependent system of operations with a
9 large customer base, extensive financial resources, and geographical diversity.¹¹³ SUEZ
10 PA, through its parent SWR, is a wholly owned subsidiary of a company (SUEZ
11 Environmental S.A.) with a market capitalization of over \$8 billion. S&P Global Ratings
12 recognizes the benefits of being a wholly owned subsidiary SUEZ Environmental S.A.¹¹⁴

13 S&P Global Ratings lists large customer base and geographical diversity as
14 reasons for SWR's excellent business risk profile.¹¹⁵

15 The SBBI study cited by Mr. D'Ascendis in support of his 0.2% premium adder
16 does not apply to SUEZ PA's cost of equity. SBBI states "... Small stocks tend to
17 outperform large stocks in general, but not for the most-liquid stocks. For the most-liquid
18 stocks... the pattern is reversed."¹¹⁶ It makes sense that investors demand a risk premium
19 for illiquid investments because they are not able to sell quickly should they need the
20 money for an emergency or to pursue other investment opportunities. However,

¹¹¹ Expected return on equity is equivalent to the cost of equity.

¹¹² Mr. D'Ascendis' Direct Testimony, Statement No. 5, page 35, lines 5-8.

¹¹³ MFR VII-18 Attachment A, page 2 of 7.

¹¹⁴ MFR VII-18 Attachment A, page 2 of 7.

¹¹⁵ Ibid.

¹¹⁶ Ibbotson SBBI 2015 Classic Yearbook, page 125

1 investments in SUEZ PA are highly liquid because they can be bought and sold as part of
2 shares of a parent company with a market capitalization over \$8 billion.

3 Mr. D'Ascendis recommendation that SUEZ PA's cost of equity should be
4 increased by 0.20%¹¹⁷ to account for its size is inappropriate. His recommendation is
5 asking consumers to pay for hypothetical risks that SUEZ PA, may or may not have, if
6 they did not have the financial resources of a geographically diverse parent with a large
7 and liquid source of equity financing.

8 9 VII. CONCLUSION

10 Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS IN THIS CASE.

11 A. Based on the evidence presented in my testimony I conclude that the cost of equity
12 allowed for the Company should be 8.08% with an overall cost of capital of 6.51% (See
13 Table 1) based on the average common equity ratio of the Water Proxy Group. My cost
14 of equity recommendation is based upon my DCF analyses, using my CAPM analysis as
15 a check. I have made a downward adjustment of 0.17% to account for the greater level of
16 equity in SUEZ PA's proposed capital structure, compared to the average for the Water
17 Proxy Group. My 8.08% cost of equity recommendation satisfies the requirements of
18 *Hope* and *Bluefield* that regulated utility companies should have opportunity to earn a
19 return commensurate with returns on investments in other enterprises having
20 corresponding risks.

21 Mr. D'Ascendis' cost of equity recommendation of 10.40%-11.50% is
22 unreasonably high because he gives weight to the results of multiple cost of equity

¹¹⁷ D'Ascendis Direct Testimony, Statement No. 5, page 36, lines 27-28.

1 methods as applied to the Water Proxy Group, and weight to the results of the same
2 analyses applied to a second proxy group of non-utility, non-regulated companies; there
3 are flaws in his cost of equity analyses; and his 0.20% adder for supposed size risk is not
4 supported, as I explained in my testimony.

5 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

6 **A.** Yes, it does; however, I reserve the right to update this testimony as may be necessary.

SCHEDULE ALR 1

**SUEZ WATER PENNSYLVANIA INC.
Overall Cost of Capital**

	Ratios		Cost Rate		Weighted Cost Rate
					[C]
Long-Term Debt	45.82%	[A]	4.65%	[A]	2.13%
Common Equity	<u>54.18%</u>	[A]	8.08%	[B]	<u>4.38%</u>
	100.0%				6.51%

Source:

- [A] Mr D'Ascendis's Direct Testimony, Statement No. 5, Schedule DWD-1, page 1 of 3.
- [B] SCHEDULE ALR 2
- [C] Ratios times Cost Rate

SCHEDULE ALR 2

SUEZ WATER PENNSYLVANIA INC.

COST OF EQUITY SUMMARY

SIMPLIFIED, OR CONSTANT GROWTH DCF (D/P +g)	Average for Year Ending 5/31/18 (Ave. of High and Low)		As of 5/31/2018 (Current Price)	
Based only on Value Line Future Expected Return	8.12%	[A]	8.27%	[A]
Based on Actual Returns	7.61%	[A]	7.77%	[A]
Non-Constant Growth DCF			7.67%	[B]
Range of Cost of Equity Results - DCF		7.67%	to	8.27%
Indicated Cost of Equity - Proxy Group			8.25%	
Indicated Cost of Equity - SUEZ PA				
	Capital Structure Risk Adjustment		Company Specific Cost of Equity	
SUEZ WATER PENNSYLVANIA INC.	-0.17%		8.08%	

[A] SCHEDULE ALR 4, Page 1

[B] SCHEDULE ALR 4, Page 2

[C] Based on estimate of 0.04% change in cost of equity for each 1% difference in common equity ratio compared to the proxy group.

VL Issue	[1] Book Per Sh	[2] Book Per Sh	[3] Book Per Sh	[4] Book Per Sh	[5] At	[6] Market High for	[7] Price Low for	[8] Market At	[9] Avg. for	[10] Div. Rate	[11] Dividend Yield	[12] Avg. for	
	Per Sh	Per Sh	Per Sh	Per Sh	05/31/18	Year	Year	05/31/18	Year		At	Year	
	Dec. 14	Dec. 15	Dec. 16	Dec. 17	(B)	(B)	(B)	(C)	(C)	(A)	(D)	(D)	
FINANCIAL DATA FOR COMPARATIVE WATER GROUP													
American States Water	AWR	\$13.24	\$12.77	\$13.52	\$14.45	\$56.02	\$90.00	\$54.46	3.88	4.09	\$1.02	1.82%	1.78%
American Water Works Co., Inc.	AWK	\$27.39	\$28.25	\$29.24	\$30.18	\$82.89	\$82.37	\$76.04	2.74	2.83	\$1.66	2.01%	1.97%
Aqua America	WTR	\$9.27	\$9.78	\$10.43	\$11.02	\$34.49	\$39.55	\$32.30	3.13	3.35	\$0.82	2.37%	2.28%
California Water Serv. Grp.	CWT	\$13.11	\$13.41	\$13.75	\$14.44	\$40.06	\$46.15	\$34.50	2.77	2.86	\$0.75	1.87%	1.86%
Middlesex Water Company	MSEX	\$12.24	\$12.74	\$13.40	\$14.02	\$44.20	\$46.74	\$33.96	3.15	2.94	\$0.90	2.02%	2.22%
York Water Company	YORW	\$8.15	\$8.51	\$8.88	\$9.28	\$32.75	\$39.86	\$27.45	3.53	3.71	\$0.67	2.03%	1.98%
AVERAGE		\$13.90	\$14.24	\$14.87	\$15.57	\$48.37	\$54.11	\$43.12	3.20	3.30	\$0.97	2.02%	2.02%
MEDIAN									3.14	3.15		2.02%	1.98%

Sources:

- [A] Most current Value Line at time of prep. of schedule. Most current quarterly dividend rate X 4
- [B] Yahoo Finance – Historical Prices
- [C] Market price divided by book value
- [D] Dividend rate divided by market price

	[1] EPS 2014	[2] EPS 2015	[3] EPS 2016	[4] EPS 2017	[5] Return on Eq. 2016	[6] Return on Eq. 2017	[7] Value Line Future Exp. Return on Eq.	[8] Return on Equity 2015
	[A]	[A]	[A]	[A]	[B]		[A]	
COMPARATIVE WATER GROUP								
EARNINGS PER SHARE AND RETURN ON EQUITY								
American States Water	\$1.57	\$1.61	\$1.62	\$1.88	12.32%	13.44%	14.00%	12.38%
American Water Works Co., Inc.	\$2.39	\$2.64	\$2.62	\$3.03	9.11%	10.20%	10.50%	9.49%
Aqua America	\$1.20	\$1.14	\$1.32	\$1.35	13.08%	12.59%	12.50%	11.97%
California Water Serv. Grp.	\$1.19	\$0.94	\$1.01	\$1.40	7.44%	9.93%	11.50%	7.09%
Middlesex Water Company	\$1.13	\$1.22	\$1.38	\$1.36	10.56%	10.07%	12.50%	9.77%
York Water Company	\$0.89	\$0.97	\$0.92	\$1.01	10.58%	11.12%	14.00%	11.64%
AVERAGE	\$1.40	\$1.42	\$1.48	\$1.68	10.51%	11.23%	12.50%	10.39%
MEDIAN					10.57%	10.66%	12.50%	10.71%

Source: [A] Most current Value Line at time of prep. of schedule.

[B] Earnings Per Share divided by average book value. Book value shown on Schedule ALR 3, Page 1

RETURN ON EQUITY IMPLIED IN ZACKS GROWTH RATES

	Dec. 17 Y/E Book [3]	Earnings 2017	Dividends	Analyst 5 Year Growth Rate	Y/E Book in 2021 at Zack's Growth Before SV [C]	Y/E Book in 2022 at Zack's Growth Before SV [C]	Growth in Book Value From SV	Y/E Book in 2014 at Zack's Growth Including SV	Earnings 2022 at Zack's Growth	Return on Equity to achieve Analysts' Growth	VALUE LINE BETA	
	[A]	[A]	[A]	[B]				[C]	[C]	[A]		
WATER PROXY GROUP												
EARNINGS PER SHARE AND RETURN ON EQUITY												
American States Water	AWR	\$14.45	\$1.88	\$1.02	5.00%	\$18.34	\$19.44	107.98%	\$20.40	\$2.40	11.76%	0.75
American Water Works Co., Inc	AWK	\$30.18	\$3.03	\$1.66	7.80%	\$36.82	\$38.81	117.84%	\$44.56	\$4.41	9.90%	0.65
Aqua America	WTR	\$11.02	\$1.35	\$0.82	5.30%	\$13.44	\$14.13	103.28%	\$14.24	\$1.75	12.28%	0.70
California Water Serv. Grp.	CWT	\$14.44	\$1.40	\$0.75	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.75
Middlesex Water Company	MSEX	\$14.02	\$1.38	\$0.90	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.80
York Water Company	YORW	\$9.28	\$1.01	\$0.67	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.80
AVERAGE		\$15.57	\$1.68	\$0.97	6.03%	\$22.87	\$24.13	109.70%	\$2.85	11.31%		0.74
MEDIAN					5.30%					11.78%		0.75

[A] Most Current Value Line

Beta of all 8 companies covers by Value Line (includes SJW and CTWS) is 0.73. Value Line published a historical beta for SJW beta of 0.70 and 0.65 for CTWS

[B] Most Current - Zacks.com

[C] Projected return on equity is obtained by escalating both dividends and earnings per share by the stated growth rate, and adding earnings and subtracting

0.00%

0

SCHEDULE ALR 4, Page 1

CONSTANT GROWTH DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY
WATER PROXY GROUP (6)

		BASED ON VALUE LINE		BASED ON ANALYSTS CONSENSUS ESTIMATE	
		BASED ON AVERAGE MARKET PRICE FOR Year Ending 5/31/18	BASED UPON MARKET PRICE AS OF 5/31/2017	BASED ON AVERAGE MARKET PRICE FOR Year Ending 5/31/18	BASED UPON MARKET PRICE AS OF 5/31/2018
		1 Dividend Yield On Market Price	[B]	2.02%	2.02%
2 Retention Ratio:					
a) Market-to-book	[B]	3.30	3.20	3.30	3.20
b) Div. Yld on Book	[C]	6.65%	6.47%	6.65%	6.47%
c) Return on Equity	[A]	12.00%	12.00%	11.50%	11.50%
d) Retention Rate	[D]	44.82%	48.05%	42.21%	43.72%
3 Reinvestment Growth	[E]	5.35%	5.53%	4.85%	5.03%
4 New Financing Growth	[F]	0.89%	0.89%	0.89%	0.89%
5 Total Estimate of Investor Anticipated Growth	[G]	6.04%	6.19%	5.54%	5.89%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.06%	0.06%	0.06%	0.06%
7 Indicated Cost of Equity	[I]	8.12%	8.27%	7.61%	7.77%

Some of the Considerations for determining Future Expected Return on Equity:

		Median	Mean	Source:
[A]	Value Line Expectation	12.80%	12.86%	SCHEDULE ALR 3, Page 2
	Return on Equity to Achieve Zack's Growth	11.76%	11.31%	SCHEDULE ALR 3, Page 3
	Earned Return on Equity in 2017	10.86%	11.23%	SCHEDULE ALR 3, Page 2
	Earned Return on Equity in 2018	10.57%	10.51%	SCHEDULE ALR 3, Page 2
	Earned Return on Equity in 2015	10.71%	10.39%	SCHEDULE ALR 3, Page 2
[B]	#REF!			
[C]	Line 1 x Line 2a			
[D]	1- Line 2b/Line 2c			
[E]	Line 2c x Line 2d			
[F]	$S \times V$ (S = the rate of continuous new stock financing, V = rate of return on common equity investment)			
	$(M/B \times (Ext. Fin. Rate + 1)) / (M/B + Ext. Fin. Rate - 1)$	Ext. Fin. rate used =	0.30%	[J]
[G]	Line 3 + Line 4			
[H]	Line 1 x one-half of line 5			
[I]	Line 1 + Line 5 + Line 6			
[J]	SCHEDULE ALR 5			

**NON-CONSTANT GROWTH DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY
BASED ON VALUE LINE'S FORECAST
WATER PROXY GROUP**

Value Line Date	American States Water AWR 4/13/2018	American Water AWK 4/13/2018	Aqua America WTR 4/13/2018	California Water CWT 4/13/2018	Middlesex Water MSEX 4/13/2018	York Water YORW 4/13/2018	Source	
Dividend								
2018	\$1.07	\$1.78	\$0.85	\$0.75	\$0.91	\$0.70	Value Line	
2019	\$1.15	\$1.95	\$0.91	\$0.78	\$0.96	\$0.75	Based on Value Line, assuming constant dividend growth	
2020	\$1.24	\$2.14	\$1.00	\$0.84	\$1.01	\$0.82	Based on Value Line, assuming constant dividend growth	
2021	\$1.34	\$2.36	\$1.10	\$0.91	\$1.06	\$0.90	Value Line	
2022	\$1.45	\$2.60	\$1.25	\$1.02	\$1.11	\$1.00		
Forecasted dividend growth rate	7.89%	9.94%	10.12%	7.99%	5.09%	9.33%	Compound annual rate of growth in dividends from 2017 to 2020	
Book Value								
2018	\$15.20	\$31.75	\$11.00	\$14.75	\$14.85	\$9.80	Value Line	
2022	\$17.35	\$42.00	\$14.50	\$16.70	\$16.75	\$11.60	Value Line	
Total return on equity to investor who purchased stock on 5/31/18 and sold stock on 7/1/2022 assuming Value Line projections of dividends and book value are correct and assuming stock price grows at same rate as book value								
Stock Price	5/31/2018	\$56.02	\$82.69	\$34.49	\$40.06	\$44.20	\$32.75	
	6/1/2022	\$63.95	\$109.38	\$45.46	\$45.36	\$49.86	\$38.77	Increase in stock price at same rate as forecasted increase in book value
VL Midpoint stock price forecast		\$52.00	\$95.00	\$45.00	\$42.50	\$42.50	\$37.50	
Stock Price Growth Implied by Value Line's Stock Price Forecast		-1.48%	2.82%	5.47%	1.19%	-0.78%	2.75%	
Cash Flow from purchasing stock in May 2018, receiving dividends through 2022, and selling the stock in 2022 Negative number in 2018 reflects cash outflow required to purchase stock Cash flow sources are 1) dividends, and 2) proceeds of stock sale								
	2017	(\$51.95)	(\$80.91)	(\$33.64)	(\$39.31)	(\$43.29)	(\$32.05)	
	2018	\$1.15	\$1.95	\$0.91	\$0.78	\$0.96	\$0.75	
	2019	\$1.24	\$2.14	\$1.00	\$0.84	\$1.01	\$0.82	
	2020	\$1.34	\$2.36	\$1.10	\$0.91	\$1.06	\$0.90	
	2021	\$65.40	\$111.98	\$46.71	\$46.38	\$50.97	\$39.77	
DCF		6.08%	10.31%	10.63%	5.77%	5.86%	7.37%	This DCF result is an Internal Rate of Return computation made by the "IRR" function built into the Microsoft Excel spreadsheet It is based on the actual cash flows shown from 2017 to 2021.
DCF(-CWS&SJV)		6.08%	10.31%	10.63%	5.77%	5.86%	7.37%	
Water Proxy Group								
Average DCF Result			7.67%					
Median DCF Result			6.73%					

SCHEDULE ALR 5

EXTERNAL FINANCING RATE
(Millions of Shares)

		Common Stock Outstanding		Compound
		2019	2021-23	Annual
WATER PROXY GROUP (6)				
American States Water	AWR	37.00	37.50	0.44%
American Water Works Co., Inc.	AWK	180.00	187.50	1.36%
Aqua America	WTR	178.75	180.00	0.23%
California Water Serv. Grp.	CWT	49.00	50.00	0.67%
Middlesex Water Company	MSEX	16.75	17.00	0.49%
York Water	YORW	12.65	12.50	-0.39%
		Average		0.47%
		Median		0.47%
		Sustainable*		0.30%

Source: Most Current Value Line

*Estimated sustainable growth in common stock.

Actual Capital Structure
WATER PROXY GROUP

	% Common Equity					Quantity										Percentage			
	2013	2014	2015	2016	2017	(\$ millions)		LT Debt	ST Debt	Pfd Stock	Equity	Total	LT Debt	ST Debt	Pfd Stock	Equity Ratio			
						Total Debt					Capital				With ST Debt				
American States Water	60.2%	60.9%	58.9%	60.6%	62.3%	\$ 380.3	\$ 321.0	\$ 59.3	\$ -	\$ 530.5	\$ 910.8	35.2%	6.5%	0.0%	58.2%				
American Water Works Co., Inc	47.6%	47.4%	46.2%	47.5%	45.3%	\$ 7,717.0	\$ 6,490.0	\$ 1,227.0	\$ 8.0	\$ 5,381.3	\$ 13,106.3	49.5%	9.4%	0.1%	41.1%				
Aqua America	51.1%	51.5%	49.7%	51.6%	49.4%	\$ 2,152.2	\$ 2,007.8	\$ 144.4	\$ -	\$ 1,960.2	\$ 4,112.4	48.8%	3.5%	0.0%	47.7%				
California Water Serv. Grp.	58.4%	59.9%	55.6%	55.4%	57.3%	\$ 806.8	\$ 515.8	\$ 291.0	\$ -	\$ 692.2	\$ 1,499.0	34.4%	19.4%	0.0%	46.2%				
Middlesex Water Company	58.7%	58.8%	59.8%	61.5%	61.8%	\$ 173.9	\$ 139.0	\$ 34.9	\$ 2.4	\$ 228.8	\$ 405.1	34.3%	8.6%	0.6%	56.5%				
York Water Company	54.9%	55.2%	55.6%	57.4%	57.0%	\$ 90.1	\$ 90.1	\$ -	\$ -	\$ 119.4	\$ 209.5	43.0%	0.0%	0.0%	57.0%				
	55.2%	55.7%	54.0%	55.3%	55.2%	\$ 11,320	\$ 9,564	\$ 1,757	\$ 10	\$ 8,793	\$ 20,034								
										Average		40.46%	9.48%	0.13%	49.92%				
										Median		35.25%	8.62%	0.00%	47.67%				

Source: Value Line April 13, 2018

Without Short-Term Debt

SCHEDULE ALR 6, Page 2

	% Common Equity					(\$ millions)		LT Debt	ST Debt	Pfd Stock (\$ millions)	Equity	Total Capital	LT Debt	ST Debt	Pfd Stock	Equity Ratio Without ST Debt
	2013	2014	2015	2016	2017	Total Debt	Total Debt									
American States Water	60.2%	60.9%	58.9%	60.6%	62.3%	\$ 380.3	\$ 321.0			\$ -	\$ 530.5	\$ 851.5	37.7%	0.0%	0.0%	62.3%
American Water Works Co., Inc	47.6%	47.4%	46.2%	47.5%	45.3%	\$ 7,717.0	\$ 8,490.0			\$ 11.0	\$ 5,383.8	\$ 11,884.8	54.6%	0.0%	0.1%	45.3%
Aqua America	51.1%	51.5%	49.7%	51.6%	49.4%	\$ 2,152.2	\$ 2,007.8			\$ -	\$ 1,960.2	\$ 3,968.0	50.6%	0.0%	0.0%	49.4%
California Water Serv. Grp.	58.4%	59.9%	55.6%	55.4%	57.3%	\$ 806.8	\$ 515.8			\$ -	\$ 692.2	\$ 1,208.0	42.7%	0.0%	0.0%	57.3%
Middlesex Water Company	58.7%	58.8%	59.8%	61.5%	61.8%	\$ 173.9	\$ 139.0			\$ 2.4	\$ 228.8	\$ 370.2	37.6%	0.0%	0.6%	61.8%
York Water Company	54.9%	55.2%	55.6%	57.4%	57.0%	\$ 90.1	\$ 90.1			\$ -	\$ 119.4	\$ 209.5	43.0%	0.0%	0.0%	57.0%
	55.2%	55.7%	54.0%	55.3%	55.2%	\$ 11,320	\$ 9,564	\$ -	\$ -	\$ 13	\$ 8,795	\$ 18,282				
											Average		44.63%	0.00%	0.15%	55.22%
											Median		42.70%	0.00%	0.00%	57.30%

Source: Value Line April 13, 2018

WATER PROXY GROUP BETAS - APRIL 2018

Proxy Group	Ticker	Apr-2022				Average
		4	11	18	25	
American States Water	AWR	1.10	0.68	0.71	0.53	0.76
American Water Works Co., Inc	AWK	0.66	0.82	1.03	0.80	0.83
Aqua America	WTR	0.33	0.64	0.66	0.51	0.54
California Water Serv. Grp.	CWT	0.68	0.94	0.73	0.46	0.70
Middlesex Water Company	MSEX	1.00	0.63	0.96	1.72	1.08
York Water	YORW	0.75	0.68	0.39	0.78	0.65
Average		0.75	0.73	0.75	0.80	0.76

BOND FUND BETAS - APRIL 2018

Bond Fund	Ticker	Apr-2022				Average
		4	11	18	25	
Vanguard Total Bond Market ETF	BND	#N/A	#N/A	0.29	0.16	0.23
Vanguard Long-Term Corporate Bd ETF	VCLT	0.31	0.29	0.36	0.18	0.29
iShares iBoxx \$ High Yield Corp Bd ETF	HYG	0.41	0.28	0.62	0.84	0.54

BOND FUND YIELDS - APRIL 2018

Bond Fund	Ticker	Apr-2022				Average
		4	11	18	25	
Vanguard Total Bond Market ETF	BND	2.73%	2.72%	2.74%	2.76%	2.74%
Vanguard Long-Term Corporate Bd ETF	VCLT	4.80%	4.76%	4.81%	4.92%	4.82%
iShares iBoxx \$ High Yield Corp Bd ETF	HYG	4.90%	4.87%	4.85%	4.90%	4.88%

WATER PROXY GROUP BETAS - MAY 2018

Proxy Group	Ticker	May-2022					Average
		2	9	16	23	30	
American States Water	AWR	0.74	1.23	1.48	1.77	0.82	1.21
American Water Works Co., Inc	AWK	1.25	0.92	1.09	0.69	0.92	0.97
Aqua America	WTR	1.00	0.98	0.61	0.88	1.05	0.90
California Water Serv. Grp.	CWT	1.19	1.52	1.27	0.66	0.85	1.10
Middlesex Water Company	MSEX	0.56	0.89	0.87	1.05	1.34	0.94
York Water	YORW	1.06	1.36	0.96	0.91	0.90	1.04
Average		0.97	1.15	1.05	0.99	0.98	1.03

BOND FUND BETAS - MAY 2018

Bond Fund	Ticker	May-2022					Average
		2	9	16	23	30	
Vanguard Total Bond Market ETF	BND	0.27	0.20	0.24	0.20	0.13	0.21
Vanguard Long-Term Corporate Bd ETF	VCLT	0.24	0.21	0.28	0.28	0.29	0.26
iShares iBoxx \$ High Yield Corp Bd ETF	HYG	0.66	0.56	0.54	0.55	0.54	0.57

BOND FUND YIELDS - MAY 2018

Bond Fund	Ticker	May-2022					Average
		2	9	16	23	30	
Vanguard Total Bond Market ETF	BND	2.82%	2.71%	2.72%	2.52%	2.79%	2.71%
Vanguard Long-Term Corporate Bd ETF	VCLT	4.22%	4.23%	4.25%	4.22%	4.17%	4.22%
iShares iBoxx \$ High Yield Corp Bd ETF	HYG	5.10%	5.09%	5.10%	5.09%	5.10%	5.10%

WATER PROXY GROUP BETAS - JUNE 2018

Proxy Group	Ticker	Jun-2022				Average
		6	13	20	27	
American States Water	AWR	0.64	1.72	0.99	0.73	1.02
American Water Works Co., Inc	AWK	0.58	0.80	0.72	0.76	0.72
Aqua America	WTR	0.76	1.13	0.89	0.45	0.81
California Water Serv. Grp.	CWT	1.50	1.03	0.97	1.39	1.22
Middlesex Water Company	MSEX	1.39	0.90	1.13	1.09	1.13
York Water	YORW	1.15	0.60	0.92	1.17	0.96
Average		1.00	1.03	0.94	0.93	0.98

BOND FUND BETAS - JUNE 2018

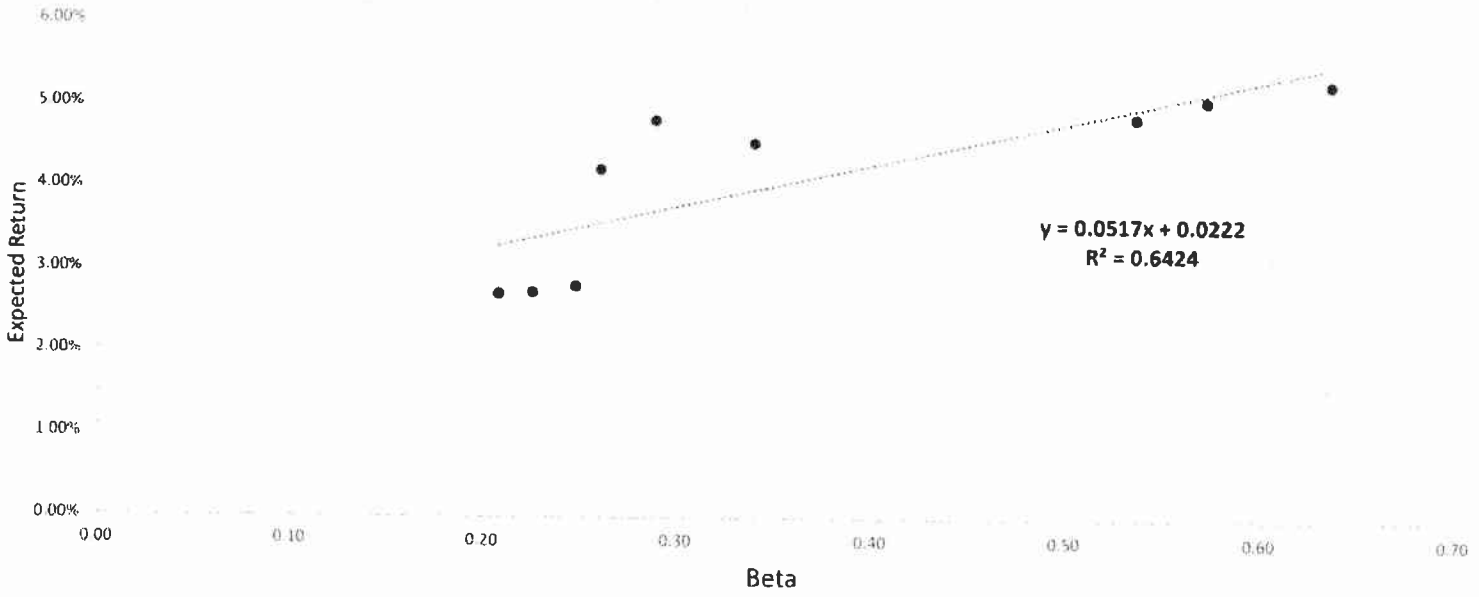
Bond Fund	Ticker	Jun-2022				Average
		6	13	20	27	
Vanguard Total Bond Market ETF	BND	0.24	0.25	0.23	0.26	0.25
Vanguard Long-Term Corporate Bd ETF	VCLT	0.25	0.42	0.26	0.42	0.34
iShares iBoxx \$ High Yield Corp Bd ETF	HYG	0.66	0.58	0.62	0.68	0.64

BOND FUND YIELDS - JUNE 2018

Bond Fund	Ticker	Jun-2022				Average
		6	13	20	27	
Vanguard Total Bond Market ETF	BND	2.82%	2.82%	2.81%	2.80%	2.81%
Vanguard Long-Term Corporate Bd ETF	VCLT	4.65%	4.23%	4.67%	4.64%	4.55%
iShares iBoxx \$ High Yield Corp Bd ETF	HYG	5.08%	5.36%	5.35%	5.39%	5.30%

		Beta	Yield	Month
Vanguard Total Bond Market ETF	BND	0.23	2.74%	April
Vanguard Long-Term Corporate Bd ETF	VCLT	0.29	4.82%	April
iShares iBoxx \$ High Yield Corp Bd ETF	HYG	0.54	4.88%	April
Vanguard Total Bond Market ETF	BND	0.21	2.71%	May
Vanguard Long-Term Corporate Bd ETF	VCLT	0.26	4.22%	May
iShares iBoxx \$ High Yield Corp Bd ETF	HYG	0.57	5.10%	May
Vanguard Total Bond Market ETF	BND	0.25	2.81%	June
Vanguard Long-Term Corporate Bd ETF	VCLT	0.34	4.55%	June
iShares iBoxx \$ High Yield Corp Bd ETF	HYG	0.64	5.30%	June

Option Implied Security Market Line
April - June 2018



Market-Based CAPM	
<i>Water Proxy Group</i>	Cost of Equity
Low	6.00%
High	8.17%
Average	6.98%
Indicated Cot of Equity	7%-8%

Blue Chip Financial Forecasts - December 2010

	2012	2013	2014	2015	2016	2017 - 2021
Federal Funds Rate	1.4%	2.9%	3.5%	3.8%	3.9%	3.9%
Treasury Note Yield, 10 Year	3.8%	4.5%	4.9%	5.0%	5.1%	5.2%
Treasury Note Yield, 30 Year	4.8%	5.2%	5.4%	5.5%	5.6%	5.6%
Corporate Baa Bond Yield - BAA	6.4%	6.8%	7.1%	7.2%	7.3%	7.2%

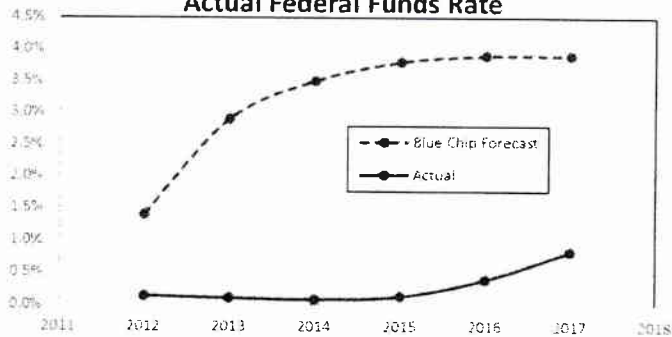
Source: Blue Chip Financial Forecasts, Vol. 29, No. 12, December 1, 2010

Actual

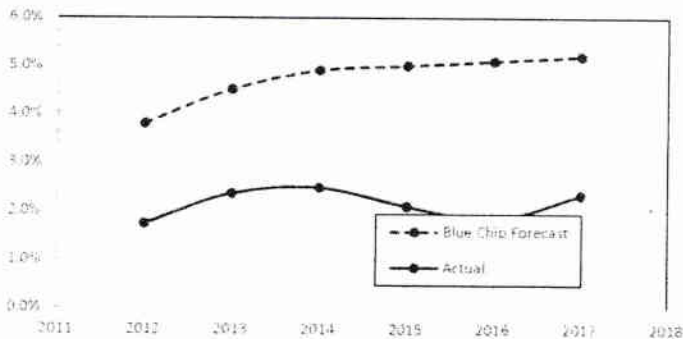
	2012	2013	2014	2015	2016	2017
Federal Funds Rate	0.14%	0.11%	0.09%	0.13%	0.40%	0.83%
Treasury Note Yield, 10 Year	1.74%	2.36%	2.48%	2.10%	1.83%	2.33%
Treasury Note Yield, 30 Year	2.88%	3.46%	3.27%	2.81%	2.58%	2.95%
Corporate Baa Bond Yield	4.94%	5.10%	4.85%	5.00%	4.72%	4.58%

Source: Federal Reserve Economic Data

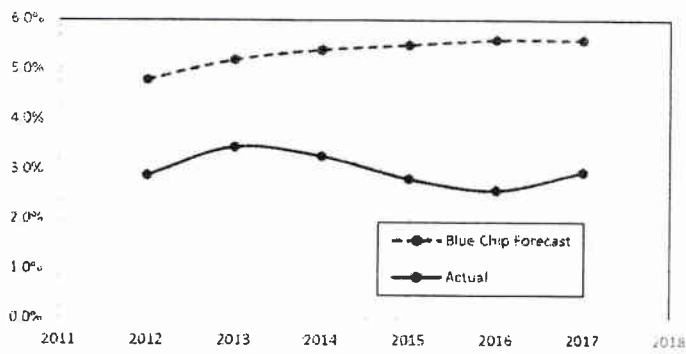
Dec 2010 Blue Chip Financial Forecasts Vs. Actual Federal Funds Rate



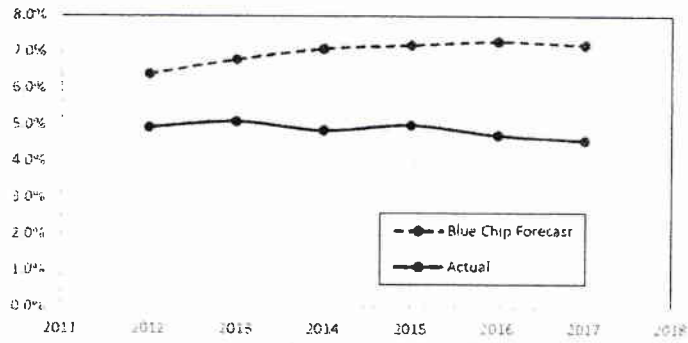
Dec 2010 Blue Chip Financial Forecasts Vs. Actual 10 Year U.S. Treasury Yields



Dec 2010 Blue Chip Financial Forecasts Vs. Actual 30 Year U.S. Treasury Yields



Dec 2010 Blue Chip Financial Forecasts Vs. Actual Corp BBB Bond Yields



Schedule ALR 8, Page 3

Date	Federal Funds Rate	3-month Treasury Yield	10-year US Treasury Yield	30-year US Treasury Yield	Corporate Baa Bond Yield
1/1/2012	0.08	0.06	1.80	2.93	5.23
2/1/2012	0.10	0.08	1.98	3.09	5.14
3/1/2012	0.13	0.07	2.22	3.35	5.23
4/1/2012	0.14	0.09	1.92	3.11	5.19
5/1/2012	0.16	0.06	1.58	2.67	5.07
6/1/2012	0.16	0.08	1.66	2.76	5.02
7/1/2012	0.16	0.10	1.49	2.58	4.87
8/1/2012	0.13	0.09	1.56	2.68	4.91
9/1/2012	0.14	0.09	1.64	2.83	4.84
10/1/2012	0.16	0.11	1.69	2.85	4.58
11/1/2012	0.16	0.08	1.61	2.79	4.51
12/1/2012	0.16	0.04	1.76	2.95	4.63
1/1/2013	0.14	0.07	1.99	3.17	4.73
2/1/2013	0.15	0.10	1.89	3.09	4.85
3/1/2013	0.14	0.07	1.85	3.10	4.85
4/1/2013	0.15	0.05	1.68	2.88	4.59
5/1/2013	0.11	0.03	2.16	3.31	4.73
6/1/2013	0.09	0.03	2.48	3.50	5.19
7/1/2013	0.09	0.03	2.59	3.65	5.32
8/1/2013	0.08	0.02	2.75	3.68	5.42
9/1/2013	0.08	0.01	2.62	3.69	5.47
10/1/2013	0.09	0.03	2.54	3.63	5.31
11/1/2013	0.08	0.06	2.74	3.81	5.38
12/1/2013	0.09	0.06	3.03	3.96	5.38
1/1/2014	0.07	0.01	2.67	3.62	5.19
2/1/2014	0.07	0.04	2.66	3.59	5.1
3/1/2014	0.08	0.03	2.72	3.56	5.06
4/1/2014	0.09	0.02	2.65	3.46	4.9
5/1/2014	0.09	0.03	2.46	3.31	4.76
6/1/2014	0.10	0.02	2.52	3.34	4.8
7/1/2014	0.09	0.02	2.56	3.31	4.73
8/1/2014	0.09	0.02	2.34	3.08	4.69
9/1/2014	0.09	0.01	2.51	3.21	4.8
10/1/2014	0.09	0.00	2.34	3.06	4.69
11/1/2014	0.09	0.01	2.19	2.91	4.79
12/1/2014	0.12	0.04	2.17	2.75	4.74
1/1/2015	0.11	0.01	1.68	2.25	4.45
2/1/2015	0.11	0.01	2.00	2.60	4.51
3/1/2015	0.11	0.03	1.93	2.54	4.54
4/1/2015	0.12	0.01	2.05	2.75	4.48
5/1/2015	0.12	0.00	2.10	2.85	4.89
6/1/2015	0.13	0.01	2.34	3.10	5.13
7/1/2015	0.13	0.06	2.21	2.93	5.2
8/1/2015	0.14	0.05	2.20	2.93	5.19
9/1/2015	0.14	0.01	2.06	2.88	5.34
10/1/2015	0.12	0.07	2.15	2.93	5.34
11/1/2015	0.12	0.17	2.22	2.99	5.46
12/1/2015	0.24	0.15	2.27	3.02	5.46
1/1/2016	0.34	0.30	1.93	2.76	5.45
2/1/2016	0.38	0.31	1.74	2.62	5.34
3/1/2016	0.36	0.19	1.79	2.62	5.13
4/1/2016	0.37	0.19	1.82	2.67	4.79
5/1/2016	0.37	0.28	1.83	2.63	4.68
6/1/2016	0.38	0.25	1.49	2.31	4.53
7/1/2016	0.39	0.24	1.46	2.18	4.22
8/1/2016	0.40	0.32	1.57	2.23	4.24

9/1/2016	0.40	0.26	1.61	2.34	4.31
10/1/2016	0.40	0.30	1.83	2.59	4.38
11/1/2016	0.41	0.47	2.37	3.02	4.71
12/1/2016	0.54	0.48	2.48	3.06	4.83
1/1/2017	0.65	0.50	2.45	3.05	4.66
2/1/2017	0.66	0.52	2.36	2.97	4.64
3/1/2017	0.79	0.74	2.40	3.02	4.68
4/1/2017	0.90	0.78	2.28	2.95	4.57
5/1/2017	0.91	0.95	2.20	2.86	4.55
6/1/2017	1.04	0.99	2.30	2.84	4.37

Sources:

10yr and 30yr US Treasury Yield

Yahoo Finance: www.yahoofinance.com

Federal Funds Rate

Federal Reserve Economic Data: <https://fred.stlouisfed.org>

Corporate Baa Bond Yield

Quandl: <https://www.quandl.com/data/MOODY/BAAYLD-Baa-Corporate-Bond-Yield>

Schedule ALR 9

		<u>Value Line</u>	<u>Reuters</u>	<u>Zacks</u>	<u>Yahoo Fin</u>	<u>Average</u>
American States Water	AWR	6.50%	4.00%	5.00%	4.00%	4.88%
American Water Works Co., Inc	AWK	8.50%	10.60%	7.50%	8.20%	8.70%
Aqua America	WTR	7.00%	7.00%	6.00%	5.00%	6.25%
California Water Serv. Grp.	CWT	10.00%	NA	6.00%	9.80%	8.60%
Middlesex Water Company	MSEX	9.00%	NA	NA	2.70%	5.85%
York Water Company	YORW	9.50%	NA	NA	4.90%	7.20%
Average		8.42%	7.20%	6.13%	5.77%	6.91%

Source: Mr D'Ascendis's Direct Testimony, Statement No. 5, Schedule DWD-3, page 1 of 7.

RESUME OF AARON LLOYD ROTHSCHILD

15 Lake Road
Ridgefield, CT 06877

(203) 241-7824 • aaron@rothschildfinancial.com

SUMMARY

Financial professional providing expert rate of return testimony in utility (water, electric and gas) rate case proceedings, applied mathematics research for utility industry as an affiliate of the New England Complex Systems Institute, and industry experience includes Head of Business Analysis for a major US telecom firm in Asia Pacific.

EXPERIENCE

Rothschild Financial Consulting, Ridgefield, CT

November 2001- present

Independent consulting firm specializing in utility sector

President

- Provide financial testimony (e.g. cost of equity, capital structure, cost of debt and M&A) to State Governments in utility rate case proceedings
- Perform financial analysis using discounted cash flow models (DCF) and capital asset pricing model (CAPM) to determine the cost of capital for regulated utilities (electric, gas, and water) for State governments
- Presented at utility regulation conferences (NARUC/NASUCA and MARC) regarding rate of return, power purchase agreements and cost of capital issues related to renewable energy policy and subsidy auctions
- Providing California Public Utility Commission (CPUC) ongoing expert rate of return witness services regarding State regulated water companies

360 Networks, Hong Kong

January 2001 - October 2001

Pioneer of the fiber optic telecommunications industry

Senior Manager

- Business development and investment evaluation
- Negotiated landing rights and formed local partnerships in Korea, Japan, Singapore and Hong Kong for \$1 billion undersea cable project
- Structured fiber optic bandwidth swapping agreement with Enron and Global Crossing
- Established relationships with Hong Kong based Investment Bankers to communicate Asia Pacific objectives and accomplishments to Wall Street

Dantis, Chicago, IL

July 2000- December 2000

Start-up managed data-hosting services provider

Director

- Built capital raise valuation models and negotiated with potential investors
- Team raised \$100M from venture capital firm through valuation negotiations and internal strategic analysis

MFS, MCI-WorldCom, Chicago, Hong Kong, Tokyo

September 1996- July 2000

American Telecommunications Company

Head of Business Analysis for Japan operations

- Managed staff of 5 business development analysts
- Raised \$80M internally for Japanese national fiber network expansion plan by conducting an investment evaluation and presenting findings to CEO of international operations in London, UK

- Built financial model for local fiber optic investment evaluation that was used by business development offices in Oak Brook, IL and Sydney, Australia

EDUCATION

Vanderbilt University, Nashville, TN

1994 - 1996

MBA, Finance

- Completed business plan for Nextlink Communications in support of their national fiber optic network expansion, including identifying opportunities from passage of Telecom Act of 1996
- Developed analytical framework to evaluate predictability of rare events

Clark University, Worcester, MA

1990 - 1994

BA, Mathematics

TESTIFYING EXPERIENCE OF AARON L. ROTHSCHILD

Through May 2018

COLORADO

Public Service Company of Colorado; Docket No. 11AL-947E, Rate of Return, March 2012

CALIFORNIA

California American Water Company, Application A.17-04-003, Rate of Return, August 2017

California Water Service Company, Application A.17-04-006, Rate of Return, August 2017

Golden State Water Company, Application A.17-04-002, Rate of Return, August 2017

San Jose Water Company, Application A.17-04-001, Rate of Return, August 2017

CONNECTICUT

United Water Connecticut; Docket No. 07-05-44, Rate of Return, November 2008

Valley Water Systems; Docket No. 06-10-07, Rate of Return, May 2007

DELAWARE

Tidewater Utilities, Inc.; PSC Docket No. 11-397, Rate of Return, April 2012

Delmarva Power & Light, PSC Docket No. 09-414, Rate of Return, February 2010

Delmarva Power & Light, PSC Docket No. 09-276T, Rate of Return, February 2010

FLORIDA

Florida Power & Light (FPL); Docket No. 070001-EI, October 1, 2007

Florida Power Corp; Docket No. 060001 Fuel Clause, September 2007

NEW JERSEY

Aqua New Jersey, Inc.; BPU Docket No. WR11120859, Rate of Return, April 2012

MARYLAND

Potomac Electric Power Company; Case No. 9311, Rate of Return, 2013

Delmarva Power & Light; Case No. 9317, Rate of Return, June 2013

Columbia Gas of Maryland; Case No. 9316, Rate of Return, May 2013

Delmarva Power & Light; Case No. 9285, Rate of Return, March 2012

Potomac Electric Power Company; Case No. 9286, Rate of Return, March 2012

NORTH DAKOTA

Otter Tail Power Company; Case No. PU-17-398, Rate of Return, May 2018

Montana-Dakota Utilities Co; Case No. PU-15-90, Rate of Return, August 2015

Northern States Power; Case No. PU-400-04-578, Rate of Return, March 2005

PENNSYLVANIA

UGI Utilities, Inc. – Electric Division; Docket No. R-2017-2640058, Rate of Return, April 2018
Citizens' Electric Company of Lewisburg, Pa; Docket No. R-2016-2531550, Rate of Return, December 2016
Wellsboro Electric Company; Docket No. R-2016-2531551, Rate of Return, December 2016
Columbia Gas of Pennsylvania, Inc.; Docket No. R-2016-2529660, Rate of Return, June 2016
Columbia Gas of Pennsylvania, Inc.; Docket No. R-2015-2468056, Rate of Return, June 2015
Pike County Light & Power Company; Docket No. R-2013-2397237(electric), Rate of Return, April 29, 2014
Pike County Light & Power Company; Docket No. R-2013-2397353 (gas), Rate of Return, April 29, 2014
Columbia Water Company; Docket No. R-2013-2360798, Rate of Return, August 5, 2013
Peoples TWP LLC; Docket No. R-2013-2355886, Rate of Return, July 31, 2013
City of Dubois – Bureau of Water; Docket No. R-2013-2350509, Rate of Return, July 25, 2013
City of Lancaster – Sewer Fund, Docket No. R-2012-2310366, Rate of Return, December 2012
Citizens' Electric Company of Lewisburg, Pa; Docket No. R-2010-2172662, Rate of Return, September 2010
Wellsboro Electric Company; Docket No. R-2010-2172665, Rate of Return, September 2010
York Water Company; Docket No. R-2010-2157140, Rate of Return, August 2010
T.W. Phillips Gas and Oil Company; Docket No. R-2010-2167797, Rate of Return, August 2010
Joint Application of The Peoples Natural Gas Company, Dominion Resources, Inc. and Peoples Hope Gas Company LLC, Docket No. A-2008-2063737, Financial Analysis, December 2008
York Water Company; Docket No. R-2008-2023067, Rate of Return, August 2008

VERMONT

Central Vermont Public Service Corp., Docket No. 7321, Rate of Return, September, 2007

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission :
v. : Docket No. R-2018-3000834
SUEZ Water Pennsylvania, Inc. :

VERIFICATION

I, AARON L. ROTHSCHILD, hereby state that the facts set forth in my Direct Testimony, OCA Statement No. 2, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATE: July 20, 2017

Signed: 
Aaron L. Rothschild

**BEFORE
THE PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission :
:
v. :
:
: **Docket No. R-2018-3000834**
:
SUEZ Pennsylvania Inc. :

**SURREBUTTAL TESTIMONY
OF
AARON L. ROTHSCHILD
ON BEHALF OF
THE OFFICE OF CONSUMER ADVOCATE**

August 31, 2018

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1 **I. SUMMARY OF MR. D'ASCENDIS' COMMENTS**

2 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

3 A. The purpose of my Surrebuttal Testimony is to respond to the following issues addressed
4 in Company witness Paul D'Ascendis' Rebuttal Testimony:

- 5 1. Definition of the Cost of Equity;
- 6 2. Reliance on DCF results;
- 7 3. Application of constant growth DCF;
- 8 4. Interpretation of market conditions;
- 9 5. Financial risk adjustment;
- 10 6. Operational risk adjustment.

11 As addressed below, I will explain why Mr. D'Ascendis' specific criticisms are invalid
12 and why his general framework is flawed. My specific cost of equity recommendation is based
13 on my DCF analysis. A reading of the academic literature on financial markets and a review of
14 the financial data and discussions within the investment community show that volatility, yield
15 spreads, interest rates, and equity prices are central to the discussion of cost of capital. I am not
16 proposing to use the VIX Index to specifically calculate my cost of equity recommendation.
17 However, the fact that the VIX Index has significantly decreased is an important overview
18 market data component to consider. The same link between equity risk premiums and default
19 spreads was obvious during 2008. The same is true for the other components I have chosen to
20 address, i.e. bond yields, bond yield spreads, stock indices and access to capital.

21

1 **II. DEFINITION OF THE COST OF EQUITY**

2 **Q. ON PAGES 45-47 OF HIS REBUTTAL TESTIMONY, MR. D'ASCENDIS**
3 **STATES THAT YOU DO NOT BELIEVE THE COST OF EQUITY SHOULD BE**
4 **BASED ON EXPECTED MARKET CONDITIONS. PLEASE RESPOND.**

5 A. Mr. D'Ascendis' interpretation is incorrect. I believe the cost of equity should be based
6 on investor expectations, including what they expect market conditions will be in the future. As
7 discussed throughout my Direct Testimony, my cost of equity recommendation is based on the
8 forecasts represented in market prices and direct measurements of investors' expectations. My
9 market-based approach is superior to using "expert" forecasts (e.g. Blue Chip Financial
10 Forecasts) -- instead of what the market expects as indicated by market data -- for the following
11 reasons. First, the actual cost of equity SUEZ PA will pay when it raises money will be
12 determined by the market and not by financial publications. Second, evidence supports that
13 predicting capital markets (e.g. interest rates, stock prices) is virtually impossible.¹

14 **Q. IS YOUR APPROACH TO CALCULATING THE COST OF CAPITAL**
15 **CONSISTENT WITH THE FINANCIAL LITERATURE QUOTED IN MR.**
16 **D'ASCENDIS' REBUTTAL TESTIMONY REGARDING THE DEFINITION OF**
17 **THE COST OF CAPITAL?**

18 A. Yes. Mr. D'Ascendis provides quotations from financial textbooks, consulting firms and
19 OCA Rate of Return witness (David Parcell) that he claims show I am mistaken that the cost of
20 capital should be market-based. The quotes he provides on pages 46-47 of his Rebuttal
21 Testimony mostly stress that the cost of capital should be based on investors' expectations,

¹ Daniel Kahneman, *Thinking Fast and Slow* (New York: Farrar, Straus and Giroux, 2011): 215.

1 which is a concept that forms the foundation of my approach to calculating the cost of equity.
2 My market-based CAPM utilizes stock option data because it measures investor expectations
3 directly. The results of my DCF analysis represent investor expectations because my DCF
4 utilizes the prices investors are willing to pay for water utility stocks based on their expectations.

5 **III. RELIANCE ON DCF RESULTS**

6 **Q. MR. D'ASCENDIS DISAGREES WITH YOUR "EXCLUSIVE WEIGHTING" OF**
7 **CONSTANT GROWTH DCF RESULTS. PLEASE RESPOND.**

8 A. My constant growth DCF, applied to the Water Proxy Group, result of 8.25% (As of
9 5/31/2018) is higher than both my non-constant growth DCF (7.66%-7.67%) and CAPM (7%-
10 8%) results.² An equal mathematical weighting of my three model results produces a cost of
11 equity for SUEZ PA's level of financial risk that is below my 8.08%³ recommendation.

12 **Q. PLEASE COMMENT ON MR. D'ASCENDIS' CLAIM THAT USING MULTIPLE**
13 **MODELS ADDS RELIABILITY TO THE ESTIMATION OF THE COMMON**
14 **EQUITY COST RATE.**

15 A. I disagree strongly that the use of multiple models should be the criteria of reliability in
16 cost of capital or any type of analysis. One good model is worth more than a million bad ones.
17 For example, the fleet of satellites that make up the Global Positioning System (GPS) rely on the
18 theory of special-relativity to provide accurate driving directions. This model of physical reality,
19 as invented by Einstein, is the most reliable model we know of for calculating the trajectory of
20 fast moving objects. Using multiple models, as Mr. DAscendis' recommends, should not be the

² Mr. Rothschild's Direct Testimony, Statement No. 2, Table 2, page 4.

³ SUEZ PA's cost of equity (8.08%) is lower than for the Water Proxy Group (8.25%) because of lower financial risk.

1 criteria of reliability for determining the appropriate cost of equity for SUEZ PA in this
2 proceeding.

3 **IV. APPLICATION OF CONSTANT GROWTH DCF**

4 **Q. PLEASE SUMMARIZE MR. D'ASCENDIS' CRITICISM OF YOUR**
5 **APPLICATION OF DCF METHOD.**

6 A. Mr. D'Ascendis makes the following criticisms of my constant growth DCF method:

- 7 1. Relies on short-term security analyst forecasts;
- 8 2. Growth methodology is circular;
- 9 3. Ignores the basic principle of rate base / rate of return regulation;
- 10 4. External financing growth rate.

11 **Q. PLEASE COMMENT ON MR. D'ASCENDIS' CLAIM THAT YOUR DCF**
12 **METHOD RELIES ON SHORT-TERM SECURITY ANALYST FORECASTS**
13 **THAT ARE NO LONGER THAN THE ONES HE USES IN HIS DCF ANALYSIS.**

14 A. The DCF growth component of my DCF method is different, and superior, to the one
15 used by Mr. D'Ascendis. My sustainable growth method utilizes these "short-term" analyst
16 forecasts to derive a sustainable long-term growth rate. Mr. D'Ascendis mechanically uses these
17 "short-term" forecasts (analyst earnings per share growth rates) as a proxy for long-term growth
18 without making the necessary adjustments required to obtain sustainable growth.

19 As discussed in my Direct Testimony, sufficient care must be taken to be sure that the
20 growth rate "g" is representative of the constant sustainable growth required for the answer from
21 the constant growth form of the DCF model to be meaningful. My DCF method assures the

1 mathematical relationship between earnings, dividends, book value and stock price is respected.

2 Mr. D'Ascendis' DCF method does not.

3 **Q. ON PAGES 38-41 OF HIS REBUTTAL, MR. D'ASCENDIS CLAIMS THAT**
4 **EARNINGS PER SHARE GROWTH ARE THE SUPERIOR OPTION IN**
5 **SELECTING PROJECTED GROWTH IN A DCF MODEL. HOW DO YOU**
6 **RESPOND?**

7 A. I disagree. A study conducted by McKinsey & Company in 2010 found that “analysts
8 have been persistently over optimistic for the past 25 years with estimates ranging from 10 to 12
9 percent a year, compared with actual earnings growth.”

10 On average, analysts' forecasts have been almost 100 percent too high.⁴

11 Capital markets, on the other hand, are notably less giddy in their predictions. Except
12 during the market bubble of 1999-2001, actual price-to-earnings ratios have been 25 percent
13 lower than implied P/E ratios based on analyst forecasts.⁵

14 Even if equity analysts' forecasts are not upwardly biased, as discussed in my Direct
15 Testimony, adding earnings per share growth forecasts to a dividend yield without considering
16 the retention rate produces a flawed result.

17 **Q. PLEASE COMMENT ON MR. D'ASCENDIS' CLAIM THAT YOUR DCF**
18 **METHOD IS FLAWED BECAUSE IT IS CIRCULAR.**

19 A. Mr. D'Ascendis claims that my DCF method is circular because the result (if authorized)
20 would become one of the model inputs.⁶ His claim is incorrect because, among other reasons,

⁴ Marc H. Goedhart, Rishi Raj and Abhishek Saxena, *Equity Analysts: Still too bullish*, Spring 2010, page 16.

⁵ *Ibid.*

1 my DCF results are based on companies in other jurisdictions.⁷ If authorized, my DCF results
2 would not be applied to the companies in my Water Proxy Group. There is no circularity.
3 Additionally, my DCF results are based on a point in time (May 31, 2018) and therefore if
4 allowed, my DCF results could not impact investor expectations back in May.

5 **Q. PLEASE COMMENT ON MR. D'ASCENDIS' CLAIM THAT YOUR DCF**
6 **METHOD IGNORES THE BASIC PRINCIPLES OF RATE BASE / RATE OF**
7 **RETURN REGULATION.**

8 A. Mr. D'Ascendis' position is without sound foundation. My approach to estimating an
9 appropriate cost of equity for SUEZ PA does recognize that it will be applied to book value.
10 Applying a market-based cost of equity to book value is consistent with the regulatory principles
11 of original cost ratemaking. Applying a market-based cost of equity to anything other than the
12 original cost SUEZ PA's investments as measured by book value would violate fundamental
13 principles of original cost ratemaking and result in overcharging consumers.

14 **Q. DO YOU AGREE WITH MR. D'ASCENDIS' POSITION THAT THE DCF**
15 **MODEL IS NOT ACCURATE WHEN M/B RATIOS ARE NOT AT UNITY.**

16 A. No, I do not. The cost of capital is market-based. The price investors are willing to pay
17 for a stock in relation to what they expect to receive in return is the information that is used to
18 determine the cost of equity. For example, if investors are willing to pay more than book value
19 for a utility company that investors expect will earn a return on book equity of 9%, this means
20 that investors require less than a 9% return to be convinced to buy shares of this company. Just
21 as the market yield on a bond decreases when investors bid up the market price of a bond, the

⁶ Mr. D'Ascendis' Rebuttal Testimony, Statement No. 5R, page 33, lines 10-14.

⁷ The exception is York Water, which is in the same jurisdiction as SUEZ PA.

1 yield also decreases for a common stock investment when the stock price goes up. The DCF
2 model is specifically designed to recognize the difference in the value of earnings paid out as a
3 dividend and retained earnings. A properly applied DCF model maintains its accuracy
4 irrespective of the market-to-book ratio.

5 **Q. PLEASE RESPOND TO MR. D'ASCENDIS' STATEMENT THAT RAISING**
6 **NEW FINANCING GROWTH (S FACTOR) ABOVE VALUE LINE**
7 **PROJECTIONS IN MY TESTIMONY CONCERNING OTTER TAIL POWER**
8 **COMPANY AND NOT DOING SO IN THIS CASE IS "CURIOUS".**

9 A. Mr. D'Ascendis' comparison is not valid because, among other reasons, Otter Tail Power
10 Company is an electric utility and my cost of equity was based on a different proxy group (nine
11 electric companies) than I used in this proceeding (six water companies). In this proceeding I
12 determined that it was appropriate to decrease new financing growth because the Water Proxy
13 Group has been issuing very few shares over the past five years. Between 2013 and 2018 the new
14 financing growth was almost 0% for the companies in my Water Proxy Group.

15 **V. INTERPRETATION OF MARKET CONDITIONS**

16 **Q. PLEASE SUMMARIZE MR. D'ASCENDIS' COMMENTS REGARDING MY**
17 **INTERPRETATION OF CURRENT CAPITAL MARKETS.**

18 A. In response to Mr. D'Ascendis' rebuttal testimony, I will address the following topics
19 regarding my interpretation of current capital markets:

- 20 1. Stocks are expensive (high price to earnings ("P/E") ratios);
- 21 2. Interest rates (still historically low interest rates);
- 22 3. Low credit spreads;

1 4. Volatility Expectations;

2 5. Will the cost of equity remain low?

3 **Stocks are expensive (high price to earnings (“P/E”) ratios)**

4 **Q. DO YOU AGREE WITH MR. D’ASCENDIS’ POSITION THAT AN INCREASE**
5 **IN THE WATER PROXY GROUP P/E RATIOS 2015 TO 2018 INDICATES A**
6 **HIGHER COST OF EQUITY THAN IN SUEZ PA’S LAST RATE CASE?**

7 A. No, I do not agree. Mr. D’Ascendis’ claim that the cost of capital has increased, not
8 decreased, since SUEZ PA’s last rate case is based on his flawed DCF method. As discussed on
9 pages 31-39 of my Direct Testimony, the Constant Growth DCF model must be based on
10 sustainable growth.⁸ His conclusion that the cost of capital has increased since 2015 is
11 unreliable because it is based on a flawed DCF method.

12 **Interest rates (still historically low interest rates)**

13 **Q. MR. D’ASCENDIS CLAIMS THAT RATES IN THIS PROCEEDING SHOULD**
14 **BE SET BASED ON FUTURE INTEREST RATES, NOT CURRENT INTEREST**
15 **RATES. PLEASE RESPOND.**

16 A. I agree with Mr. D’Ascendis that “ratemaking and the cost of capital are prospective in
17 nature, i.e., forward looking.” However, his claim that economic forecasts must be prioritized
18 over current bond yields is false because these market-based yields are based on investor
19 expectations. As explained in my Direct Testimony, the yields on 30-year U.S. Treasury bonds
20 are market-based and therefore reflect investors’ expectations. Since bond prices and yields are
21 inversely related, an investor who expected long-term interest rates to increase soon would not

⁸ As explained on pages 31-39 of my Direct Testimony the constant growth DCF method requires a sustainable growth rate.

1 purchase 30-year U.S. treasuries because they would lose money. In a liquid market like those
2 for 30-Year U.S. Treasury bonds, the yield reflects interest rate expectations of the marketplace.
3 The current yield on 30-year U.S. Treasury bonds is based upon a market in which investors are
4 aware of the comments by the Federal Reserve.

5 **Low Credit Spreads**

6 **Q. MR. D'ASCENDIS CLAIMS THAT CHART 6 IN MY DIRECT TESTIMONY**
7 **DOES NOT DEMONSTRATE THAT THE COST OF EQUITY HAS**
8 **DECREASED ALONG WITH INTEREST RATES BECAUSE THE CREDIT**
9 **SPREAD BETWEEN U.S. TREASURIES AND CORPORATE BONDS IS NOT A**
10 **PROXY FOR THE COST OF CAPITAL. PLEASE RESPOND.**

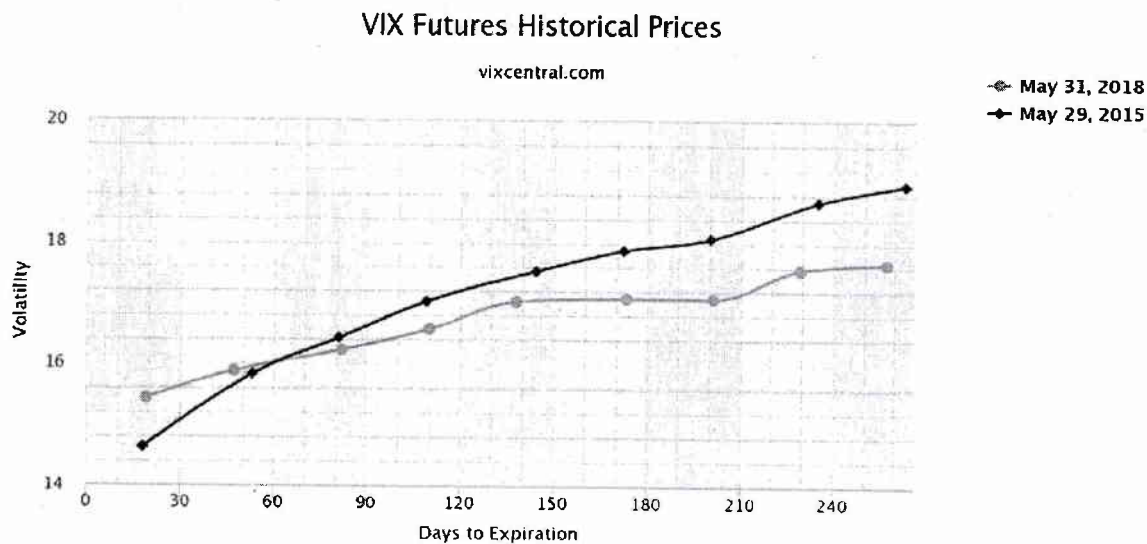
11 A. The analysis presented on pages 51-52 of his Rebuttal Testimony does not support his
12 claim because it does not measure how the cost of equity and credit spreads are related. In order
13 to show that the credit spreads are not a proxy for the cost of equity it would require comparing
14 credit spreads and the cost of equity. He does not do this. His justification consists of a
15 regression analysis to determine the relationship between allowed returns (ROEs) and credit
16 spreads between 1997 and 2018. He concludes that the relationship between credit spread and
17 authorized ROEs have a weak negative correlation.⁹ However, authorized ROEs is an entirely
18 different concept than the cost of equity.

⁹ Mr. D'Ascendis' Rebuttal Testimony, Statement No. 5, page 51, line 16.

1 **Volatility Expectations**

2 **Q. PLEASE RESPOND TO MR. D'ASCENDIS' CLAIM THAT THE CURRENT VIX**
3 **INDEX (MAY 31, 2018) IS IRRELEVANT TO THE COST OF EQUITY IN THIS**
4 **PROCEEDING.**

5 A. Mr. D'Ascendis' comparison of current short-term and long-term volatility is not relevant
6 because it is an apple to orange comparison. Mr. D'Ascendis states that as of May 31, 2018, the
7 VIX index (short-term volatility expectations) is 15.43% while long-term volatility is 19.88%.
8 This comparison between short and long term volatility expectations does not say anything
9 regarding how the cost of equity has changed since SUEZ PA's 2015 rate case because investors
10 usually expect volatility to be higher in the long-term than the short-term. As shown in the Chart
11 below, long-term volatility expectations were higher than short-term volatility on the last trading
12 day of May 2015, just like they were on the last trading day of May 2018. However, long-term
13 volatility expectations are lower in 2018 than they were in 2015 which indicates the cost of
14 equity has decreased since SUEZ PA's last rate case.



1 **Will the cost of equity remain low?**

2 **Q. PLEASE RESPOND TO MR. D'ASCENDIS' CLAIM THAT YOU BELIEVE THE**
3 **COST OF EQUITY WILL REMAIN LOW.**

4 A. Mr. D'Ascendis' claim that I believe the cost of equity will remain low in the future
5 contradicts the core thesis of my Direct Testimony, which is that capital markets are
6 unpredictable. I do not know what the cost of equity will be in the future and I do not believe
7 anyone else does. In my Direct Testimony at page 2, I state "predicting capital markets (e.g.
8 interest rates, stock prices) is virtually impossible." Investment guru Warren Buffet also believes
9 that markets are unpredictable. He recently gave the following advice to investors regarding
10 people who claim to know what capital markets will do in the future:

11 They should not listen to a lot of the jabbering about what the market is going to
12 do tomorrow, or next week or next month because nobody knows.¹⁰

13 As discussed in my Direct Testimony, I do not know if the cost of equity will remain at
14 historically low levels. However, it is possible to measure investor expectations by utilizing
15 current market conditions, including stock prices and bond yields. Ironically, if investors expect
16 the cost of equity to increase in the future this would indicate an even lower cost of equity today.
17 The current cost of equity would be lower if investors expect the cost of equity to increase
18 because as the cost of equity decreases price-to-earnings ratios tend to decrease. A declining
19 price-to-earnings would mean investors expect to sell the stock they purchase today for a lower
20 price than if the price-to-earnings ratio remained the same.

¹⁰ PBS News Hour, June 26, 2017, Part 1 – America should stand for more than just wealth, says Warren Buffett.

1 **Q. PLEASE RESPOND TO MR. D'ASCENDIS' CLAIM THAT YOU BELIEVE THE**
2 **COST OF CAPITAL SHOULD NOT BE BASED ON EXPECTED MARKET**
3 **CONDITIONS.**

4 A. Current capital markets provide the most reliable information regarding future market
5 expectations. The price investors are willing to pay for stocks and bonds today is based on what
6 they expect capital markets will be in the future. My market-based approach to calculating the
7 cost of equity is "prospective in nature, i.e. forward looking," and consistent with ratemaking
8 principles.

9 **VI. FINANCIAL RISK ADJUSTMENT**

10 **Q. PLEASE RESPOND TO MR. D'ASCENDIS' OPPOSITION TO YOUR 17 BASIS**
11 **POINT FINANCIAL RISK ADJUSTMENT.**

12 A. Mr. D'Ascendis' criticism of my financial risk adjustment hinges on a flawed calculation
13 of the level of permanent capital of the proxy group. He claims that short-term debt should be
14 excluded from capital structure calculations because it is not "permanent capital." However, this
15 is incorrect. Based on my two decades of experience testifying in rate of return cases, I have
16 observed that water utility companies permanently maintain a percentage of short-term debt in
17 their capital structure. For example, the Water Proxy Group I used in 2017 in another
18 proceeding included an average short-term debt ratio of over 6%. Mr. D'Ascendis' criticism of
19 my financial risk adjustment is unjustified because short-term debt is typically a part of water
20 utility's permanent capital.

21 As discussed in my Direct Testimony, SUEZ PA (8.08%) has a lower cost of equity than the
22 Water Proxy Group (8.25%) because SUEZ PA is proposing to use a higher common equity ratio

1 (54.18%) than the Water Proxy Group average (49.92%). My financial risk adjustment is
2 consistent with the financial facts and should be used to determine SUEZ PA's cost of equity.

3 **VII. OPERATIONAL RISK ADJUSTMENT**

4 **Q. MR. D'ASCENDIS' CLAIMS THAT SUEZ PA SHOULD BE GRANTED A SIZE**
5 **PREMIUM DESPITE THE FACT THAT IT HAS ACCESS TO THE**
6 **RESOURCES OF A PARENT (SUEZ ENVIRONMENTAL S.A.) WITH A**
7 **MARKET CAPITALIZATION OF OVER \$8 BILLION. PLEASE RESPOND.**

8 A. I explained on pages 64-66 of my Direct Testimony that Mr. D'Ascendis' 0.20%
9 premium adder is not appropriate for SUEZ PA because the Company is inseparable from its
10 parent's large customer base, extensive financial resources, and geographical diversity.
11 However, SUEZ PA should not be granted 0.20% premium adder even if it did not have access
12 to the resources of SUEZ Environmental. The literature cited by Mr. D'Ascendis is a study based
13 on public companies traded on the New York Stock Exchange and does not address small utility
14 companies specifically. Regulated utility companies, such as SUEZ PA, have significantly
15 different risk characteristics compared to unregulated companies. Therefore the research cited
16 by Mr. D'Ascendis is not relevant to this proceeding.

17 **VIII. CONCLUSION**

18 **Q. PLEASE SUMMARIZE YOUR REACTION TO MR. D'ASCENDIS' REBUTTAL**
19 **TESTIMONY.**

20 A. Mr. D'Ascendis' criticisms of my Direct Testimony are unsupported and should be
21 rejected. The Commission has stated its preference and primary reliance upon DCF model based
22 cost of equity recommendations. It is critical to have one accurate model and adding more,

1 particularly if they are flawed models, does not increase accuracy. Mr. D'Ascendis' criticisms of
2 my sustainable growth methodology reveal his lack of understanding of how to determine the
3 appropriate growth rate to use in a Constant Growth DCF method. Although I use my DCF
4 analysis to determine my cost of equity recommendation, the 'cost of equity in today's financial
5 market' shows that the fear index is down, government bond yields are at a historic low, bond
6 yield spreads have returned to pre-recession levels, stock indices are reaching all-time highs and
7 companies have access to capital. My market-based CAPM result of between 7%-8% indicates
8 that my DCF result is market based. My assessment of capital markets represents the complete
9 picture of the general health of capital markets and their development since SUEZ PA's last rate
10 case in 2015.

11 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

12 **A. Yes.**

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission
v.
SUEZ Water Pennsylvania, Inc.

Docket No. R-2018-3000834

VERIFICATION

I, AARON L. ROTHSCHILD, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement No. 2-SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATE: August 31, 2018

Signed:



Aaron L. Rothschild

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PENNSYLVANIA PUBLIC
UTILITY COMMISSION**

v.

SUEZ WATER PENNSYLVANIA, INC.

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DOCKET NO. R-2018-3000834

**DIRECT TESTIMONY OF
JEROME D. MIERZWA**

**ON BEHALF OF THE
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE**

JULY 20, 2018

EXETER
ASSOCIATES, INC.
10480 Little Patuxent Parkway
Suite 300
Columbia, Maryland 21044

1 **I. INTRODUCTION**

2 Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS
3 ADDRESS?

4 A. My name is Jerome D. Mierzwa. I am a principal and President of Exeter Associates,
5 Inc. ("Exeter"). My business address is 10480 Little Patuxent Parkway, Suite 300,
6 Columbia, Maryland 21044. Exeter specializes in providing public utility-related
7 consulting services.

8 Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND
9 EXPERIENCE.

10 A. I graduated from Canisius College in Buffalo, New York, in 1981 with a Bachelor of
11 Science Degree in Marketing. In 1985, I received a Master's Degree in Business
12 Administration with a concentration in finance, also from Canisius College. In July
13 1986, I joined National Fuel Gas Distribution Corporation ("NFG Distribution") as a
14 Management Trainee in the Research and Statistical Services Department ("RSS").
15 I was promoted to Supervisor RSS in January 1987. While employed with NFG
16 Distribution, I conducted various financial and statistical analyses related to the
17 Company's market research activity and state regulatory affairs. In April 1987, as
18 part of a corporate reorganization, I was transferred to National Fuel Gas Supply
19 Corporation's ("NFG Supply") rate department where my responsibilities included
20 utility cost of service and rate design analysis, expense and revenue requirement
21 forecasting and activities related to federal regulation. I was also responsible for
22 preparing NFG Supply's Federal Energy Regulatory Commission ("FERC") Purchase
23 Gas Adjustment ("PGA") filings and developing interstate pipeline and spot market
24 supply gas price projections. These forecasts were utilized for internal planning
25 purposes as well as in NFG Distribution's purchased gas cost proceedings.

1 In April 1990, I accepted a position as a Utility Analyst with Exeter. In
2 December 1992, I was promoted to Senior Regulatory Analyst. Effective April 1,
3 1996, I became a principal of Exeter. Since joining Exeter, my assignments have
4 included water and wastewater utility class cost of service and rate design analysis,
5 evaluating the gas purchasing practices and policies of natural gas utilities, sales and
6 rate forecasting, performance-based incentive regulation, revenue requirement
7 analysis, the unbundling of utility services and the evaluation of customer choice
8 natural gas transportation programs.

9 Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY
10 PROCEEDINGS ON UTILITY RATES?

11 A. Yes. I have provided testimony on more than 300 occasions in proceedings before
12 FERC, utility regulatory commissions in Arkansas, Delaware, Georgia, Illinois,
13 Indiana, Louisiana, Maine, Maryland, Massachusetts, Montana, Nevada, New Jersey,
14 Ohio, Pennsylvania, Texas and Virginia, as well as before the Pennsylvania Public
15 Utility Commission (“Commission”).

16 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

17 A. On April 30, 2018, Suez Water Pennsylvania, Inc. (“SWPA” or “the Company”) filed
18 an application to increase rates for water utility service by \$6.2 million. Exeter was
19 retained by the Pennsylvania Office of Consumer Advocate (“OCA”) to review and
20 analyze the Company’s revenue requirement claim, class cost of service studies, and
21 rate design proposals included in SWPA’s application. My colleague, Mr. Lafayette
22 K. Morgan, addresses SWPA’s revenue requirement claim. My testimony addresses
23 the Company’s class cost of service studies and rate design proposals.

24 Q. HAVE YOU PREPARED EXHIBITS TO ACCOMPANY YOUR
25 TESTIMONY?

1 A. Yes, I have. Schedules JDM-1 and JDM-2 are attached to my testimony.

2 Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS.

3 • As discussed in my testimony, SWPA submitted two cost of service
4 studies in its filing and a third study in response to OCA discovery.
5 With the exception that the studies prepared by SWPA include the costs
6 associated with serving the Route 15 service territory expansion and/or
7 Mahoning Township, all three studies appear to be reasonable;

8 • While SWPA's proposed distribution of its requested revenue increase
9 provides for the movement of rates for each customer class toward the
10 indicated cost of service, additional movement is warranted and
11 reasonable. Therefore, the Company's proposed distribution should be
12 rejected and the distribution proposed by the OCA should be approved;

13 • The existing customer charges for a customer with a 5/8-inch or 3/4-inch
14 meter should be maintained, unless the increase authorized by the
15 Commission in this proceeding justifies a higher charge; and

16 • The revenue requirement approved for SWPA in this proceeding should
17 exclude costs associated with serving Mahoning Township and, if the
18 Commission approves an application filed by SWPA to acquire
19 Mahoning Township, SWPA should maintain the rates charged to
20 Mahoning Township customers by the seller at the time of acquisition
21 until SWPA's next base rate proceeding.

22 Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

23 A. The remainder of my testimony is divided into four additional sections. The first
24 additional section describes the Company's class cost of service studies. The second
25 section presents my recommended distribution of the revenue increase authorized by
26 the Commission in this proceeding. The next section addresses SWPA's proposed
27 customer charges. The final section of my testimony addresses the rate implications
28 of the potential acquisition of the Mahoning Township water system by SWPA.

1 **II. CLASS COST OF SERVICE STUDY**

2 Q. WHAT IS THE OBJECTIVE OF A COST OF SERVICE STUDY?

3 A. A cost of service study is conducted to assist a utility or commission in determining
4 the level of costs properly recoverable from each of the various classes of customers
5 to which the utility provides service. Allocation of recoverable costs to each class of
6 service is generally based on cost causation principles.

7 Q. PLEASE DESCRIBE THE CLASS COST OF SERVICE STUDIES
8 PRESENTED BY SWPA IN THIS PROCEEDING.

9 A. SWPA has presented two class cost of service studies in its filing. The first study,
10 which is the Company's recommended study and is identified as SWPA Exhibit No.
11 PRH-1 in the Company's filing, includes the Company's projected fully forecasted
12 future test year ("FFFTY") costs, including those costs associated with serving
13 Mahoning Township. The second study, identified as SWPA Exhibit No. PRH-2,
14 includes the same costs included in the first study with the exception that the costs
15 associated with the water main extension planned to serve the Route 15 service
16 territory expansion have been excluded. The second study was a requirement of the
17 Commission's Opinion and Orders at Docket No. A-2017-2626908 issued January
18 18, 2018 and March 1, 2018, concerning SWPA's application for a certificate of
19 public convenience to provide water service in additional portions of Montour and
20 Cooper Townships. All other projected FFFTY costs associated with serving the
21 Route 15 service territory expansion included in the first study are included in the
22 second study. At the request of the OCA, the Company has prepared a third cost of
23 service study that excludes the costs associated with serving Mahoning Township.
24 That study is attached to my testimony as Schedule JDM-1.

1 As explained in greater detail in the testimony of Mr. Morgan, it is the OCA's
2 position that all of the costs associated with the Route 15 service territory expansion
3 and Mahoning Township should be excluded from determining the Company's
4 revenue requirement in this proceeding. I would further note that although the total
5 revenue requirement claim reflected in each of the three Company prepared cost of
6 service studies may differ, the relative rates of return for each customer class served
7 by SWPA as indicated by the three studies are nearly identical. These relative rates
8 of return should be the primary factor guiding the distribution of the revenue increase
9 authorized in this proceeding because doing so would promote cost of service based
10 rates. For purposes of assessing the reasonableness of the claimed cost of serving
11 each customer class and evaluating the Company's proposed distribution of its
12 requested revenue increase, I rely on the results of the Company prepared cost of
13 service study that excludes the costs associated with serving Mahoning Township,
14 and is attached to my testimony as Schedule JDM-1.

15 Q. WHAT ARE THE PRIMARY COST OF SERVICE STUDY
16 METHODOLOGIES UTILIZED FOR WATER UTILITIES?

17 A. The two most commonly used and widely recognized methods of allocating costs
18 to customer classes for water utilities are the base-extra capacity method and the
19 commodity-demand method. Both of these methods are set forth in the American
20 Water Works Association's ("AWWA") Manual, M1, *Principles of Water Rates,*
21 *Fees, and Charges* ("AWWA M1 Manual").

22 Q. WHAT METHODOLOGY HAS THE COMPANY UTILIZED FOR ITS
23 CLASS COST OF SERVICE STUDIES?

24 A. SWPA has utilized the base-extra capacity method in preparing its class cost of
25 service studies. Under the base-extra capacity method, investment and costs are first

1 classified into four primary functional cost categories: base or average capacity, extra
2 capacity, customer and fire protection. Once investment and costs are classified to
3 these functional categories, they are allocated to the various customer classes.

4 Q. PLEASE DESCRIBE IN GREATER DETAIL THE FOUR PRIMARY
5 FUNCTIONAL COST CATEGORIES AND HOW THEY ARE
6 ALLOCATED TO THE VARIOUS CUSTOMER CLASSES UNDER THE
7 BASE-EXTRA CAPACITY METHOD.

8 A. **Base Costs** are costs that tend to vary with the quantity of water used, plus costs
9 associated with supplying, treating, pumping and distributing water to customers
10 under average load conditions. Base costs were allocated to customer class on the
11 basis of average daily usage in SWPA's studies.

12 **Extra Capacity Costs** are costs associated with meeting usage requirements
13 in excess of average usage. This includes operating and capital costs for additional
14 plant and system capacity beyond that required for average usage. Extra capacity
15 costs in the Company's study have been subdivided into costs necessary to meet
16 maximum day extra demand and maximum hour extra demand. These extra capacity
17 costs were allocated to customer class on the basis of each class' maximum day and
18 maximum hour usage in excess of average usage.

19 **Customer Costs** are costs associated with serving customers regardless of
20 their usage or demand characteristics. Customer costs include the operating costs
21 related to meters and services, meter reading costs, and billing and collection costs.
22 Customer costs were allocated on the basis of capital cost of meters and services and
23 the number of customer bills.

24 **Fire Protection Costs** are costs associated with providing the facilities to
25 meet the potential peak demand of fire protection service. In the Company's study,

1 fire protection costs have been subdivided into the costs associated with meeting
2 Public Fire Protection and Private Fire Protection demands. The extra capacity costs
3 assigned to fire protection were allocated to Public and Private Fire Protection on the
4 basis of the total relative demands of hydrants and fire service lines. In accordance
5 with Section 1328 of the Public Utility Code, public fire costs exceeding 25 percent
6 of the public fire cost of service were reallocated to other classifications.

7 Q. WHAT CUSTOMER CLASSES HAS THE COMPANY IDENTIFIED IN
8 ITS STUDIES?

9 A. The Company has separately identified the cost of serving seven customer classes in
10 its studies:

- 11 • Residential;
- 12 • Commercial;
- 13 • Industrial;
- 14 • Large Industrial;
- 15 • Public Authority;
- 16 • Private Fire Protection; and
- 17 • Public Fire Protection.

18 Q. DO YOU AGREE WITH THE FUNCTIONALIZATION AND
19 ALLOCATION OF COSTS PRESENTED IN THE COMPANY PREPARED
20 COST OF SERVICE STUDY ATTACHED TO YOUR TESTIMONY AS
21 SCHEDULE JDM-1?

22 A. Yes. I generally agree with SWPA's application and use of the base-extra capacity
23 methodology and find the Company's cost of service study that excludes the costs
24 associated with serving Mahoning Township to be reasonable, with the exception that

1 the study includes the costs associated with serving the Route 15 service territory
2 expansion.

3 **III. REVENUE DISTRIBUTION**

4 Q. WHAT ARE THE RELATIVE RATES OF RETURN UNDER SWPA'S
5 PROPOSED REVENUE DISTRIBUTION FOR EACH CUSTOMER
6 CLASS AS INDICATED BY SWPA'S COST OF SERVICE STUDY THAT
7 EXCLUDES THE COSTS ASSOCIATED WITH SERVING MAHONING
8 TOWNSHIP?

9 A. The relative rates of return for each customer class under SWPA's proposed revenue
10 distribution at proposed rates are presented in Table 1. A relative rate of return in
11 excess of 1.00 indicates that a customer class would be contributing revenues in
12 excess of its indicated cost of service at proposed rates. A relative rate of return that
13 is less than 1.00 indicates that a customer class would be contributing revenues that
14 are less than that class' indicated cost of service at proposed rates. As shown on
15 Table 1, under SWPA's proposed revenue distribution, all retail classes except the
16 Residential class would be contributing revenues that are less than the indicated cost
17 of service. Private Fire Protection would also be contributing less than the indicated
18 cost of service. Public Fire Protection would be contributing revenues equal to 25
19 percent of the indicated cost of service; however, as indicated previously, Public Fire
20 Protection revenues are limited to 25 percent of the cost of service under Section
21 1328 of the Public Utility Code. The costs associated with providing Public Fire
22 Protection service in excess of 25 percent of the cost of service have been reallocated
23 to the remaining customer classes. Therefore, the relative rate of return for Public
24 Fire Protection is shown to be 1.00 on Table 1.

Table 1.	
Summary of Class Cost of Service Study Relative Rates of Return - Proposed Rates	
<u>Customer Class</u>	<u>Relative Rate of Return</u>
Residential	1.11
Commercial	0.93
Industrial	0.95
Large Industrial	0.31
Public Authority	0.89
Private Fire Protection	0.70
Public Fire Protection	1.00
Total	1.00

1 Q. DO YOU AGREE WITH SWPA'S PROPOSED DISTRIBUTION OF ITS
2 REQUESTED REVENUE INCREASE?

3 A. No, I do not. While SWPA's proposed distribution of its requested revenue increase
4 provides for the movement of rates for each customer class toward the indicated cost
5 of service, I believe additional movement is warranted and reasonable.

6 Q. WHAT DO YOU RECOMMEND?

7 A. When the costs associated with serving Mahoning Township are excluded from the
8 cost of service, SWPA is requesting an overall increase in the rates for water service
9 of 10.8 percent. As shown in SWPA's class cost of service study (Schedule JDM-1,
10 page 1) the largest increase proposed for any class is 21.7 percent for the Large
11 Industrial class. This increase is approximately 2 times the system average increase.
12 The proposed revenues for the Public Authority and Private Fire Service classes are
13 less than the indicated cost of service and, therefore, I recommend that these classes
14 receive a similar 21.7 percent increase. With the 21.7 percent increase, these two
15 classes will continue to provide revenues that are less than the indicated cost of
16 service. For the Commercial and Industrial classes, I recommend increases sufficient

1 to recover the indicated cost of service. I have assigned the remainder of the increase
 2 to the Residential class. My proposed revenue distribution is presented in Table 2.

Table 2.						
Summary of OCA Proposed Revenue Distribution						
<u>Customer Class</u>	<u>Cost of Service</u>	<u>Present Revenues</u>	<u>Proposed Increase</u>		<u>Proposed Revenues</u>	<u>Over/(Under) Cost of Service</u>
			<u>Revenues</u>	<u>Percent</u>		
Residential	\$2,987,760	\$28,877,255	\$1,823,731	6.32%	\$30,700,986	\$830,226
Commercial	13,902,124	11,767,147	2,134,977	18.14	13,902,124	0
Industrial	908,839	766,289	142,550	18.60	908,839	0
Large Industrial	1,279,210	701,022	152,122	21.70	853,144	(426,066)
Public Authority	2,284,057	1,835,763	398,361	21.70	2,234,124	(49,933)
Private Fire Service	2,114,067	1,446,048	313,792	21.70	1,759,840	(354,227)
Public Fire Service	1,008,895	923,861	85,034	9.20	1,008,895	0
Total	\$51,367,952	\$46,317,385	\$5,050,567	10.90%	\$51,367,952	(\$0)

3 Q. WHAT IS YOUR RECOMMENDED REVENUE DISTRIBUTION IF THE
 4 COMMISSION AUTHORIZES AN INCREASE THAT IS LESS THAN
 5 THE TOTAL INCREASE REFLECTED IN TABLE 2?

6 A. If the Commission authorizes an increase that is less than the total increase reflected
 7 in Table 2, I recommend a proportionate scale back of the proposed customer class
 8 revenue increases reflected in Table 2.

IV. CUSTOMER CHARGES

1 Q. WHAT IS SWPA PROPOSING WITH RESPECT TO CUSTOMER
2 CHARGES?

3 A. SWPA is proposing to increase the current customer charge for a customer with a
4 5/8-inch or 3/4-inch meter from \$13.75 to \$15.00. Similar percentage increases are
5 proposed for customers with larger meters. SWPA claims that its proposed \$15.00
6 charge reflects movement toward what the Company has calculated to be its direct
7 customer costs of \$14.96 per month.¹

8 Q. WHAT COSTS HAS SWPA INCLUDED IN ITS CALCULATION OF
9 DIRECT CUSTOMER COSTS?

10 A. SWPA has included operation and maintenance (“O&M”) expenses, depreciation
11 expense and the return and taxes associated with meters and services and related
12 supplies, customer accounting O&M expenses and bad debt expense in its calculation
13 of direct customer costs. The Company has also included what it claims is directly
14 related facility investment.

15 Q. IS SWPA’S CALCULATION OF DIRECT CUSTOMER COSTS
16 REASONABLE?

17 A. No. SWPA has included bad debt expense in its calculation which is not a direct
18 customer cost.

19 Q. WHAT IS YOUR RECOMMENDATION WITH RESPECT TO SWPA’S
20 MONTHLY CUSTOMER CHARGES?

21 A. As discussed above, based on SWPA’s requested increase, the Company calculates a
22 cost-based customer charge for a 5/8-inch or 3/4-inch meter of \$14.96. SWPA’s

¹ SWPA’s customer charge calculation is presented in SWPA Exhibit PRH-1, Schedule H. The cost of service study excluding Mahoning Township costs did not include this calculation.

1 calculation improperly includes bad debt expense and should be reduced accordingly.
2 In addition, at the revenue increase authorized by the Commission in this proceeding,
3 a cost-based charge would certainly be further reduced. For example, adjusting
4 SWPA's overall requested pre-tax rate of return to reflect the OCA's recommended
5 pre-tax return of 8.29 percent would further reduce the calculated customer charge.²

6 A calculation adjusting the Company's calculated direct customer charge to
7 eliminate bad debt expense and to reflect the OCA's recommended rate of return is
8 presented on Schedule JDM-2.³ As shown there, these adjustments reduce the
9 calculated charge to \$13.73. Other adjustments to SWPA's revenue requirement
10 claim are likely to further reduce the calculated customer charge. Therefore, I
11 recommend that the existing \$13.75 monthly charge for customers with a 5/8-inch or
12 3/4-inch meter be maintained, unless the increase authorized by the Commission is
13 sufficient to justify a higher charge.

² The OCA's pre-tax rate of return is calculated in Schedule JDM-2, attached to this testimony.

³ Schedule JDM-2 was prepared utilizing the Company's recommended cost of service study (SWPA Exhibit PRH-1, Schedule H, page 2 of 2). As noted in footnote 1, the cost of service study excluding Mahoning Township costs did not include a customer charge calculation.

1 **V. MAHONING TOWNSHIP**

2 Q. WHAT IS SWPA'S REVENUE REQUIREMENT POSITION IN THIS
3 PROCEEDING WITH RESPECT TO ITS POTENTIAL ACQUISITION OF
4 THE MAHONING TOWNSHIP WATER SYSTEM?

5 A. It is the Company's position that the revenue requirement approved in this proceeding
6 should include all of the costs associated with serving customers in Mahoning
7 Township. The Company is proposing to charge customers in Mahoning Township
8 the same rates approved in this proceeding for existing SWPA customers.

9 Q. WHAT IS THE OCA'S POSITION WITH RESPECT TO SWPA'S
10 REVENUE REQUIREMENT AND ACQUISITION OF THE MAHONING
11 TOWNSHIP WATER SYSTEM?

12 A. As explained in greater detail in the direct testimony of Mr. Morgan, it is the OCA's
13 position that the revenue requirement approved for SWPA in this proceeding should
14 not include any costs associated with serving Mahoning Township. If SWPA
15 acquires the Mahoning Township customers, those customers should be considered a
16 separate rate division under SWPA's tariff and their rates should remain equal to the
17 rates charged by the seller at the time of the acquisition until SWPA's next base rate
18 proceeding. At that time, the Company and interested participants can consider the
19 costs associated with serving Mahoning Township and whether movement toward
20 consolidating Mahoning Township rates with the rates of SWPA's existing customers
21 is appropriate. To accomplish this, in the next base rate case post acquisition, SWPA
22 should submit two separate cost of service studies. One study should reflect the
23 combined costs and revenues associated with serving Mahoning Township, and the
24 other should exclude all costs and revenues associated with serving Mahoning

1 Township. Counsel informs me that at this point, potential customers in Mahoning
2 Township have not been provided notice of SWPA's proposal to increase their rates.

3 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

4 A. Yes, it does; however, I reserve the right to update this testimony as may be
5 necessary.

6

7 254759

BEFORE THE
PENNSYLVANIA PUBLIC UTILITIES COMMISSION

PENNSYLVANIA PUBLIC)	
UTILITY COMMISSION)	
)	
v.)	DOCKET NO. R-2018-3000834
)	
SUEZ WATER PENNSYLVANIA, INC.)	
)	

SCHEDULES ACCOMPANYING THE

DIRECT TESTIMONY OF

JEROME D. MIERZWA

ON BEHALF OF THE

PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

JULY 20, 2018

EXETER

ASSOCIATES, INC.
10480 Little Patuxent Parkway
Suite 300
Columbia, Maryland 21044

Pennsylvania Public Utility Commission

v.

SUEZ Water Pennsylvania, Inc.

Docket No. R-2018-3000834

**Interrogatories of the
Office of Consumer Advocate
Set VI**

OCA-VI-21
(Heppenstall/Herbert)
July 16, 2018

OCA-VI-21 Please provide a cost of service study that removes all costs and revenues associated with the operations of the Mahoning Township water system.

Response:

See attached cost of service study that removes all costs and revenues associated with the operations of the Mahoning Township Water System. This cost of service also includes the addition of the regulatory liability and amortization referenced in the Company's response to I&E-RE-58.

SUEZ WATER PENNSYLVANIA INC.
HARRISBURG, PENNSYLVANIA

**COST OF SERVICE
EXCLUDING MAHONING TOWNSHIP
ALLOCATION STUDY
FOR THE TEST YEAR ENDED
DECEMBER 31, 2019**



Excellence Delivered As Promised

**SUEZ WATER PENNSYLVANIA INC.
EXCLUDING MAHONING TOWNSHIP ACQUISITION**

**COMPARISON OF COST OF SERVICE WITH REVENUES UNDER PRESENT AND PROPOSED RATES
FOR THE TEST YEAR ENDED DECEMBER 31, 2019**

Customer Classification (1)	Cost of Service		Revenues, Present Rates*		Revenues, Proposed Rates		Proposed Increase	
	Amount (2)	Percent (3)	Amount (4)	Percent (5)	Amount (6)	Percent (7)	Amount (8)	Percent Increase (9)
Residential	\$ 29,870,760	58.3%	\$ 28,877,255	62.3%	\$ 31,336,744	61.0%	\$ 2,459,489	8.5%
Commercial	13,902,124	27.1%	11,767,147	25.4%	13,426,522	26.1%	1,659,375	14.1%
Industrial	908,839	1.8%	766,289	1.7%	885,917	1.7%	119,628	15.6%
Large Industrial	1,279,210	2.5%	701,022	1.5%	853,358	1.7%	152,336	21.7%
Public Authority	2,284,057	4.4%	1,835,763	4.0%	2,164,628	4.2%	328,865	17.9%
Private Fire Service	2,114,067	4.1%	1,446,048	3.1%	1,691,887	3.3%	245,840	17.0%
Public Fire Service	1,008,895	2.0%	923,861	2.0%	1,008,895	2.0%	85,034	9.2%
Total Sales	51,367,952	100.2%	46,317,385	100.0%	51,367,952	100.0%	5,050,567	10.9%
Other Revenues	405,611		405,611		405,611		-	0.0%
Total	\$ 51,773,562		\$ 46,722,995		\$ 51,773,562		\$ 5,050,567	10.8%

* Includes DSIC Revenue.

SUEZ WATER PENNSYLVANIA INC.

COST OF SERVICE FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019, ALLOCATED TO CUSTOMER CLASSIFICATIONS

not updated Account (1)	Factor Ref. (2)	Cost of Service (3)	Residential (4)	Commercial (5)	Industrial (6)	Large Industrial (7)	Public Authorities (8)	Fire Protection Private (9)	Public (10)
OPERATION AND MAINTENANCE EXPENSES									
SOURCE OF SUPPLY EXPENSES									
Employee Salaries	2	521,577	278,418	170,817	12,883	24,045	32,494	1,043	1,878
Purchased Water	1	182,928	97,720	59,964	4,354	8,140	11,415	476	860
Purchased Water - Mahoning	1	0	0	0	0	0	0	0	0
Purchased Power	1	724,633	387,099	237,535	17,246	32,248	45,217	1,884	3,406
Purchased Power - Mahoning	1	0	0	0	0	0	0	0	0
Fuel for Power Production	1	2,099	1,121	688	50	93	131	5	10
Material and Supplies	2	2,727	1,456	893	67	126	170	5	10
Outside Services	2	16,557	8,838	5,422	409	783	1,032	33	60
Outside Services - Mahoning	2	0	0	0	0	0	0	0	0
Rental of Building/Real Property	2	0	0	0	0	0	0	0	0
Transportation Expense	2	18,323	9,781	6,001	453	845	1,142	37	66
Fringe Benefits	2	72,542	38,723	23,757	1,792	3,344	4,519	145	261
Miscellaneous Other	2	0	0	0	0	0	0	0	0
Office Expenses and Utilities	2	2,321	1,239	760	57	107	145	5	8
Uniforms	2	0	0	0	0	0	0	0	0
TOTAL SOURCE OF SUPPLY EXPENSE - OPERATION		1,543,707	824,395	505,837	37,311	69,709	96,264	3,633	6,558
Employee Salaries	2	102,243	54,577	33,484	2,525	4,713	6,370	204	368
Fuel for Power Production	1	0	0	0	0	0	0	0	0
Material and Supplies	2	6,066	3,238	1,987	150	280	378	12	22
Outside Services	2	145,795	77,825	47,748	3,601	6,721	9,083	292	525
Outside Services - Mahoning	2	0	0	0	0	0	0	0	0
Uniforms	2	0	0	0	0	0	0	0	0
Transportation Expense	2	46,087	24,601	15,093	1,138	2,125	2,871	92	166
Fringe Benefits	2	177,106	94,539	58,002	4,375	8,165	11,034	354	638
Miscellaneous Other	2	0	0	0	0	0	0	0	0
TOTAL SOURCE OF SUPPLY EXPENSE - MAINTENANCE		477,296	254,781	156,315	11,789	22,003	29,736	955	1,718
TOTAL SOURCE OF SUPPLY EXPENSE		2,021,003	1,079,175	662,151	49,100	91,713	125,999	4,588	8,276
WATER TREATMENT									
Employee Salaries	2	1,339,207	714,868	438,590	33,078	61,737	83,433	2,678	4,821
Purchased Power	1	(19,256)	(10,287)	(6,312)	(458)	(857)	(1,202)	(50)	(91)
Purchased Power - Mahoning	1	0	0	0	0	0	0	0	0
Chemicals	1	599,527	320,267	196,525	14,289	26,679	37,410	1,559	2,818
Membranes - Bloomsburg	2	0	0	0	0	0	0	0	0
Maintenance - Bloomsburg	2	0	0	0	0	0	0	0	0
Material and Supplies	2	8,723	4,656	2,857	215	402	543	17	31
Testing	2	83,542	44,594	27,360	2,063	3,851	5,205	167	301
Outside Services	2	288,711	154,114	94,553	7,131	13,310	17,987	577	1,039
Outside Services - Mahoning	2	0	0	0	0	0	0	0	0
Transportation Expense	2	133,249	71,128	43,839	3,291	6,143	8,301	266	480

SUEZ WATER PENNSYLVANIA INC.

COST OF SERVICE FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019, ALLOCATED TO CUSTOMER CLASSIFICATIONS

not updated Account (1)	Factor Ref. (2)	Cost of Service (3)	Residential	Commercial	Industrial	Large Industrial	Public Authorities	Fire Protection	
			(4)	(5)	(6)	(7)	(8)	Private (9)	Public (10)
Fringe Benefits	2	525,755	260,648	172,185	12,986	24,237	32,755	1,052	1,893
Miscellaneous Other	2	561	299	184	14	26	35	1	2
Communication Services	2	0	0	0	0	0	0	0	0
Uniforms, Travel, Rentals and Other	2	6,595	3,521	2,160	163	304	411	13	24
TOTAL WATER TREATMENT EXPENSE - OPERATION		2,966,613	1,583,810	971,740	72,753	135,832	184,878	6,281	11,318
Employee Salaries	2	295,064	157,505	96,633	7,288	13,602	18,382	590	1,062
Fuel for Power Production	1	(1,070)	(571)	(351)	(25)	(48)	(67)	(3)	(5)
Chemicals	1	0	0	0	0	0	0	0	0
Material and Supplies	2	166,642	88,953	54,575	4,116	7,682	10,382	333	600
Outside Services	2	113,417	60,542	37,144	2,801	5,229	7,066	227	408
Outside Services - Mahoning	2	0	0	0	0	0	0	0	0
Rental of Equipment	2	0	0	0	0	0	0	0	0
Transportation Expense	2	30,450	16,254	9,972	752	1,404	1,897	61	110
Fringe Benefits	2	117,977	62,976	38,638	2,914	5,439	7,350	236	425
Miscellaneous Other	2	0	0	0	0	0	0	0	0
Office Expense and Utilities	2	48,038	25,843	15,732	1,187	2,215	2,993	96	173
Uniforms and Travel	2	0	0	0	0	0	0	0	0
TOTAL WATER TREATMENT EXPENSE - MAINTENANCE		770,519	411,302	252,345	19,033	35,523	48,003	1,540	2,773
TOTAL WATER TREATMENT EXPENSE		3,737,131	1,995,112	1,224,084	91,786	171,355	232,881	7,822	14,091
TRANSMISSION AND DISTRIBUTION EXPENSES									
Employee Salaries - Supervision	10	35,577	15,451	9,609	594	231	1,434	2,900	5,358
Employee Salaries - Lines	8	491,678	168,842	138,653	9,883	3,983	23,502	51,577	95,238
Employee Salaries - Meters	8	140,800	105,882	32,173	678	113	1,957	0	0
Purchased Power	1	865,311	462,249	283,649	20,594	38,506	53,995	2,250	4,067
Purchased Power - Mahoning	1	0	0	0	0	0	0	0	0
Material and Supplies	10	8,218	3,569	2,220	137	53	331	670	1,238
Outside Services	10	91,070	39,552	24,598	1,521	592	3,670	7,422	13,715
Outside Services - Mahoning	10	0	0	0	0	0	0	0	0
Rentals of Building/Real Property	10	12,710	5,520	3,433	212	83	512	1,036	1,914
Transportation Expense	10	67,140	29,159	18,135	1,121	436	2,706	5,472	10,111
Fringe Benefits	10	264,039	114,672	71,317	4,409	1,716	10,641	21,519	39,764
Miscellaneous Other	10	0	0	0	0	0	0	0	0
Communication Services	10	0	0	0	0	0	0	0	0
Office Expense, Utilities and Other	10	1,300	564	351	22	8	52	106	196
Uniforms, Dues and Rentals	10	74,089	32,177	20,011	1,237	482	2,986	6,038	11,158
TOTAL T & D EXPENSE OPERATION		2,051,931	977,637	604,149	40,407	46,203	101,787	98,989	182,759
Employee Salaries - Supervision	11	40,518	16,519	8,514	640	259	1,540	3,533	8,513
Employee Salaries - Structures and Improvements	11	120,336	49,061	28,255	1,901	770	4,573	10,493	25,283
Employee Salaries - Reservoirs and Standpipes	5	2,634	900	811	57	78	133	230	425
Employee Salaries - Mains	6	363,630	124,939	102,600	7,313	2,947	17,391	38,166	70,474
Employee Salaries - Services	9	76,592	66,229	7,215	92	8	375	2,673	0

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SUEZ WATER PENNSYLVANIA INC.

COST OF SERVICE FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019, ALLOCATED TO CUSTOMER CLASSIFICATIONS

not updated Account	Factor Ref.	Cost of Service	Residential	Commercial	Industrial	Large Industrial	Public Authorities	Fire Protection	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	Private (9)	Public (10)
Employee Salaries - Hydrants	7	28,066	0	0	0	0	0	0	28,066
Employee Salaries - Miscellaneous Plant	11	20,563	8,383	4,828	325	132	781	1,793	4,320
Fuel for Power Production	1	0	0	0	0	0	0	0	0
Material and Supplies	11	89,550	36,510	21,028	1,415	573	3,403	7,809	18,815
Outside Services	11	32,906	13,416	7,726	520	211	1,250	2,869	6,913
Outside Services - Mahoning	11	0	0	0	0	0	0	0	0
Rental of Equipment	11	0	0	0	0	0	0	0	0
Transportation Expense	11	67,481	27,504	15,840	1,066	432	2,564	5,883	14,174
Fringe Benefits	11	261,258	106,515	61,343	4,128	1,672	9,928	22,782	54,890
Miscellaneous Other	11	0	0	0	0	0	0	0	0
Office Expense and Utilities	11	606	247	142	10	4	23	53	127
Uniforms	11	0	0	0	0	0	0	0	0
TOTAL T & D EXPENSE - MAINTENANCE		1,104,319	450,223	259,301	17,466	7,085	41,981	96,284	231,969
TOTAL T & D EXPENSE		3,156,250	1,427,860	863,449	57,873	53,289	143,748	195,273	414,758
CUSTOMER ACCOUNTS									
Employee Salaries - Supervision	12	1,395	1,250	106	1	0	5	32	1
Employee Salaries - Meter Reading	13	176,131	161,530	13,756	141	0	705	0	0
Employee Salaries - Billing	12	586,857	525,882	44,718	411	0	2,289	13,263	293
Fuel for Power Production	12	(91)	(82)	(7)	(0)	0	(0)	(2)	(0)
Material and Supplies	12	1,363	1,221	104	1	0	5	31	1
Outside Services	12	280,057	250,960	21,340	196	0	1,092	6,329	140
Outside Services - Mahoning	12	0	0	0	0	0	0	0	0
Rentals of Building/Real Property	12	0	0	0	0	0	0	0	0
Rental of Equipment	12	(490)	(439)	(37)	(0)	0	(2)	(11)	(0)
Transportation Expense	12	78,984	70,777	6,019	55	0	308	1,785	39
Advertising	12	0	0	0	0	0	0	0	0
Bad Debt Expense	12	184,239	185,097	14,039	129	0	719	4,164	92
Fringe Benefits	12	309,379	277,235	23,575	217	0	1,207	6,992	155
Miscellaneous Other	12	218	196	17	0	0	1	5	0
Communication Services	12	0	0	0	0	0	0	0	0
Office Expense, Utilities and Other	12	(1,108)	(993)	(84)	(1)	0	(4)	(25)	(1)
Uniforms	12	0	0	0	0	0	0	0	0
Postage	12	366,358	328,294	27,917	256	0	1,429	8,280	183
TOTAL CUSTOMER ACCOUNTING EXPENSE		1,983,293	1,780,927	151,462	1,406	0	7,752	40,842	904
ADMINISTRATIVE AND GENERAL EXPENSES									
Employee Salaries	14	1,076,033	632,923	268,148	18,185	26,686	45,731	30,559	53,802
Employee Pension & Benefits	16	2,604,660	1,482,051	672,784	46,102	66,940	115,907	76,837	144,038
Purchased Power	14	22,759	13,387	5,871	385	564	967	848	1,138
Accounting	14	0	0	0	0	0	0	0	0
Legal	14	0	0	0	0	0	0	0	0
Management Fees- Engineering	18	291,817	144,887	74,384	5,078	8,858	12,806	15,554	32,450
Management Fees- Customer Related	12	385,703	345,628	29,391	270	0	1,504	8,717	193

SUEZ WATER PENNSYLVANIA INC.

COST OF SERVICE FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019, ALLOCATED TO CUSTOMER CLASSIFICATIONS

not updated Account	Factor Ref.	Cost of Service	Customer Classifications						
			Residential	Commercial	Industrial	Large Industrial	Public Authorities	Private	Public
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Management Fees- Employee related	16	303,900	172,919	78,497	5,379	7,810	13,524	8,965	16,806
Management Fees- Other	14	4,378,078	2,575,185	1,091,017	73,990	108,576	186,068	124,337	218,904
Outside Services	14	246,794	145,164	61,501	4,171	6,120	10,489	7,009	12,340
Outside Services - Mahoning	14	0	0	0	0	0	0	0	0
Rental of Building/Real Property	14	60,451	35,557	15,064	1,022	1,499	2,589	1,717	3,023
Rental of Equipment	14	39,180	23,046	9,764	662	972	1,665	1,113	1,959
Transportation Expense	14	118,628	69,777	29,562	2,005	2,942	5,042	3,369	5,931
Insurance - General Liability	14	4,935	2,903	1,230	83	122	210	140	247
Insurance -Workman's Compensation	14	110,717	65,124	27,591	1,871	2,746	4,705	3,144	5,536
Advertising	14	3,674	2,161	916	62	91	156	104	184
Rata Case Expense - Amort	18	189,000	93,839	48,176	3,289	4,442	8,165	10,074	21,017
Regulatory Commission Expense	18	260,784	129,479	66,474	4,538	6,128	11,266	13,900	28,999
Fringe Benefits	16	(2,834,345)	(1,612,742)	(732,111)	(50,166)	(72,843)	(126,128)	(83,613)	(156,739)
Miscellaneous Other	16	48,767	27,748	12,597	863	1,253	2,170	1,439	2,697
Membership Dues	14	0	0	0	0	0	0	0	0
Reg Fees for Conventions	14	0	0	0	0	0	0	0	0
Communication Services	14	0	0	0	0	0	0	0	0
Office Expenses and Utilities	14	482,593	283,861	120,262	8,156	11,968	20,510	13,706	24,130
Uniforms, Materials and Supplies and Other	14	81,002	47,645	20,186	1,369	2,009	3,443	2,300	4,050
Postage	14	0	0	0	0	0	0	0	0
Subscriptions	14	0	0	0	0	0	0	0	0
Travel	14	0	0	0	0	0	0	0	0
TOTAL A & G EXPENSE		7,875,129	4,680,543	1,901,102	127,310	184,884	320,570	240,018	420,702
Total Operation & Maintenance Expenses		18,772,807	10,963,618	4,802,249	327,476	501,241	830,951	488,542	658,730
DEPRECIATION EXPENSE									
Water Source Structures	2	82,824	44,211	27,125	2,046	3,818	5,160	166	298
Collection and Impounding Reservoirs	1	7,983	4,265	2,617	190	355	498	21	38
Lakes, River and Other Intakes	2	214,637	114,573	70,294	5,302	9,895	13,372	429	773
Wells & Springs	2	18,004	9,811	5,898	445	830	1,122	36	65
Infiltration Galleries and Tunnels	2	400	214	131	10	18	25	1	1
Purification Buildings	2	472,325	252,127	154,686	11,666	21,774	29,426	945	1,700
Power Generation Equip	3	0	0	0	0	0	0	0	0
Electric Pumping Equipment	3	598,700	251,634	154,345	11,615	21,793	29,396	45,681	84,237
Oil Engine Pumping Equipment	2	3,833	2,046	1,255	95	177	239	6	14
Purification System - Treatment Structures	2	868,627	463,673	284,475	21,455	40,044	54,115	1,737	3,127
Purification System - Painting	2	39,209	20,930	12,841	968	1,808	2,443	78	141
Purification System - Chemical Treatment	2	598,225	319,332	195,919	14,776	27,578	37,269	1,196	2,154
Laboratory Equipment	2	4,514	2,410	1,478	111	208	281	9	16
T&D Structures and Improvements	6	8,220	2,923	2,318	165	67	393	862	1,592
Distribution Reservoirs and Standpipes	5	381,692	130,462	117,523	8,245	11,336	19,275	33,322	61,529
Distribution Mains	4	1,180,934	373,240	335,394	23,567	0	55,028	131,302	242,403
Transmission Mains	3	1,056,848	444,193	272,456	20,503	38,469	51,891	80,638	148,699

SUEZ WATER PENNSYLVANIA INC.

COST OF SERVICE FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019, ALLOCATED TO CUSTOMER CLASSIFICATIONS

not updated Account (1)	Factor Ref. (2)	Cost of Service (3)	Residential (4)	Commercial (5)	Industrial (6)	Large Industrial (7)	Public Authorities (8)	Fire Protection	
								Private (9)	Public (10)
Services	9	712,718	616,287	67,138	855	71	3,482	24,874	0
Meters	8	868,055	727,977	221,201	4,847	774	13,456	0	0
Hydrants	7	123,907	0	0	0	0	0	0	123,907
General Land and Land Rights	14	6,374	3,749	1,588	108	158	271	181	319
Office Buildings	14	240,057	141,202	59,822	4,057	5,953	10,202	6,818	12,003
Stores, Shop and Garage Buildings	14	176,396	103,756	43,958	2,981	4,375	7,487	5,010	8,820
Miscellaneous Structures and Improvements	14	17,020	10,011	4,241	288	422	723	483	851
Other Plant and Miscellaneous Equipment	14	8,424	4,955	2,099	142	209	358	239	421
Office Furniture and Equipment	14	33,217	19,538	8,278	561	824	1,412	943	1,661
Computer Software	14	80,761	47,504	20,126	1,365	2,003	3,432	2,294	4,038
Computer Software-CIS Implementation	12	5,653	5,066	431	4	0	22	128	3
Transportation Equipment	14	215	126	54	4	5	9	6	11
Stores Equipment	14		0	0	0	0	0	0	0
Tools and work Equipment	14	49,132	28,889	12,244	830	1,218	2,088	1,395	2,457
Shop Equipment	14	109,862	64,621	27,378	1,857	2,725	4,669	3,120	5,493
Power Operated Equipment	14		0	0	0	0	0	0	0
Communication Equipment	14	558,363	327,253	138,646	9,403	13,798	23,845	15,801	27,818
Miscellaneous Equipment	14	10,332	6,077	2,575	175	256	439	293	517
Total Depreciation Expense		8,615,462	4,542,768	2,248,530	146,434	210,962	371,851	358,015	735,104
Amortization of Acquisition Adjustment	18	57,744	28,670	14,719	1,005	1,357	2,495	3,078	6,421
Amortization of Regulatory Liability	18	(265,198)	(131,671)	(67,599)	(4,814)	(6,232)	(11,457)	(14,135)	(29,490)
Addt. Amortization of Regulatory Liability	18	(525,857)	(261,088)	(134,041)	(9,150)	(12,358)	(22,717)	(28,028)	(58,475)
Taxes Other Than Income									
Real Estate	18	318,178	157,975	61,104	5,536	7,477	13,745	16,959	35,381
Payroll Taxes	16	650,213	369,971	167,950	11,509	16,710	28,934	19,181	35,957
Total Taxes, Other Than Income		968,391	527,947	249,054	17,045	24,188	42,680	36,140	71,338
Income Taxes	18	5,382,362	2,662,413	1,366,866	93,305	126,016	231,854	285,814	596,295
Utility Income Available for Return	18	18,787,852	9,328,169	4,789,024	326,909	441,515	811,635	1,001,393	2,089,209
Total Cost of Service		51,773,562	27,860,823	13,298,801	900,409	1,286,668	2,256,891	2,130,818	4,269,132
Less: Other Water Revenues	19	405,611	218,474	103,958	7,058	10,059	17,685	16,752	33,625
Total Cost of Service Related to Sales of Water		51,367,952	27,444,348	13,164,843	893,352	1,278,629	2,239,207	2,114,067	4,235,507
Reallocation of Public Fire	20	0	2,426,412	737,281	15,488	2,581	44,850	0	(3,226,812)
Total		\$ 51,367,952	\$ 29,870,760	\$ 13,902,124	\$ 908,839	\$ 1,279,210	\$ 2,264,057	\$ 2,114,067	\$ 1,008,895

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SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS

FACTOR 1. ALLOCATION OF COSTS WHICH VARY WITH THE AMOUNT OF WATER CONSUMED.

Factors are based on the pro forma test year average daily consumption for each customer classification.

Customer Classification (1)	Average Daily Consumption, Thousand Gallons (2)	Allocation Factor (3)
Residential	6,228	0.5342
Commercial	3,822	0.3278
Industrial	277	0.0238
Large Industrial	519	0.0445
Public Authority	727	0.0624
Private Fire Protection	30	0.0026
Public Fire Protection	55	0.0047
Total	11,658	1.0000

FACTOR 2. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE AND MAXIMUM DAY EXTRA CAPACITY FUNCTIONS.

Factors are based on the weighting of the factors for average daily consumption (Factor 1) and the factors derived from maximum day extra capacity demand for each customer classification, as follows:

Customer Classification (1)	Average Daily Consumption		Maximum Day Extra Capacity		Allocation Factor (6)=(3)+(5)
	Allocation Factor 1 (2)	Weighted Factor (3)=(2)x 0.7692	Allocation Factor (4)	Weighted Factor (5)=(4)x 0.2308	
Residential	0.5342	0.4110	0.5321	0.1228	0.5338
Commercial	0.3278	0.2521	0.3265	0.0754	0.3275
Industrial	0.0238	0.0183	0.0276	0.0064	0.0247
Large Industrial	0.0445	0.0342	0.0517	0.0119	0.0461
Public Authority	0.0624	0.0480	0.0621	0.0143	0.0623
Private Fire Protection	0.0026	0.0020			0.0020
Public Fire Protection	0.0047	0.0036			0.0036
Total	1.0000	0.7692	1.0000	0.2308	1.0000

The derivation of the maximum day extra capacity factors in column 4 and the basis for the column 3 and 5 weightings are presented on the following page.

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 2. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE AND
MAXIMUM DAY EXTRA CAPACITY FUNCTIONS, cont.

Customer Classification (1)	Average Daily Consumption, Thousand Gal. (2)	Maximum Day Extra Capacity		
		Factor* (3)	Rate of Flow, Thousand Gal. Per Day (4)=(2)x(3)	Allocation Factor (5)
Residential	6,228	0.6	3,737	0.5321
Commercial	3,822	0.6	2,293	0.3265
Industrial	277	0.7	194	0.0276
Large Industrial	519	0.7	363	0.0517
Public Authority	727	0.6	436	0.0621
Total	11,573		7,023	1.0000

The weighting of the factors is based on the maximum day ratio of 1.30, based on a review of maximum day ratios experienced during the period 2000 through 2017 (see Schedule F).

	Maximum Day Ratio	Weight
Average Day	1.00	0.7692
Maximum Day Extra Capacity	0.30	0.2308
Total	1.30	1.0000

* Ratio of maximum day to average day minus 1.0.

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 3. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE, MAXIMUM DAY EXTRA CAPACITY AND FIRE PROTECTION FUNCTIONS.

Factors are based on the weighting of the average daily consumption, the maximum day extra capacity demand, and the fire protection demand for each customer classification.

Customer Classification	Average Daily Consumption		Maximum Day Extra Capacity		Fire Protection		Allocation Factor
	Allocation Factor	Weighted Factor	Allocation Factor	Weighted Factor	Allocation Factor	Weighted Factor	
(1)	(2)	(3)=(2) X	(4)	(5)=(4) X	(6)	(7)=(6) X	(8)=(3)+(5)+(7)
		0.6057		0.1817		0.2126	
Residential	0.5342	0.3236	0.5321	0.0967			0.4203
Commercial	0.3278	0.1985	0.3265	0.0593			0.2578
Industrial	0.0238	0.0144	0.0276	0.0050			0.0194
Large Industrial	0.0445	0.0270	0.0517	0.0094			0.0364
Public Authority	0.0624	0.0378	0.0621	0.0113			0.0491
Private Fire Protection	0.0026	0.0016			0.3512	0.0747	0.0763
Public Fire Protection	0.0047	0.0028			0.6488	0.1379	0.1407
Total	1.0000	0.6057	1.0000	0.1817	1.0000	0.2126	1.0000

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 3. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE, MAXIMUM DAY EXTRA CAPACITY AND FIRE PROTECTION FUNCTIONS, cont.

The weighting of the factors is based on the potential demand of general and fire protection service. The bases for the potential demand of general service are the maximum day ratio of 1.30 and the average daily system sendout for 2017 of 17.093 MGD. The system demand for fire protection is 10,000 Gallons per minute for 10 hours.

	<u>Ratio</u>	<u>Rate of Flow, (GPD)</u>	<u>Weight</u>
Average Day	1.00	17,093,435	0.6057
Maximum Day Extra Capacity	<u>0.30</u>	<u>5,128,030</u>	<u>0.1817</u>
Subtotal	<u>1.30</u>	22,221,465	0.7874
Fire Protection		<u>6,000,000</u>	<u>0.2126</u>
Total		<u>28,221,465</u>	<u>1.0000</u>

The public and private fire protection allocation factors in column 6 on the previous page are based on the relative potential demands (see Schedule G).

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 4. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE AND MAXIMUM HOUR EXTRA CAPACITY FUNCTIONS.

Factors are based on the weighting of the average daily consumption, the maximum day extra capacity demand, and the fire protection demand for each customer classification.

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Customer Classification (1)	Average Hourly Consumption			Maximum Hour Extra Capacity		Fire Protection		Allocation Factor (9)=(4)+(6)+(8)
	Thousand Gallons (2)	Allocation Factor (3)	Weighted Factor (4)=(3) X 0.3784	Allocation Factor (5)	Weighted Factor (6)=(5) X 0.3027	Allocation Factor (7)	Weighted Factor (8)=(7) X 0.3189	
Residential	259.5	0.5589	0.2114	0.3638	0.1101			0.3215
Commercial	159.3	0.3432	0.1299	0.5253	0.1590			0.2889
Industrial	11.5	0.0248	0.0094	0.0360	0.0109			0.0203
Public Authority	30.3	0.0653	0.0247	0.0749	0.0227			0.0474
Private Fire Protection	1.3	0.0028	0.0011			0.3512	0.1120	0.1131
Public Fire Protection	2.3	0.0050	0.0019			0.6488	0.2069	0.2088
Total	464.2	1.0000	0.3784	1.0000	0.3027	1.0000	0.3189	1.0000

The maximum hour extra capacity factors in column 5 are determined on the following page.

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 4. ALLOCATION OF COSTS ASSOCIATED WITH FACILITIES SERVING BASE AND
MAXIMUM HOUR EXTRA CAPACITY FUNCTIONS, cont.

The weighting of the factors is based on the potential demand of general and fire protection service. The bases for the potential demand of general service are the maximum hour ratio of 1.80 and the average daily system sendout for 2017 of 17.093 MGD. The system demand for fire protection is 10,000 gallons per minute

	Ratio	Rate of Flow, (GPM)	Weight
Average Hour	1.00	11,870	0.3784
Maximum Hour Extra Capacity	<u>0.80</u>	<u>9,496</u>	<u>0.3027</u>
Subtotal	<u><u>1.80</u></u>	21,366	0.6811
Fire Protection		<u>10,000</u>	<u>0.3189</u>
Total		<u><u>31,366</u></u>	<u><u>1.0000</u></u>

The maximum hour extra capacity factors in column 5 of the previous page are determined as follows:

Customer Classification	Average Hourly Consumption Thousand Gal.	Maximum Hour Extra Capacity		
		Factor*	1,000 Gallons Per Hour	Allocation Factor
(1)	(2)	(3)	(4)=(2)x(3)	(5)
Residential	259.5	1.7	441.2	0.3638
Commercial	159.3	4.0	637.2	0.5253
Industrial	11.5	3.8	43.7	0.0360
Public Authority	<u>30.3</u>	3.0	<u>90.9</u>	<u>0.0749</u>
Total	<u><u>460.6</u></u>		<u><u>1,213.0</u></u>	<u><u>1.0000</u></u>

* Ratio of Maximum Hour To Average Hour Minus 1.0.

The public and private fire protection allocation factors in column 7 on the previous page are based on the relative potential demands (see Schedule G).

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 5. ALLOCATION OF COSTS ASSOCIATED WITH STORAGE FACILITIES.

Factors are based on the weighting of the average hourly consumption, the maximum hour extra capacity demand, and the fire protection demand for each customer classification.

Customer Classification	Average Hourly Consumption			Maximum Hour Extra Capacity		Fire Protection		Allocation Factor
	Thousand Gallons	Allocation Factor	Weighted Factor	Allocation Factor	Weighted Factor	Allocation Factor	Weighted Factor	
(1)	(2)	(3)	(4)=(3) X 0.4192	(5)	(6)=(5) X 0.3354	(7)	(8)=(7) X 0.2454	(9)=(4)+(6)+(8)
Residential	259.5	0.5341	0.2238	0.3519	0.1180			0.3418
Commercial	159.3	0.3279	0.1375	0.5081	0.1704			0.3079
Industrial	11.5	0.0237	0.0099	0.0348	0.0117			0.0216
Large Industrial	21.6	0.0445	0.0187	0.0327	0.0110			0.0297
Public Authority	30.3	0.0624	0.0262	0.0725	0.0243			0.0505
Private Fire Protection	1.3	0.0027	0.0011			0.3512	0.0862	0.0873
Public Fire Protection	2.3	0.0047	0.0020			0.6488	0.1592	0.1612
Total	485.8	1.0000	0.4192	1.0000	0.3354	1.0000	0.2454	1.0000

The weighting of the factors is based on the ratio of the capacity required for a 10 hour demand of fire flow, as related to total storage capacity. The calculation is shown on the following page.

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 5. ALLOCATION OF COSTS ASSOCIATED WITH STORAGE FACILITIES, cont.

The weighting of the factors is based on the ratio of the capacity required for a 10 hour demand of fire flow, as related to total storage capacity.

Fire not updated.

$$\text{Fire Protection Weight} = \frac{10,000 \text{ GPM} \times 60 \text{ Min.} \times 10 \text{ Hrs.}}{24,449,000 \text{ Gallons}} = 0.2454$$

$$\text{General Service Weight} = 1.0000 - 0.2454 = 0.7546$$

The weighting of the average hourly consumption and maximum hour extra demand for general service is based on the maximum hour ratio, as follows:

	Maximum Hour Ratio	Percent	Weight
Average Hour	1.00	55.56	0.4192
Extra Capacity Maximum Hour	0.80	44.44	0.3354
Total	<u>1.80</u>	<u>100.00</u>	<u>0.7546</u>

Customer Classification (1)	Average Hourly Consumption Thousand Gal. (2)	Factor* (3)	Maximum Hour Extra Capacity	
			1,000 Gallons Per Hour (4)=(2)x(3)	Allocation Factor (5)
Residential	259.5	1.7	441.2	0.3519
Commercial	159.3	4.0	637.2	0.5081
Industrial	11.5	3.8	43.7	0.0348
Large Industrial	21.6	1.9	41.0	0.0327
Public Authority	<u>30.3</u>	3.0	<u>90.9</u>	<u>0.0725</u>
Total	<u>482.2</u>		<u>1254.0</u>	<u>1.0000</u>

* Ratio of Maximum Hour To Average Hour Minus 1.0.

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 6. ALLOCATION OF COSTS ASSOCIATED WITH TRANSMISSION AND DISTRIBUTION MAINS.

Factors are based on the weighting of the maximum daily consumption with fire, Factor 3, and the maximum hour

Customer Classification	Maximum Daily Consumption w/ Fire		Maximum Hourly Consumption		Allocation Factor
	Allocation Factor 3	Weighted Factor	Allocation Factor 4	Weighted Factor	
(1)	(2)	(3)=(2)X 0.2216	(4)	(5)=(4)X 0.7784	(6)=(3)+(5)
Residential	0.4203	0.0931	0.3215	0.2503	0.3434
Commercial	0.2578	0.0571	0.2889	0.2249	0.2820
Industrial	0.0194	0.0043	0.0203	0.0158	0.0201
Large Industrial	0.0364	0.0081	0.0000	0.0000	0.0081
Public Authority	0.0491	0.0109	0.0474	0.0369	0.0478
Private Fire Protection	0.0763	0.0169	0.1131	0.0880	0.1049
Public Fire Protection	0.1407	0.0312	0.2088	0.1625	0.1937
Total	1.0000	0.2216	1.0000	0.7784	1.0000

The weighting of the factors is based on the total footage of mains, designated as either transmission mains or distribution mains, as follows:

	Total Footage of Mains	Weight
Transmission Mains	1,058,994	0.2216
Distribution Mains	3,719,194	0.7784
Total	4,778,188	1.0000

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 7. ALLOCATION OF COSTS ASSOCIATED WITH FIRE HYDRANTS.

Costs are assigned directly to Public Fire Protection.

<u>Customer Classification</u> (1)	<u>Allocation Factor</u> (3)
Public Fire Protection	<u>1.0000</u>
Total	<u><u>1.0000</u></u>

FACTOR 8. ALLOCATION OF COSTS ASSOCIATED WITH METERS.

Factors are based on the relative cost of meters by size and customer classification, as developed on the following page and summarized below.

<u>Customer Classification</u> (1)	<u>5/8" Dollar Equivalents</u> (2)	<u>Allocation Factor</u> (3)
Residential	57,139	0.7520
Commercial	17,360	0.2285
Industrial	368	0.0048
Large Industrial	59	0.0008
Public Authority	1,054	0.0139
Private Fire	<u>0</u>	<u>0.0000</u>
Total	<u><u>75,980</u></u>	<u><u>1.0000</u></u>

SUEZ WATER PENNSYLVANIA INC.

BASIS FOR ALLOCATING METER COSTS TO CUSTOMER CLASSIFICATIONS

Meter Size (1)	5/8" Dollar Equivalent (2)	Residential		Commercial		Industrial		Large Industrial		Public Authority		Total	
		Number of Meters (3)	Weighting (4)=(2)X(3)	Number of Meters (5)	Weighting (6)=(2)X(5)	Number of Meters (7)	Weighting (8)=(2)X(7)	Number of Meters (9)	Weighting (10)=(2)X(9)	Number of Meters (11)	Weighting (12)=(2)X(11)	Number of Meters (13)	Weighting (14)
5/8 and 3/4	1.0	55,250	55,250	2,503	2,503	9	9	0	0	86	86	57,848	57,848
1	1.6	265	424	27	43	1	2	0	0	41	66	334	535
1-1/2	4.9	269	1,318	1,153	5,850	11	54	0	0	27	132	1,460	7,154
2	6.0	17	102	514	3,084	3	18	0	0	61	366	595	3,570
3	9.0	5	45	469	4,221	11	99	0	0	13	117	498	4,482
4	13.5	0	0	28	378	8	108	1	14	4	54	41	554
6	22.4	0	0	31	694	2	45	2	45	8	179	43	963
8	32.8	0	0	24	787	1	33	0	0	0	0	25	820
10	54.4	0	0	0	0	0	0	0	0	1	54	1	54
Total		55,806	57,139	4,749	17,360	46	368	3	59	241	1,054	60,845	75,880

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SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 9. ALLOCATION OF COSTS ASSOCIATED WITH SERVICES.

Factors are based on the relative cost of services by size and customer classification, as developed on the following page and summarized below.

<u>Customer Classification</u> (1)	<u>3/4" Dollar Equivalents</u> (2)	<u>Allocation Factor</u> (3)
Residential	55,997	0.8647
Commercial	6,097	0.0942
Industrial	79	0.0012
Large Industrial	8	0.0001
Public Authority	319	0.0049
Private Fire Protection	<u>2,257</u>	<u>0.0349</u>
 Total	 <u><u>64,757</u></u>	 <u><u>1.0000</u></u>

SUEZ WATER PENNSYLVANIA INC.

BASIS FOR ALLOCATING SERVICE COSTS TO CUSTOMER CLASSIFICATIONS

Service Size	3/4" Dollar Equivalent	Residential		Commercial		Industrial		Large Industrial		Public Authority		Private Fire Protection		Total	
		Number of Services	Weighting (4)=(2)X(3)	Number of Services	Weighting (6)=(2)X(5)	Number of Services	Weighting (8)=(2)X(7)	Number of Services	Weighting (10)=(2)X(9)	Number of Services	Weighting (12)=(2)X(11)	Number of Services	Weighting (14)=(2)X(13)	Number of Services	Weighting (16)
(1)	(2)	(3)	(4)=(2)X(3)	(5)	(6)=(2)X(5)	(7)	(8)=(2)X(7)	(9)	(10)=(2)X(9)	(11)	(12)=(2)X(11)	(13)	(14)=(2)X(13)	(15)	(16)
3/4	1.00	55,250	55,250	2,503	2,503	9	9	0	0	86	86	0	0	57,848	57,848
1	1.28	265	339	27	35	1	1	0	0	41	52	0	0	334	427
1-1/2	1.39	269	373	1,153	1,600	11	15	0	0	27	37	0	0	1,480	2,025
2	1.39	17	24	514	713	3	4	0	0	61	85	74	103	669	929
3	2.18	5	11	469	1,024	11	24	0	0	13	28	5	11	503	1,098
4	2.18	0	0	28	61	8	17	1	2	4	9	185	404	226	493
6	2.79	0	0	31	86	2	6	2	6	8	22	317	884	360	1,004
8	3.11	0	0	24	75	1	3	0	0	0	0	220	684	245	762
10	4.12	0	0	0	0	0	0	0	0	1	0	30	124	31	124
12	4.65	0	0	0	0	0	0	0	0	0	0	10	47	10	47
Total		55,806	55,997	4,749	6,097	46	79	3	8	241	319	841	2,257	61,686	64,757

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SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 10. ALLOCATION OF TRANSMISSION AND DISTRIBUTION OPERATION SUPERVISION AND ENGINEERING AND MISCELLANEOUS EXPENSES.

Factors are based on transmission and distribution operation expenses other than those being allocated, as follows:

<u>Customer Classification</u> (1)	<u>Transmission & Distribution Operating Expenses</u> (2)	<u>Allocation Factor</u> (3)
Residential	\$ 274,723	0.4343
Commercial	170,826	0.2701
Industrial	10,559	0.0167
Large Industrial	4,095	0.0065
Public Authority	25,459	0.0403
Private Fire Protection	51,577	0.0815
Public Fire Protection	95,238	0.1506
Total	<u>632,476</u>	<u>1.0000</u>

FACTOR 11. ALLOCATION OF TRANSMISSION AND DISTRIBUTION MAINTENANCE SUPERVISION AND ENGINEERING, STRUCTURES AND IMPROVEMENTS, AND OTHER EXPENSES.

Factors are based on transmission and distribution maintenance expenses other than those being allocated, as follows:

<u>Customer Classification</u> (1)	<u>Transmission & Distribution Maintenance Expenses</u> (2)	<u>Allocation Factor</u> (3)
Residential	\$ 192,068	0.4077
Commercial	110,626	0.2348
Industrial	7,462	0.0158
Large Industrial	3,033	0.0064
Public Authority	17,899	0.0380
Private Fire Protection	41,069	0.0872
Public Fire Protection	98,964	0.2101
Total	<u>\$471,121</u>	<u>1.0000</u>

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 12. ALLOCATION OF BILLING AND COLLECTING COSTS.

Factors are based on the total number of customers.

<u>Customer Classification</u> (1)	<u>Total Customers</u> (2)	<u>Allocation Factor</u> (3)
Residential	55,806	0.8961
Commercial	4,749	0.0762
Industrial	46	0.0007
Large Industrial	3	0.0000
Public Authority	241	0.0039
Private Fire Protection	1,410	0.0226
Public Fire Protection	32	0.0005
Total	<u>62,287</u>	<u>1.0000</u>

FACTOR 13. ALLOCATION OF METER READING COSTS.

Factors are based on the number of metered customers.

<u>Customer Classification</u> (1)	<u>Total Metered Customers</u> (2)	<u>Allocation Factor</u> (3)
Residential	55,806	0.9171
Commercial	4,749	0.0781
Industrial	46	0.0008
Large Industrial	3	0.0000
Public Authority	241	0.0040
Total	<u>60,845</u>	<u>1.0000</u>

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 14. ALLOCATION OF ADMINISTRATIVE AND GENERAL EXPENSES

Factors are based on the allocation of all other operation and maintenance expenses excluding purchased water, power, chemicals and waste disposal.

<u>Customer Classification</u> (1)	<u>Operation & Maintenance Expenses</u> (2)	<u>Allocation Factor</u> (3)
Residential	\$5,024,905	0.5882
Commercial	2,129,099	0.2492
Industrial	144,111	0.0169
Large Industrial	211,548	0.0248
Public Authority	363,414	0.0425
Private Fire Protection	242,401	0.0284
Public Fire Protection	<u>426,959</u>	<u>0.0500</u>
 Total	 <u>\$8,542,436</u>	 <u>1.0000</u>

FACTOR 15. ALLOCATION OF ADMINISTRATIVE AND CASH WORKING CAPITAL

Factors are based on the allocation of all operation and maintenance expenses including purchased water, power, chemicals and waste disposal.

<u>Customer Classification</u> (1)	<u>Operation & Maintenance Expenses</u> (2)	<u>Allocation Factor</u> (3)
Residential	\$10,595,414	0.5877
Commercial	4,613,215	0.2558
Industrial	314,572	0.0174
Large Industrial	483,813	0.0268
Public Authority	798,913	0.0443
Private Fire Protection	449,015	0.0249
Public Fire Protection	<u>776,264</u>	<u>0.0431</u>
 Total	 <u>\$18,031,206</u>	 <u>1.0000</u>

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 16. ALLOCATION OF LABOR RELATED TAXES AND BENEFITS.

Factors are based on the allocation of direct labor expense.

<u>Customer Classification</u> (1)	<u>Direct Labor Expense</u> (2)	<u>Allocation Factor</u> (3)
Residential	\$3,083,160	0.5690
Commercial	1,399,910	0.2583
Industrial	95,993	0.0177
Large Industrial	139,304	0.0257
Public Authority	241,095	0.0445
Private Fire Protection	159,735	0.0295
Public Fire Protection	299,900	0.0553
Total	\$5,419,097	1.0000

FACTOR 17. ALLOCATION OF ORGANIZATION, FRANCHISES AND CONSENTS,
MISCELLANEOUS INTANGIBLE PLANT AND OTHER RATE BASE ELEMENTS.

Factors are based on the allocation of the original cost less depreciation other than those items being allocated, as follows:

<u>Customer Classification</u> (1)	<u>Original Cost Less Depreciation</u> (2)	<u>Allocation Factor</u> (3)
Residential	\$126,448,906	0.4961
Commercial	64,999,736	0.2549
Industrial	4,424,850	0.0174
Large Industrial	5,978,491	0.0234
Public Authority	11,024,853	0.0432
Private Fire Protection	13,627,185	0.0534
Public Fire Protection	28,456,856	0.1116
Total	\$254,960,878	1.0000

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 18. ALLOCATION OF INCOME TAXES AND INCOME AVAILABLE FOR RETURN.

Factors are based on the allocation of the original cost measure of value rate base as shown on the following pages and summarized below.

<u>Customer Classification</u> (1)	<u>Original Cost Measure of Value</u> (2)	<u>Allocation Factor</u> (3)
Residential	\$117,362,216	0.4965
Commercial	60,265,515	0.2549
Industrial	4,101,576	0.0174
Large Industrial	5,547,678	0.0235
Public Authority	10,223,452	0.0432
Private Fire Protection	12,599,150	0.0533
Public Fire Protection	<u>26,296,154</u>	<u>0.1112</u>
Total	<u>\$236,395,741</u>	<u>1.0000</u>

FACTOR 19. ALLOCATION OF REGULATORY COMMISSION EXPENSES, ASSESSMENTS A
OTHER WATER REVENUES.

The factors are based on the allocation of the total cost of service, excluding those items being allocated.

<u>Customer Classification</u> (1)	<u>Total Cost of Service</u> (2)	<u>Allocation Factor</u> (3)
Residential	\$28,024,912	0.5337
Commercial	13,455,722	0.2563
Industrial	913,169	0.0174
Large Industrial	1,303,920	0.0248
Public Authority	2,288,571	0.0436
Private Fire Protection	2,169,904	0.0413
Public Fire Protection	<u>4,350,676</u>	<u>0.0829</u>
Total	<u>\$52,506,873</u>	<u>1.0000</u>

SUEZ WATER PENNSYLVANIA INC.

COST OF SERVICE FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019, ALLOCATED TO CUSTOMER CLASSIFICATIONS

not updated Account (1)	Factor Ref. (2)	Cost of Service (3)	Customer Classifications							
			Residential (4)	Commercial (5)	Industrial (6)	Large Industrial (7)	Public Authorities (8)	Fire Protection Private (9)	Public (10)	
RATE BASE										
Organization	17	\$ (79,406)	\$ (39,393)	\$ (20,241)	\$ (1,362)	\$ (1,858)	\$ (3,430)	\$ (4,240)	\$ (8,862)	
Franchises and Consents	17	64,266	31,882	16,381	1,118	1,504	2,776	3,432	7,172	
Source of Supply - Land and Land Rights	2	469,227	250,473	153,672	11,590	21,631	29,233	938	1,689	
Water Source Structures	2	2,327,346	1,242,337	762,206	57,485	107,291	144,994	4,655	8,378	
Collection and Impounding Reservoirs Lakes, River and Other Intakes	1	318,763	170,283	104,491	7,587	14,185	19,891	829	1,498	
Wells & Springs	2	5,328,927	2,844,581	1,745,224	131,624	245,664	331,992	10,658	19,184	
Infiltration Galleries and Tunnels	2	482,753	257,693	158,102	11,924	22,255	30,078	966	1,738	
Water Treatment - Land and Land Rights	2	10,501	5,605	3,439	259	484	654	21	38	
Purification Buildings	2	1,233,083	658,220	403,835	30,457	56,845	76,821	2,468	4,439	
Power Generation Equip	3	14,387,404	7,679,996	4,711,875	355,369	663,259	896,335	28,775	51,795	
Electric Pumping Equipment	3	-	-	-	-	-	-	-	-	
Oil Engine Pumping Equipment	3	10,697,412	4,496,122	2,757,793	207,530	389,386	525,243	816,213	1,505,126	
Purification System - Treatment Structures	2	59,336	31,673	19,432	1,466	2,735	3,697	119	214	
Purification System - Painting	2	23,363,251	12,471,303	7,651,465	577,072	1,077,046	1,455,531	46,727	84,108	
Purification System - Chemical Treatment	2	184,863	98,660	60,543	4,566	8,522	11,517	370	666	
Laboratory Equipment	2	7,242,589	3,866,094	2,371,948	178,892	333,883	451,213	14,485	26,073	
T&D - Land and Land Rights	6	34,224	18,269	11,208	845	1,578	2,132	68	123	
T&D Structures and Improvements	6	1,884,837	647,253	531,524	37,885	15,267	90,095	197,719	365,093	
Distribution Reservoirs and Standpipes	5	258,008	88,600	72,758	5,186	2,090	12,333	27,065	49,976	
Distribution Mains	4	9,160,393	3,131,022	2,820,485	197,864	272,064	462,800	799,702	1,476,655	
Transmission Mains	3	48,031,461	15,442,115	13,876,289	975,039	-	2,276,691	5,432,358	10,028,969	
Services	9	61,303,833	25,766,001	15,804,128	1,189,294	2,231,460	3,010,018	4,677,482	8,625,449	
Meters	8	28,498,139	24,642,340	2,684,525	34,198	2,850	139,641	994,585	-	
Hydrants	7	14,377,675	10,812,012	3,285,299	69,013	11,502	199,850	-	-	
Other Plant and Miscellaneous Equipment	14	5,200,612	0	0	0	0	0	0	5,200,612	
General Land and Land Rights	14	151,899	89,347	37,853	2,567	3,767	6,456	4,314	7,595	
Office Buildings	14	960,616	565,034	239,385	16,234	23,823	40,826	27,281	48,031	
Stores, Shop and Garage Buildings	14	9,242,200	5,436,262	2,303,156	156,193	229,207	392,794	262,478	462,110	
Miscellaneous Structures and Improvements	14	3,636,650	2,139,077	906,253	61,459	90,189	154,558	103,281	181,832	
Office Furniture and Equipment	14	169,130	99,483	42,147	2,858	4,194	7,188	4,803	8,457	
Computer Software	14	355,574	209,149	88,609	6,009	8,818	15,112	10,098	17,779	
Computer Software-CIS Implementation	12	95,772	58,333	23,866	1,819	2,375	4,070	2,720	4,789	
Transportation Equipment	14	5,653	5,068	431	4	0	22	128	3	
Stores Equipment	14	528	311	132	9	13	22	15	26	
Tools and work Equipment	14	-	0	0	0	0	0	0	0	
Shop Equipment	14	744,065	437,659	185,421	12,575	18,453	31,623	21,131	37,203	
Power Operated Equipment	14	1,413,691	831,533	352,292	23,891	35,060	60,082	40,149	70,685	
Communication Equipment	14	-	0	0	0	0	0	0	0	
Miscellaneous Equipment	14	3,222,982	1,895,758	803,167	54,468	79,930	136,977	91,533	181,149	
Plant Held for Future Use	2	107,479	63,219	26,784	1,816	2,665	4,568	3,052	5,374	
			0	0	0	0	0	0	0	
Total Utility Plant in Service		254,945,738	126,441,395	64,995,877	4,424,587	5,978,137	11,024,199	13,626,377	28,455,167	

25

SUEZ WATER PENNSYLVANIA INC.

COST OF SERVICE FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019, ALLOCATED TO CUSTOMER CLASSIFICATIONS

not updated Account (1)	Factor Ref. (2)	Cost of Service (3)	Fire Protection						
			Residential (4)	Commercial (5)	Industrial (6)	Large Industrial (7)	Public Authorities (8)	Private (9)	Public (10)
Other Rate Base Items									
Add:									
Cash Working Capital	15	863,748	507,824	220,948	15,029	23,148	38,264	21,507	37,227
Materials and Supplies	14	481,594	283,273	120,013	8,139	11,944	20,468	13,677	24,080
Less:									
Regulatory Liability	17	(1,195,129)	(592,903)	(304,638)	(20,795)	(27,968)	(51,630)	(63,820)	(133,378)
Deferred Income Taxes	17	(18,700,207)	(9,277,173)	(4,766,683)	(325,384)	(437,585)	(807,849)	(998,591)	(2,086,943)
Total Other Rate Base Elements		(18,549,997)	(9,079,179)	(4,730,362)	(323,011)	(430,459)	(800,747)	(1,027,226)	(2,159,012)
Total Original Cost Measure of Value		\$ 236,395,741	\$ 117,362,218	\$ 60,265,515	\$ 4,101,576	\$ 5,547,678	\$ 10,223,452	\$ 12,589,150	\$ 26,296,154

SUEZ WATER PENNSYLVANIA INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO CUSTOMER CLASSIFICATIONS, cont.

FACTOR 20. REALLOCATION OF PUBLIC FIRE

Factors are based on the relative cost of meters by size and customer classification.

<u>Customer Classification</u> (1)	<u>5/8" Dollar Equivalents</u> (2)	<u>Allocation Factor</u> (3)
Residential	57,139	0.7520
Commercial	17,380	0.2285
Industrial	368	0.0048
Large Industrial	59	0.0008
Public Authority	1,054	0.0139
Private Fire	<u>0</u>	<u>0.0000</u>
Total	<u>75,980</u>	<u>1.0000</u>

SUEZ WATER PENNSYLVANIA INC.

COMPARISON OF PRESENT AND PROPOSED RATES

MTR SIZE	Residential			Commercial (Includes Apt)			Industrial		
	Present	Proposed	%	Present	Proposed	%	Present	Proposed	%
	Rate	Rate	Increase	Rate	Rate	Increase	Rate	Rate	Increase
5/8"-3/4"	\$ 13.75	\$ 15.00	9.091%	\$ 13.75	\$ 15.00	9.091%	\$ 13.75	\$ 15.00	9.091%
1"	\$ 28.50	\$ 31.09	9.088%	\$ 28.50	\$ 31.09	9.088%	\$ 28.50	\$ 31.09	9.088%
1-1/2"	\$ 57.00	\$ 62.18	9.088%	\$ 57.00	\$ 62.18	9.088%	\$ 57.00	\$ 62.18	9.088%
2"	\$ 97.63	\$ 106.51	9.096%	\$ 97.63	\$ 106.51	9.096%	\$ 97.63	\$ 106.51	9.096%
3"	\$ 183.13	\$ 199.78	9.092%	\$ 183.13	\$ 199.78	9.092%	\$ 183.13	\$ 199.78	9.092%
4"	\$ 305.25	\$ 333.00	9.091%	\$ 305.25	\$ 333.00	9.091%	\$ 305.25	\$ 333.00	9.091%
6"	\$ 610.50	\$ 666.00	9.091%	\$ 610.50	\$ 666.00	9.091%	\$ 610.50	\$ 666.00	9.091%
8"	\$ 976.88	\$ 1,065.69	9.091%	\$ 976.88	\$ 1,065.69	9.091%	\$ 976.88	\$ 1,065.69	9.091%
10"	\$ 1,404.25	\$ 1,531.91	9.091%	\$ 1,404.25	\$ 1,531.91	9.091%	\$ 1,404.25	\$ 1,531.91	9.091%
	Consumption Charge			Consumption Charge			Consumption Charge		
No Block	\$ 7.7506	\$ 9.3500	20.636%	\$ 7.7506	\$ 9.3500	20.636%	\$ 7.7506	\$ 9.3500	20.636%
First 25 MGL				\$ 5.4321	\$ 7.1020	30.741%	\$ 5.7618	\$ 7.9500	37.978%
All Over 25 MGL									

MTR SIZE	Public Authority			Large Industrial		
	Present	Proposed	%	Present	Proposed	%
	Rate	Rate	Increase	Rate	Rate	Increase
5/8"-3/4"	\$ 13.75	\$ 15.00	9.091%	\$ 13.75	\$ 15.00	9.091%
1"	\$ 28.50	\$ 31.09	9.088%	\$ 28.50	\$ 31.09	9.088%
1-1/2"	\$ 57.00	\$ 62.18	9.088%	\$ 57.00	\$ 62.18	9.088%
2"	\$ 97.63	\$ 106.51	9.096%	\$ 97.63	\$ 106.51	9.096%
3"	\$ 183.13	\$ 199.78	9.092%	\$ 183.13	\$ 199.78	9.092%
4"	\$ 305.25	\$ 333.00	9.091%	\$ 305.25	\$ 333.00	9.091%
6"	\$ 610.50	\$ 666.00	9.091%	\$ 610.50	\$ 666.00	9.091%
8"	\$ 976.88	\$ 1,065.69	9.091%	\$ 976.88	\$ 1,065.69	9.091%
10"	\$ 1,404.25	\$ 1,531.91	9.091%	\$ 1,404.25	\$ 1,531.91	9.091%
	Consumption Charge			Consumption Charge		
No Block	\$ 7.7506	\$ 9.3500	20.636%	\$ 3.60450	\$ 4.4000	22.070%
First 25 MGL	\$ 5.4321	\$ 7.1020	30.741%			
All Over 25 MGL						

FIRE PROTECTION

MTR SIZE	Private Fire Protection-Monthly			Private Fire Hydrant-Monthly			Public Fire Protection-Monthly		
	Current	Proposed	%	Current	Proposed	%	Current	Proposed	%
	Per Unit	Rate	Increase	Per Unit	Rate	Increase	Per Unit	Rate	Increase
2"	\$ 19.30	\$ 22.58	16.995%				Hydrants-BMB	\$ 18.33	\$ 20.00
3"	\$ 52.05	\$ 60.90	17.003%				Hydrants-DAL	\$ 18.33	\$ 20.00
4"	\$ 66.76	\$ 78.11	17.001%	\$ 43.00	\$ 50.31	17.000%	Hydrants-HAR	\$ 24.17	\$ 25.83
6"	\$ 110.98	\$ 129.85	17.003%				Hydrants-MEC	\$ 25.83	\$ 25.83
8"	\$ 165.42	\$ 193.54	16.999%						
10"	\$ 235.86	\$ 277.13	17.002%						
12"	\$ 328.64	\$ 384.51	17.000%						
14"	\$ 603.72	\$ 706.35	17.000%						

SUEZ WATER PENNSYLVANIA INC.

COMPARISON OF PRESENT AND PROPOSED RATES - MAHONING TOWNSHIP

	Residential			Commercial		
	Present		Proposed	Present		Proposed
	Rate	Present Allowance	Rate	Rate	Present Allowance	Rate
	<u>Minimum</u>		<u>Service Charge*</u>	<u>Minimum</u>		<u>Service Charge*</u>
5/8"	\$ 64.13	6,000	\$ 15.00	\$ 64.13	6,000	\$ 15.00
3/4"	\$ 80.85	10,000	\$ 31.09	\$ 80.85	10,000	\$ 31.09
1"	\$ 98.87	14,000	\$ 62.18	\$ 98.87	14,000	\$ 62.18
1-1/2"	\$ 134.84	22,000	\$ 106.51	\$ 134.84	22,000	\$ 106.51
2"	\$ 170.87	30,000	\$ 199.78	\$ 170.87	30,000	\$ 199.78
3"	NA		\$ 333.00	NA	-	\$ 333.00
4"	\$ 314.89	62,000	\$ 666.00	\$ 314.89	62,000	\$ 666.00
6"	\$ 458.91	94,000	\$ 1,065.69	\$ 458.91	94,000	\$ 1,065.69
	Consumption Charge			Consumption Charge		
No Block	\$ 5.8300		\$ 9.3500	\$ 5.8300		\$ 9.3500
First 25 MGL						\$ 7.1020
All Over 25 MGL						

* No Allowance

**SUEZ WATER PENNSYLVANIA INC.
CALCULATION OF CUSTOMER COST PER MONTH FOR A 5/8-INCH METER
BASED ON DIRECT COSTS**

<u>Cost Function</u> (1)	<u>Direct Cost of Service</u> (2)	<u>Total Units</u> (3)	<u>Cost Per 5/8-inch Meter</u> (4)	<u>Cost Per 5/8-inch Meter Monthly Bill</u> (5)
Meters	2,378,078	77,769 5/8-inch Equivalents	\$30.58	\$2.55
Services	3,036,223	63,972 3/4-inch Equivalents	47.46	3.96
Billing, Collecting and Meter Reading	2,642,403	62,282 Customers	42.43	3.54
Subtotal Customer Costs	\$8,056,703			10.05
Unrecovered Public Fire	3,438,063	77,769 5/8-inch Equivalents	44.21	3.68
Total Customer Costs and Public Fire	<u>\$11,494,766</u>			<u>\$13.73</u>

**SUEZ WATER PENNSYLVANIA INC.
Overall Cost of Capital**

	Ratios	Cost Rate	Weighted Cost Rate	Pre-Tax Cost Rate
Long-Term Debt	45.82%	4.65%	2.13%	2.13%
Common Equity	<u>54.18%</u>	8.08%	<u>4.38%</u>	6.16%
	100.0%		6.51%	8.29%

Source: Schedule ALR 1

Pre-Tax Cost Rate Calculation		
	Corp Income Tax Rate	Taxes Per Dollar
Pennsylvania	9.99%	0.100
Federal	21.00%	0.189
Income After Federal and State Taxes		0.71
Pre-Tax to After Tax Ratio		1.4063

SUEZ WATER PENNSYLVANIA INC.

ANALYSIS OF DIRECT CUSTOMER COSTS

Description	Meters	Services	Billing & Collecting
Operation and Maintenance Expenses			
T&D Labor - Operation			
Employee Salaries - Supervision	\$ 7,978		
Employee Salaries - Meters	141,836		
Fringe Benefits	58,775		
T&D Labor - Maintenance			
Employee Salaries - Supervision		\$ 6,408	
Employee Salaries - Structures and Improvments		19,032	
Employee Salaries - Services		74,524	
Fringe Benefits		41,018	
Total Customer Accounting Expenses			\$ 1,774,084
Management Fees - Customer Related			377,179
Management Fees - Employee Related	10,211	6,959	55,857
Transportation Expense	3,666	2,396	27,000
Worker's Compensation	3,421	2,236	25,199
Advertising Expense	114	74	836
Office Rents	1,868	1,221	13,759
Subtotal	227,868	153,869	2,273,913
Depreciation Expense			
Meters	976,632		
Services		696,307	
Office Buildings	7,415	4,847	54,617
Office Furniture & Equipment	1,026	671	7,560
Computer Software - CIS			5,528
Subtotal	985,074	701,825	67,706
Taxes Other Than Income			
Payroll Taxes	21,847	14,890	119,509
Assessments	-	-	-
Subtotal	21,847	14,890	119,509
Rate Base			
Meters	14,543,019		
Services		27,943,391	
Office Land/Buildings	315,200	206,053	2,321,667
Office Furniture and Equipment	10,987	7,183	80,929
Computer Software - CIS			5,528
Materials and Supplies	14,881	9,728	109,611
Deferred Taxes	(1,092,904)	(2,042,846)	(331,069)
Subtotal	13,791,184	26,123,508	2,186,666
Return and Income Taxes	1,143,289	2,165,639	181,274.58
Total Direct Customer Costs	2,378,078	3,036,223	2,642,403

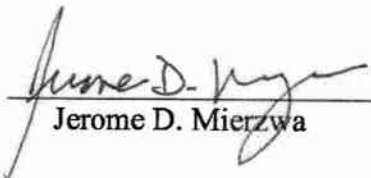
BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission :
v. : Docket No. R-2018-3000834
SUEZ Water Pennsylvania, Inc. :

VERIFICATION

I, JEROME D. MIERZWA, hereby state that the facts set forth in my Direct Testimony, OCA Statement No. 3, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATE: July 20, 2017

Signed: 
Jerome D. Mierzwa

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC
UTILITY COMMISSION

v.

SUEZ WATER PENNSYLVANIA, INC.

)
)
)
) DOCKET NO. R-2018-3000834
)
)

SURREBUTTAL TESTIMONY OF
JEROME D. MIERZWA

ON BEHALF OF THE
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

August 31, 2018

EXETER
ASSOCIATES, INC.
10480 Little Patuxent Parkway
Suite 300
Columbia, Maryland 21044

1 **I. INTRODUCTION**

2 Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

3 A. My name is Jerome D. Mierzwa. I am a principal and President of Exeter Associates, Inc
4 (“Exeter”). My business address is 10480 Little Patuxent Parkway, Suite 300, Columbia,
5 Maryland 21044. Exeter specializes in providing public utility-related consulting
6 services.

7 Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN THIS
8 PROCEEDING?

9 A. Yes, my direct testimony was submitted as OCA Statement No. 3 on July 20, 2018.

10 Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

11 A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimony of Suez
12 Water Pennsylvania (“SWPA”) witness Paul R. Herbert and Office of Small Business
13 Advocate (“OSBA”) witness Brian Kalcic. I would note that in my direct testimony I
14 proposed using the cost of service study prepared by SWPA that excluded Mahoning
15 Township rather than the cost of service study initially filed by SWPA that included
16 Mahoning Township. In its rebuttal testimony, the Company has withdrawn its
17 Mahoning Township claim and does not oppose using the cost of service study that
18 excludes Mahoning Township in this proceeding.

19 Q. BRIEFLY SUMMARIZE THE REVENUE DISTRIBUTION PROPOSAL
20 RECOMMENDATION INCLUDED IN YOUR DIRECT TESTIMONY.

21 A. In my direct testimony, I proposed a revenue distribution that moved revenues more
22 closely toward the indicated cost of service than the distribution proposed by the
23 Company. More specifically, SWPA had proposed an increase of 21.7 percent for the
24 Large Industrial class, which was 2 times the proposed system average increase. I
25 recommended that this increase be maintained, and that the Public Authority and Private

1 Fire Service classes also receive a 21.7 percent increase, which was higher than that
2 proposed by the Company. I recommended a higher increase for these two classes
3 because at the increase proposed by the Company, each class would be contributing
4 revenues less than the indicated cost of service. I also proposed higher increases for the
5 Commercial and Industrial classes than those proposed by the Company. The increases I
6 proposed for these two classes moved revenues for each class to the indicated cost of
7 service. The increases assigned to the Commercial and Industrial classes were less than 2
8 times the system average increase. I assigned the remaining increase requested by SWPA
9 to the Residential class.

10 Q. WHAT WAS MR. HERBERT'S RESPONSE TO YOUR RECOMMENDED
11 REVENUE DISTRIBUTION?

12 A. Mr. Herbert claims that in his experience, OCA witnesses will limit the increase to any
13 one class to 150 percent of the system average increase to recognize gradualism, and that
14 my proposal results in increases for three classes that are twice the system average
15 increase.

16 Q. DOES MR. KALCIC RESPOND IN A SIMILAR FASHION TO YOUR
17 PROPOSED REVENUE DISTRIBUTION?

18 A. Yes. Mr. Kalcic claims that in his experience, it is rare for an assigned class increases to
19 exceed 150 percent of the system average increase, in recognition of gradualism
20 considerations. He finds that my proposed limit of 2.0 times the system average increase
21 to be excessive.

22 Q. DO YOU AGREE WITH MESSRS. HERBERT AND KALCIC THAT
23 GENERALLY A PARTICULAR CLASS SHOULD NOT BE ASSIGNED AN
24 INCREASE WHICH EXCEEDS 150 PERCENT OF THE SYSTEM AVERAGE

1 INCREASE AND IT IS RARE FOR A PARTICULAR CLASS TO RECEIVE
2 AN INCREASE THAT EXCEEDS 150 PERCENT?

3 A. No, I do not believe it to be rare or uncommon to assign an increase to a particular class
4 that is 2.0 times the system average increase when such an increase is found to be
5 justified by a supporting cost of service study. That is, the supporting cost of service
6 study indicates that a class is contributing revenues significantly below the indicated cost
7 of service, and an increase of 2.0 times the system average increase is necessary to move
8 the revenues collected from that class to, or closer to, the indicated cost of service. A
9 recommended increase of 2.0 times the system average increase is also consistent with
10 the recommendation of Mr. Robert D. Knecht who recently testified on behalf of the
11 OBSA in Columbia Gas of Pennsylvania, Inc. ("Columbia") Docket No. 2018-2647572.
12 In the Columbia proceeding, Mr. Knecht testified as follows, and I agree with his position
13 concerning the magnitude of an increase that should typically assigned to a particular
14 customer class:

15 ...to reflect the principle of rate gradualism, I limited the
16 increase to any rate class to be no more than 2.0 times the
17 system average. While there are no "hard-and-fast" rules
18 for gradualism, limiting the maximum increase to 1.5 to 2.0
19 times the system average increase is not uncommon.
20 (Direct, page 31).

21 Q. ARE THERE FACTORS THAT SHOULD BE CONSIDERED IN
22 EVALUATING WHETHER THE MAXIMUM INCREASE ASSIGNED TO A
23 PARTICULAR CUSTOMER CLASS SHOULD BE LIMITED TO 1.5 OR 2.0
24 TIMES THE SYSTEM AVERAGE INCREASE?

25 A. Yes. The magnitude of the increase proposed or awarded in a proceeding should be
26 considered in evaluating whether an increase to a particular class be limited to 1.5 or 2.0
27 times the system average increase. For example, if the proposed system average increase

1 is 10 percent, an increase of 20 percent, or 2.0 times the system average, would not be
2 unreasonable if justified by a supporting cost of service study. However, for a proposed
3 system average increase of 50 percent, a maximum increase of 1.5 times the system
4 average increase may be more appropriate.

5 Q. MR. HERBERT RECOMMENDS THAT THE COMMISSION NOT ACCEPT
6 YOUR REVENUE DISTRIBUTION RECOMMENDATION AND THAT THE
7 COMPANY'S PROPOSAL SUFFICIENTLY MOVES REVENUES TOWARDS
8 THE COST OF SERVICE AND TAKES INTO CONSIDERATION THE
9 CONCEPT OF GRADUALISM. WHAT IS YOUR RESPONSE?

10 A. First, I would note the 21.7 percent increase I have proposed for the Large Industrial class
11 is the same percentage increase proposed by the Company. I have also proposed 21.7
12 percent increases for the Public Authority and Private Fire Service classes. If a 21.7
13 percent increase for the Large Industrial class sufficiently takes into consideration the
14 concept of gradualism for one customer class (Large Industrial) as Mr. Herbert indicates,
15 then it sufficiently takes gradualism into consideration for the other two classes for which
16 I have proposed the same 21.7 percent increase (Public Authority and Private Fire
17 Service).

18 Second, the increases I have proposed for the Commercial and Industrial classes
19 are less than 21.7 percent. Therefore, if a 21.7 percent increase sufficiently takes
20 gradualism into consideration, increases that are less than 21.7 percent would also
21 sufficiently take gradualism into consideration.

22 Third, even with the 21.7 percent increases proposed for the Large Industrial,
23 Public Authority, and Private Fire classes, each of these classes will be contributing
24 revenues which are less than each of those classes' indicated cost of service.

1 Finally, the percentage increase I have proposed for each customer class is based
2 on the Company's requested revenue increase. The actual increase authorized by the
3 Commission in this proceeding will certainly be less than the increase requested by the
4 Company. Therefore, the actual percentage increase experienced by each customer class
5 will be less than those indicated in the testimony of Mr. Herbert and myself.

6 Q. WHAT DOES MR. HERBERT RECOMMEND WITH RESPECT TO A
7 REVENUE DISTRIBUTION IF THE COMMISSION GRANTS SWPA AN
8 INCREASE THAT IS LESS THAN THE COMPANY'S REQUESTED
9 INCREASE IN REVENUE?

10 A. Mr. Herbert recommends a proportional scale-back of the Company's original proposed
11 revenue distribution, exclusive of public fire service.

12 Q. DO YOU AGREE THAT A PROPORTIONAL SCALE-BACK OF THE
13 COMPANY'S ORIGINALLY PROPOSED REVENUE DISTRIBUTION IS
14 APPROPRIATE?

15 A. No. Because the OCA's proposed revenue distribution provides for more movement
16 toward the cost of service than the revenue distribution proposed by the Company, a
17 proportional scale-back of the OCA's proposed revenue distribution would be more
18 appropriate.

19 Q. IN YOUR DIRECT TESTIMONY, YOU RECOMMENDED THAT BAD DEBT
20 EXPENSE BE REMOVED FROM THE CALCULATION OF DIRECT
21 CUSTOMER COSTS WHICH IS USED TO SUPPORT THE COMPANY'S
22 PROPOSED INCREASE IN THE MONTHLY RESIDENTIAL CUSTOMER
23 CHARGE. DOES MR. HERBERT AGREE WITH YOUR
24 RECOMMENDATION?

1 A. No. Mr. Herbert claims that bad debt expense is a direct customer cost because it varies
2 with the number of customers served and, therefore, should be recovered in the customer
3 charge. He also claims that bad debt expense represents only \$0.25 per bill, suggesting
4 that bad debt expense represents only a small percentage of the total proposed customer
5 charge of \$15.00.

6 Q. DO YOU AGREE WITH MR. HERBERT THAT BAD DEBT EXPENSE IS A
7 DIRECT CUSTOMER COST?

8 A. No. Only those costs that vary directly with the addition or subtraction of a customer
9 should be included in the calculation of a customer charge. If bad debt expense did vary
10 directly with the number of customers, each new customer added by SWPA would
11 contribute to bad debt expense, and each customer that discontinues service would reduce
12 bad debt expense. Since this is not the case, bad debt expense does not vary directly with
13 the addition or subtraction of a customer and, therefore, should not be included in a
14 customer charge. Mr. Herbert notes that it is currently the Commission's policy to
15 include only direct costs to determine a customer charge, and this policy should be
16 continued.

17 Q. WHAT IS YOUR RESPONSE TO MR. HERBERT'S CLAIM THAT BAD
18 DEBT EXPENSE IS ONLY \$0.25 PER BILL?

19 A. The Company is proposing to increase the monthly Residential customer charge from
20 \$13.75 to \$15.00, or by \$1.25 per month. Bad debt expense is a significant component of
21 the proposed customer charge increase, representing 20 percent of the total customer
22 charge increase (\$0.25/\$1.25). The Company claims that this increase is supported by its
23 calculated direct customer cost of \$14.96 per month. Excluding bad debt expense alone
24 decreases the Company's calculated charge to \$14.71. As indicated in my direct
25 testimony, at the revenue increase authorized by the Commission in this proceeding, a

1 cost-based charge would certainly be further reduced to less than \$14.71. Reducing the
2 cost-based charge to reflect the OCA's recommended rate of return would reduce the
3 charge to \$13.73 (per Schedule JDM-2). Any other downward adjustment to SWPA's
4 revenue requirement claim will also reduce the calculated customer charge. Therefore,
5 the elimination of bad debt from the calculation of direct customer costs, along with
6 adjustments to the Company's claimed revenue requirement, will have a significant
7 impact on determining whether an increase in the monthly Residential customer charge is
8 appropriate.

9 Q. MR. HERBERT CONTENDS THAT BAD DEBT EXPENSE SHOULD BE
10 INCLUDED IN DIRECT CUSTOMER COSTS CONSISTENT WITH HOW
11 SUCH COSTS ARE ALLOCATED TO CUSTOMER CLASSIFICATIONS. IS
12 THIS CONSISTENT WITH HOW THE AMERICAN WATER WORKS
13 ASSOCIATION (AWWA) MANUAL INDICATES BAD DEBT EXPENSE
14 SHOULD BE ALLOCATED?

15 A. No. In his class cost of service study, Mr. Herbert has assigned retail (non-fire
16 protection) bad debt expense entirely to the billing and collecting functionalization cost
17 category. This is unreasonable. Bad debt expense relates to the failure to recover all of
18 SWPA's functional costs, including base, maximum day, and maximum hour functional
19 costs, not just billing and collecting costs. As such, bad debt expense should be assigned
20 to all retail functional costs, and this would be consistent with the assignment of bad debt
21 expense reflected in the AWWA Manual that Mr. Herbert uses as a guide for his class
22 cost of service study (page 66, 7th Edition). Although a portion of bad debt expense is
23 assigned to the billing and collecting functional cost category under the AWWA method,
24 those assigned costs should not be included in the calculation of a customer charge
25 because, as explained earlier, they are not direct customer costs.

1 Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

2 A. Yes, it does; however, I reserve the right to update this testimony as may be necessary.

257963

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission

v.

SUEZ Water Pennsylvania, Inc.

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:
:

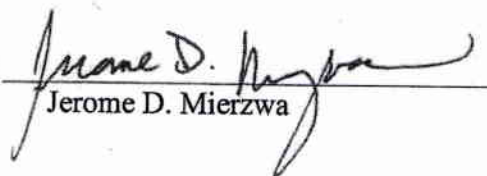
Docket No. R-2018-3000834

VERIFICATION

I, JEROME D. MIERZWA, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement No. 3-SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATE: August 31, 2018

Signed:


Jerome D. Mierzwa

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.**

2 A. Terry L. Fought, 780 Cardinal Drive, Harrisburg, Pennsylvania, 17111.

3

4 **Q BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am a self-employed consulting engineer retained by the Office of Consumer
6 Advocate (OCA) for the purposes of providing testimony in this proceeding.

7

8 **Q. PLEASE DESCRIBE YOUR BACKGROUND AND QUALIFICATIONS.**

9 A. Appendix A, which is attached to this testimony, describes my educational
10 background and applicable experience.

11

12 **Q. WHAT ISSUES HAVE YOU BEEN ASKED TO INVESTIGATE REGARDING
13 THIS SUEZ WATER PENNSYLVANIA (SWPA OR COMPANY) RATE CASE?**

14 A. The OCA requested that I investigate quality of service issues.

15

16 **Q. WHAT DID YOUR INVESTIGATION CONSIST OF?**

17 A. My investigation included: (1) reviewing applicable portions of SWPA's Filing and
18 Direct Testimony of SWPA witnesses John D. Hollenbach, SWPA Statement No.
19 1; (2) reviewing informal complaints filed by SWPA customers with the PUC; (3)
20 reviewing the formal complaint filed by an SWPA customer in this proceeding; (4)
21 reviewing SWPA's responses to the OCA's interrogatories regarding quality of
22 service issues; (5) meeting with SWPA and inspecting some of its facilities in
23 Harrisburg and Mechanicsburg on July 13, 2018, and (6) attending/watching the
24 live stream of Public Input Hearings (PIH) held on July 11, 2018 in this case and
25 reviewing the exhibits offered by the customers testifying.

26

27 **Q. WHAT QUALITY OF SERVICE ISSUES ARE INCLUDED IN YOUR
28 TESTIMONY?**

29 A. Complaint Log, Unaccounted for Water (UFW), Isolation Valves, Service Quality
30 Information and Customer Complaints.

1 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

2 **A. 1. COMPLAINT LOG**

3 I recommend that the Company maintain a complaint log in sortable Excel format.

4 **2. UNACCOUNTED FOR WATER**

5 In future rate cases, I recommend that the Company prepare a separate Section
6 500 form for each system that it submits a Chapter 110 Report. I also recommend
7 that the Company include records supporting its estimate of water volumes for
8 "Located and Repaired Breaks in Mains and Services" in its Section 500
9 submissions.

10 **3. ISOLATION VALVES**

11 I recommend that the Company exercise all its isolation valves located on all of its
12 systems by January 1, 2021. While it is exercising all of its isolation valves, if there
13 are isolation valves that are found to be inoperable, they should be repaired. If
14 they cannot be repaired as soon as possible, SWPA should submit a schedule to
15 the OCA and the Commission's Bureau of Technical Services for replacing or
16 repairing those isolation valves that could not be properly exercised.

17 **4. SERVICE QUALITY INFORMATION**

18 The Company should make it easier for consumers to find information pertaining
19 to service quality on the Company's social media.

20 **5. CUSTOMER COMPLAINTS**

21 The Company should respond to and take reasonable action to resolve the
22 customer complaints that were raised in testimony at the July 11, 2018 Public Input
23 Hearings.

24

25 **COMPLAINT LOG**

26 **Q. WHAT ARE YOUR CONCERNS ABOUT SWPA'S COMPLAINT LOG?**

27 **A.** SWPA's procedure for logging complaints and its responses to complaints is not
28 set up in a manner that the Company can easily provide live Excel spreadsheets
29 for review by others. In the previous rate case, SUEZ did provide such a
30 spreadsheet with some difficulty; however, in this rate case, its response to OCA
31 Set II-17 only included informal complaints made to the PUC. See Exhibit TLF-1.

1 **Q. WHY IS A LIVE EXCEL SPREADSHEET NECESSARY?**

2 A. A live Excel spreadsheet is necessary to allow sorting of the data by issue, date,
3 zip, and street address so that it can be determined if there is a geographic
4 concentration of individuals making similar complaints.
5

6 **Q. WHY IS A COMPLETE, SORTABLE LOG OF COMPLAINTS MADE ABOUT**
7 **THE COMPANY IMPORTANT AND NECESSARY IN THE INVESTIGATION OF**
8 **QUALITY OF SERVICE ISSUES?**

9 A. Under Section 65.3(b), the Company is required to maintain a log of complaints
10 about its service or facilities, showing the name and address of the complainant,
11 the date and character of the complaint and the final disposition of the complaint.
12 The log must include complaints made to the Company, whether or not an informal
13 or formal complaint was also made.

14 Knowing the character of each complaint and its disposition and having that
15 information in a sortable format provides information necessary to investigate the
16 Company's quality of service, including (1) how quickly the Company responds to
17 complaints; (2) whether or not an employee does an on-site inspection/evaluation
18 and on-site tests or takes water samples for laboratory testing, when applicable;
19 (3) how often that individual or nearby individuals have made similar complaints;
20 and (4) how quickly the Company resolves the complaint.

21 Thus, I recommend that the Company maintain a complaint log in sortable Excel
22 format.
23

24 **UNACCOUNTED FOR WATER**

25 **Q. WHAT IS MEANT BY THE TERM "UNACCOUNTED FOR WATER"?**

26 A. There are several different procedures for calculating Unaccounted for Water
27 (UFW). The PUC procedure is shown on Section 500 of the PUC Annual Report
28 forms for Public Water Utilities. According to PUC procedure, UFW is equal to
29 "Total Water Delivered for Distribution & Sale" minus "Total Sales" minus "Non-
30 Revenue Usage and Allowance." "Non-Revenue Usage and Allowance" includes

1 "Main Flushing," "Blow-off Use," "Unavoidable Leakage," "Located & Repaired
2 Breaks in Mains & Services" and "Other".
3

4 **Q. WHY IS UFW IMPORTANT?**

5 A. Calculating the amount of UFW is a method of estimating the amount of non-
6 revenue water in a water distribution system due to leaks and inaccurate meter
7 readings. Reducing the non-revenue water saves money in chemical and power
8 costs and provides for important water conservation in areas that have limited
9 water supply sources. The accuracy of the UFW estimate depends on reliable
10 estimates of unavoidable non-metered water uses such as flushing the distribution
11 system, firefighting, normal pipe leakage, repaired main breaks, etc. Keeping track
12 of UFW gives a water utility an indication of the extent of unknown leaks in the
13 distribution system so that informed decisions can be made on the necessity of
14 finding and repairing leaks. The Water Audit methodology established by the
15 International Water Association (IWA) and the American Water Works Association
16 (AWWA) is generally becoming a more accepted method of identifying the
17 amounts of wasted water.¹ Both the UFW and Water Audit methods, if properly
18 utilized, provide water utilities with information needed to improve operational
19 efficiency.
20

21 **Q. WHAT IS A REASONABLE PERCENTAGE OF UFW?**

22 A. According to the Pennsylvania Code § 65.20 (4) "Levels of the
23 unaccounted-for water should be kept within reasonable amounts. Levels above
24 20% have been considered by the Commission to be excessive".

¹ Class A water utilities were included in the Commission's 2011 Tentative Order (which became final on January 27, 2012) implementing the Water Audit methodology on a pilot, voluntary basis. In Re: Pilot Project to Implement The International Water Association/American Water Works Association Water Audit Methodology, Docket No. M-2008-2062697 Tentative Opinion and Order (November 10, 2011). To date, the pilot remains in effect.

1 **Q. WHY HAS THE OCA ASKED YOU TO REVIEW THE COMPANY'S**
2 **SUBMISSIONS ON UFW?**

3 A. If warranted, the OCA may recommend adjusting the Company's water revenue
4 requirement to offset the chemical and electrical costs of that portion of UFW
5 considered to be excessive if the Company does not provide documentation to
6 support the reasonableness of the volumes it estimated for "Unavoidable Leakage"
7 and "Located & Repaired Breaks in Mains & Services"

8
9 **Q. WHAT INFORMATION HAS SWPA PROVIDED INFORMATION ON HOW IT**
10 **CALCULATES UFW?**

11 A. The Company provided information on UFW in Section 500 of its PUC Annual
12 Reports (Section 500) that estimates a UFW totalized for all its water systems.
13 See Exhibit TLF-2 for copies of Section 500 Reports submitted by the Company
14 for the Years 2015 through 2017. In response to OCA Set II-22, the Company
15 provided copies of its Annual DEP Chapter 110 Reports (Chapter 110) that
16 estimates UFW for each of the Company's systems. A copy of a Chapter 110
17 Report for one of SWPA's systems is attached for illustrative purposes as Exhibit
18 TLF-3. The OCA also had an informal discovery conference call and meeting with
19 SWPA regarding its calculation of UFW.

20
21 **Q. ARE THE SECTION 500 AND CHAPTER 110 UFW ESTIMATES BASED ON**
22 **THE SAME DATA?**

23 A. They should be since both reports have similar annual deadlines. The Annual
24 Chapter 110 Reports are to be submitted to DEP by March 31 of the following year
25 and Section 500 is included in the Annual PUC Reports submitted by the end of
26 April of the following year.

27
28 **Q. ARE THERE SIGNIFICANT DIFFERENCES IN THE METHODS USED TO**
29 **CALCULATE UFW IN EACH REPORT?**

30 A. There are two significant differences: (1) Chapter 110 measures water drawn from
31 the source of supply while Section 500 measures water entering the distribution

1 system; and (2) Section 500 allows credits that reduce the amount of UFW while
2 Chapter 110 does not.

3
4 **Q. HOW DOES THE FIRST DIFFERENCE IMPACT THE UFW CALCULATION?**

5 A. Chapter 110 reports start with all water withdrawn from the source of supply, *i.e.*
6 untreated water, water used in the treatment process, and treated water. The
7 volume of water used that cannot be identified or estimated is classified as "Other"
8 or UFW.

9
10 **Q. DID YOU FIND ANY ERRORS IN THE CHAPTER 110 DATA PROVIDED?**

11 A. Yes. The Year 2016 Chapter 110 Reports for Bloomsburg, Columbia County and
12 Nuremburg do not show a reasonable balance of water uses and water resources.
13 The UFW for all three systems indicated UFW of zero and Nuremburg's Other
14 Category equaled 33,880, which was considerably higher than other years. The
15 OCA identified the errors in an informal discovery conference call with the
16 Company, and the Company has indicated it will manually correct the numbers
17 and resubmit the information to the Pennsylvania Department of Environmental
18 Protection.

19
20 **Q. HOW DOES THE SECOND DIFFERENCE IMPACT UFW?**

21 A. It impacts UFW because Chapter 110 does not allow any credits for reducing UFW.
22 Section 500 allows for UFW to be reduced for volumes of Located & Repaired
23 Breaks in Mains & Services and Unavoidable Leakage. To provide a reasonable
24 comparison of Section 500 and Chapter 110 UFW Reports, the Chapter 110 data
25 had to first be aggregated.

26
27 **Q. DID YOU AGGREGATE THE CHAPTER 110 DATA?**

28 A. Yes. See Exhibit TLF-4. I was able to determine that the UFW calculated under
29 the Chapter 110 Reports, when totaled for all 13 SWPA systems, is 19.78% for
30 2017, 18.14% for 2016, and 22.12% for 2015.

1 **Q. HOW DOES THAT COMPARE TO THE SECTION 500 DATA?**

2 A. Exhibit TLF-5 compares the UFW for Section 500 with the aggregated UFW for
3 Chapter 110 considering only treated water delivered to the distribution system.
4

5 **Q. DOES EXHIBIT TLF-5 PRESENT A REASONABLE COMPARISON OF UFW
6 BETWEEN SECTION 500 AND CHAPTER 110?**

7 A. Yes. A comparison of only treated water is shown on Exhibit TLF-5 by making the
8 following assumptions:

9 Chapter 110 "Average Daily Water Use" was set equal to Section 500
10 "Water Delivered for Distribution & Sale" and
11 Chapter 110 "Other", along with the Section 500 categories of "Main
12 Flushing", "Blow-off Use", and Unauthorized Use" were set equal to the
13 Section 500 amounts for the same items.
14

15 **Q. IS THERE ANYTHING ON EXHIBIT TLF-5 THAT YOU FIND TROUBLING?**

16 A. Yes. It is troubling that Chapter 110 and Section 500 differ in "Total Sales Chapter
17 110/Section 500" for the Years 2015, 2016 and 2017 by 278,005 gallons per day
18 (gpd), 219,369 gpd and 119,912 gpd, respectively. In 2015, the difference
19 between Chapter 110 and Section 500 is over 1,000,000 gpd for
20 "Domestic/Residential" Use. The differences should be much less if the Company
21 used the same data for both reports. This may indicate that one of the reports is
22 incorrect.

23 Also, it is possible that the Section 500 "Water Delivered for Distribution & Sale"
24 amounts are incorrect because of a math error – the Company had to total data
25 for all thirteen of its systems.
26

27 **Q. DO YOU HAVE ANY COMMENTS REGARDING THE RESULTS SHOWN ON
28 EXHIBIT TLF-5?**

29 A. Yes, the UFW before credits is relatively close between Chapter 110 and Section
30 500 (varying by 1.57% in 2015; 1.25% in 2016; and 0.71% in 2017).

1 The Section 500 credits appear unusually large, reducing the Section 500 UFW by
2 nearly one-half. The credit is comprised of two Non-Revenue items that are based
3 on assumptions – “Unavoidable Leakage” and “Located & Repaired Breaks in
4 Mains & Services”.

5
6 **Q. DO YOU HAVE ANY CONCERNS WITH THE ASSUMPTIONS THE COMPANY
7 USED IN DETERMINING THE VOLUME OF “UNAVOIDABLE LEAKAGE”?**

8 A. Yes. The Company’s Section 500 forms show that Unavoidable Leakage was
9 calculated by using “gpd/mile of main” (gallon per day per mile of main) factor that
10 varies from 1,569 in 2015, 1,781 in 2016 and 1,675 in 2017.

11
12 **Q. ARE THERE ANY METHODS OF CALCULATING UNAVOIDABLE LEAKAGE
13 PUBLISHED BY THE AWWA?**

14 A. Yes. AWWA has published a method for calculating “Unavoidable Annual Real
15 Losses” based on the following factors: miles of water mains, number of service
16 connections, miles of private pipe (service connections), and average pressure in
17 the system. See Exhibit TLF-6.

18
19 **Q. SHOULD A SINGLE “GPD/MILE OF MAIN” FACTOR BE USED TO
20 DETERMINE UNAVOIDABLE LEAKAGE ON ALL OF THE COMPANY’S
21 SYSTEMS COMBINED?**

22 A. No. A “gpd/mile of main” factor should be determined for each of the Company’s
23 systems and used to calculate “Unavoidable Leakage” for each system.

24
25 **Q. DID THE COMPANY USE THE AWWA METHOD OF CALCULATING A
26 “GPD/MILE OF MAIN” FACTOR AND CALCULATE THE “UNAVOIDABLE
27 LEAKAGE” FOR EACH SYSTEM?**

28 A. I do not know if the Company used the AWWA Method and calculated the
29 “Unavoidable Leakage” for each system in developing its estimate for all systems
30 combined. This issue will be resolved in future rate cases if the Company provides
31 a separate Section 500 form for each system.

1 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING HOW THE**
2 **COMPANY ESTIMATES “UNAVOIDABLE LEAKAGE”?**

3 A. In future rate cases, I recommend that the Company prepare a separate Section
4 500 form for each system that it submits a Chapter 110 Report. This will show the
5 “Unavoidable Leakage Factor” for each system and how it is totaled for all the
6 systems.

7

8 **Q. DO YOU ALSO HAVE CONCERNS WITH THE ASSUMPTIONS THE COMPANY**
9 **USED IN DETERMINING THE VOLUMES OF “LOCATED & REPAIRED**
10 **BREAKS IN MAINS & SERVICES”?**

11 A. Yes. “Located & Repaired Breaks in Mains & Services” represents the estimated
12 volume of water lost during and repairing a break in water mains and services.
13 Shortly after the repair was completed, those involved in repairing the break should
14 have prepared a record of estimated volumes of water lost for each break. The
15 volume of water SWPA is claiming credit for is shown on the Section 500 forms (in
16 1,000 gallons). See Exhibit TLF-2 for the Company’s Section 500 submissions for
17 the Years 2015 through 2017. See Exhibit TLF-7 for the calculation of the average
18 amount of water per main break for the Years 2015 and 2016. It can be noted from
19 Exhibit TLF-7 that the average gallons per main break is approximately 1.4 million
20 gallons for the years 2015 and 2016². This is equivalent to a 1,000 gpm break
21 taking 23.3 hours to locate and shut-off isolation valves or 233 hours for shutting-
22 off a 100 gpm break. Going forward, the Company’s Section 500 submissions
23 should include records supporting its estimate of “Located and Repaired Breaks in
24 Mains and Services.” Submitting separate Section 500 forms for each of the
25 Company’s systems will also help in determining the reasonableness of the
26 Company’s estimated credit for “Located and Repaired Breaks in Mains and
27 Services”.

² Information for 2017 is not provided in the Company’s 2017 Long Term Infrastructure Improvement Plan.

1 **Q. HOW DO THE COMPANY’S CREDITS FOR “UNAVOIDABLE LEAKAGE” AND**
2 **“LOCATED & REPAIRED BREAKS IN MAINS & SERVICES” COMPARE WITH**
3 **SOME OTHER WATER COMPANIES?**

4 A. I compared the Company’s credits for UFW with those of Aqua Pennsylvania,
5 Pennsylvania-American and The York Water Co. for the Years 2015 through 2017.
6 See Exhibit TLF-8. As can be noted from Exhibit TLF-8, Aqua Pennsylvania does
7 not claim any credits and the credits claimed by the York Water Company are
8 much smaller than those claimed by SWPA.

9
10 **Q. DO YOU HAVE ANY RECOMMENDATIONS CONCERNING UFW?**

11 A. Because of the difficulty in determining the reasonableness of the estimates used
12 by SWPA to claim the credits used to reduce the Section 500 UFW and because
13 it was based on the totals of all SWPA systems, I recommend that, in future base
14 rate cases, the Company prepare a separate Section 500 form for each system for
15 which it submits a Chapter 110 Report. This will help to avoid many of the errors
16 on the Section 500 forms and the Chapter 110 Reports that I have just discussed.
17 As noted above, I also recommend the Company’s Section 500 submissions
18 include records supporting its estimate of “Located and Repaired Breaks in Mains
19 and Services.”

20
21 **Q. DO ANY COMPANIES PROVIDE SECTION 500 FORMS FOR EACH WATER**
22 **SYSTEM FOR WHICH THEY PREPARE A CHAPTER 110 REPORT?**

23 A. Yes. I recommend that the Company adopt language similar to what was
24 approved in Pennsylvania-American Water Company’s most recent settlement of
25 its 2017 Rate Case at Docket No. R-2017-2595853. The settlement language
26 stated: “In its next water base rate filing, the Company will include, and serve upon
27 BI&E, OCA, and OSBA, copies of Section 500 sheet of its Annual Report, in live
28 Excel format, for each water operational district for the three preceding reporting
29 years ending prior to the date of the Company’s filing.”

1 **ISOLATION VALVES**

2 **Q. WHAT ARE ISOLATION VALVES?**

3 A. Isolation valves are installed on water mains so that the water can be shut off in
4 sections of the distribution system in case of a water main break or for main repairs
5 and replacements. Isolation valves are also used to separate different pressure
6 zones.

7
8 **Q. WHY IS IT IMPORTANT TO EXERCISE ISOLATION VALVES?**

9 A. It is important to exercise isolation valves to prevent the valves from seizing-up
10 and getting stuck from corrosion or other deposits adjacent to the valve. An
11 isolation valve that cannot be fully closed will increase the water loss during a water
12 main break and increase the number of customers affected.

13
14 **Q. WHAT DOES IT MEAN TO EXERCISE ISOLATION VALVES?**

15 A. Exercising an isolation valve is operating the valve through complete full
16 open/close cycles until it operates with little resistance. This requires some effort
17 even for a well-maintained valve because the number of turns to fully open or close
18 an isolation valve can vary from 12 turns for a 3-inch valve to 38 turns for a 12-
19 inch valve.

20
21 **Q. HOW OFTEN SHOULD AN ISOLATION VALVE BE EXERCISED?**

22 A. According to The National Environmental Services Center at West Virginia
23 University, experts recommend exercising the valves annually, if possible, or at
24 least once every two years.³

25 According to AWWA, "Each valve should be operated through a full cycle and
26 returned to its normal position on a schedule that is designed to prevent a buildup
27 of tuberculation [rust formation in pipes as a result of corrosion] or other deposits
28 that could render the valve inoperable or prevent a tight shutoff. The interval of
29 time between operations of valves in critical locations or valves subjected to severe

³ Tech Brief, Valve Exercising, 2007, Vol. 7, Issue 2, The National Environmental Services Center of West Virginia University, Morgantown, WV.

1 operating conditions should be shorter than for other less important installations
2 but can be whatever time period is found to be satisfactory based on local
3 experience.”⁴

4
5 **Q. WHAT INFORMATION DO YOU HAVE REGARDING SWPA’S ISOLATION**
6 **VALVES?**

7 A. In response to OCA Set II-22, SWPA submitted Water Allocation Permit
8 Compliance Reports for its Bloomsburg, Harrisburg and Mechanicsburg systems.
9 See Exhibit TLF-9. These are three of the Company’s largest systems.

10 It can be noted from Exhibit TLF-9 that in 2015, the Company exercised:

11 55 of 966 isolation valves in the Bloomsburg System;
12 732 of 7154 isolation valves in the Harrisburg System; and
13 612 of 2456 isolation valves in the Mechanicsburg System.

14 In 2016, the Company exercised:

15 96 of 966 isolation valves in the Bloomsburg System;
16 552 of 7270 isolation valves in the Harrisburg System; and
17 642 of 2656 isolation valves in the Mechanicsburg System.

18 In 2017, the Company exercised⁵:

19 96 of 966 isolation valves in the Bloomsburg System; and
20 853 of 2656 isolation valves in the Mechanicsburg System.

21
22 **Q. HOW LONG WOULD IT TAKE TO EXERCISE ALL THE ISOLATION VALVES**
23 **AT THE RATES SHOWN ON EXHIBIT TLF-9?**

24 A. Assuming the Company is not repeating exercising the same valves, at current
25 rates, it would take approximately 11 years to exercise all the isolation valves in
26 the Bloomsburg and Harrisburg Systems and 3.75 years for the Mechanicsburg
27 System.

⁴ American Water Works Association. 1996. Manual of Water Supply Practices, Denver: AWWA.

⁵ The Harrisburg Water Allocation Report is due in August 2018, so the data was not available to be included.

1 **Q. DO YOU HAVE ANY OTHER COMMENTS ON THE INFORMATION SHOWN ON**
2 **EXHIBIT TLF-9?**

3 A. The Water Allocation Reports also include data on exercising fire hydrants. It can
4 be noted from Exhibit TLF-9 that not all fire hydrants are exercised annually for the
5 Harrisburg System while all the hydrants are exercised annually for Bloomsburg
6 and Mechanicsburg. It is not clear if the data refers to the fire hydrant isolation
7 valve or the fire hydrant. Isolation valves separating hydrants from the distribution
8 system should be exercised annually.

9
10 **Q. WHAT IS YOUR RECOMMENDATION CONCERNING SWPA'S**
11 **MAINTAINANCE OF ISOLATION VALVES?**

12 A. SWPA has a responsibility to properly maintain all of its water facilities, including
13 exercising isolation valves on a routine basis. Due to the small percentage of
14 isolation valves that SWPA has been exercising annually for Bloomsburg,
15 Harrisburg and Mechanicsburg, I recommend that the Company exercise all
16 isolation valves located on all of its systems by January 1, 2021. Upon completion
17 of this procedure, SWPA should be able to develop a reasonable schedule going-
18 forward for exercising its isolation valves.

19 While it is exercising all of its isolation valves, if there are isolation valves that are
20 found to be inoperable, they should be repaired. If they are not repaired as soon
21 as possible, then SWPA should submit a schedule to the OCA and the
22 Commission's Bureau of Technical Services for replacing or repairing those
23 isolation valves that could not be properly exercised.

24
25 **JULY 11, 2018 PUBLIC INPUT HEARING TESTIMONY**

26 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE TESTIMONY**
27 **RECEIVED AT THE JULY 11, 2018 PUBLIC INPUT HEARINGS?**

28 A. Yes. I have recommendations regarding Mr. Doug Hassenbein's and Mr. Kyle
29 Miller's testimony about quality of service issues.

1 **Q. WHAT ARE YOUR RECOMMENDATIONS REGARDING MR. HASSENBEIN'S**
2 **TESTIMONY?**

3 A. Mr. Hassenbein is from Lower Paxton Township and testified that he has received
4 discolored water over the past three years including approximately 19 times in
5 2018. His testimony included specific dates of these incidents. He also testified
6 that he contacted the Company approximately 80% of the time these incidents
7 occurred but the incidents continue. I recommend that the Company respond to
8 Mr. Hassenbein and take reasonable action to resolve his concerns.

9
10 **Q. DOUG HASSENBEIN ALSO TESTIFIED THAT IT WAS DIFFICULT TO FIND**
11 **NOTICES REGARDING SERVICE QUALITY ISSUES ON THE COMPANY'S**
12 **SOCIAL MEDIA. DO YOU HAVE ANY RECOMMENDATION BASED ON HIS**
13 **TESTIMONY?**

14 A. Yes. Mr. Hassenbein indicated that he is a consumer of SWPA water but not a
15 customer, because he pays for water service in his apartment rent. As a result,
16 other methods that the Company uses to inform its customers about localized
17 service quality issues may not reach Mr. Hassenbein (e.g., phone calls, door
18 hangers, direct mailings, etc.). Mr. Hassenbein testified that he looks for
19 information pertaining to service quality on the Company's website or Facebook
20 page and that it is sometimes difficult to find that information among the Company's
21 other, non-service quality related postings.

22 I recommend that SWPA should make it easier for consumers, including non-
23 customers, to find information pertaining to service quality (e.g., discolored water,
24 outages, boil water advisories, operations notices) on the Company's social media.

25
26 **Q. WHAT ISSUE DID MR. MILLER TESTIFY ABOUT AT THE PUBLIC INPUT**
27 **HEARING?**

28 A. Mr. Miller testified personally and as an authorized member of the Mechanicsburg
29 Borough Council about the restoration of roadways and sidewalks of the
30 Company's water main installation in Mechanicsburg. He testified that the

1 Company has not finished the restoration in a timely manner in those areas where
2 the main has been installed and the main installation has moved on to other areas.

3
4 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING MR. MILLER'S**
5 **TESTIMONY?**

6 A. Yes. The Company should respond to Mr. Miller and take reasonable action to
7 address his concerns.

8
9 **Q. ARE THERE ANY OTHER ISSUES TO WHICH THE COMPANY SHOULD**
10 **RESPOND?**

11 A. Yes, there were two other water quality issues discussed with the Company at the
12 inspection and meeting on July 13, 2018. First, discolored water complaints from
13 residents in the Cherrington Condo Community in Susquehanna Township.
14 Second, an informal complaint by a customer on Cardinal Drive in Swatara
15 Township, dated May 24, 2018, regarding hard water, chlorine smell, and low
16 pressure during the early morning and summertime. I recommend that the
17 Company respond to those customers' complaints and take reasonable action to
18 address their concerns.

19
20 **Q. DOES THIS COMPLETE YOUR WRITTEN DIRECT TESTIMONY?**

21 A. Yes, at this time. I reserve the right to supplement this testimony either in writing
22 or orally if additional relevant information is received.

23
24
25 254686

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PENNSYLVANIA PUBLIC
UTILITY COMMISSION**

v.

SUEZ WATER PENNSYLVANIA, INC.

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DOCKET NO. R-2018-3000834

**APPENDIX ACCOMPANYING THE
DIRECT TESTIMONY OF
TERRY L. FOUGHT**

**ON BEHALF OF THE
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE**

JULY 20, 2018

BACKGROUND AND QUALIFICATIONS

TERRY L. FOUGHT, P.E.

Education

Cleveland State University, Cleveland, Ohio, Bachelor of Civil Engineering, 1967

Professional Registrations

Professional Engineer, Pennsylvania, PE-023343-E, 1975

Professional Engineer, New Jersey, GE 25392, 1978 (Inactive)

Professional Engineer, Virginia, 10850, 1979 (Inactive)

Professional Land Surveyor, Pennsylvania, SU-000194-A, 1980 (Inactive)

Employment

From March 1983 to date, I have been a self-employed consulting engineer engaged in providing consulting engineering services to water and wastewater utilities, both private and municipal.

From May 1969 to March 1983, I was employed by E. H. Bourquard & Associates, Inc. as a project engineer to water and wastewater clients. At the time I left the firm I was a vice-president.

From 1962 to 1969, I was employed by the State of Ohio, Department of Highways and the Geauga County Ohio Sanitary Engineers Office as an engineer's assistant to assistant sanitary engineer with breaks in employment to attend college and 1½ years active duty military service.

Experience

I have prepared studies related to and designed water supply, treatment, transmission, distribution and storage facilities. I have provided services to the following private and municipal water suppliers: Amber Hill Mobile Home Park, Brockway Borough Municipal Authority, Dallas Water Company, Eastern Gas and Water Investment Company, Haddonfield Hills Development, Halifax Borough, Langhorne Spring Water Company, Mifflintown Municipal Authority, Neshaminy Water Resources Authority, Newberry Water Company, Pleasant View Mobil Home Park, H. B. Reese Candy Company, Shavertown Water Company, Smethport Water Company, Tunkhannock Water Company, and Watts Business Center.

I have prepared studies related to and designed wastewater collection and interceptor sewers, pumping stations and force mains, and treatment plants. I have provided services to the following private and municipal sewerage utilities: Brockway Glass Company, Central Dauphin School District, Clean Waste Technologies, Inc., Dauphin Borough, Dauphin Borough Municipal Authority, Halifax Area School District, Halifax Municipal Authority, Mercersburg Borough, Middle Paxton Township, Newberry Sewer Company, Newberry Township Municipal Authority, Park-a-

way Park Family Campground, Reading Township Municipal Authority, Reynoldsville Borough, Saint Thomas Township, and Watts Business Center.

I have prepared over 100 stormwater management and drainage plans for land development and subdivision plans in Cumberland, Dauphin, and York Counties. Most of these plans included the design of storm sewer collection systems.

List of Public Utility cases which I have testified or provided substantial assistance:

NEW JERSEY BUREAU OF PUBLIC UTILITIES

<u>Docket Number</u>	<u>Company Name</u>
7712-1140	City of Trenton
787-847	Hackensack Water Company
814-119	City of Trenton
8310-862	City of Trenton

PENNSYLVANIA PUBLIC UTILITY COMMISSION

<u>Docket Number</u>	<u>Company Name</u>
C-2010-2175673	Pennsylvania-American Water Company
C-2011-2259004	Endsley v PAWC
C-2012-2332951	Tschachler v UGI
C-2014-2447138	Hidden Valley Utility Services - Water
C-2014-2447169	Hidden Valley Utility Services - Wastewater
F-2011-2280415	Lynette Lugo Lopez v PGW
F-2012-2311590	Belinda Lyles v Aqua
F-2012-2330753	Scott v PGW
I-840377	Pennsylvania Gas and Water Company
I-00050109	PAWC High Fluoride Incident
I-00072313	WP Water & Sewer Co.
I-2009-2109324	Clean Treatment Sewer Company
P-2008-2075142	Pennsylvania-American Water Company
P-2014-2404341	Delaware Sewer Company
P-2017-2584953	Aqua Pennsylvania, Inc.
P-2017-2594725	Newtown Artesian Water Company
P-2017-2585707	Pennsylvania-American Water Company
P-2017-2589724	Suez Water Pennsylvania, Inc.
R-00850174	Philadelphia Suburban Water Company
R-00932785	Meadows Water Company
R-00963708 (Sewer)	Wynnewood Water & Sewer Corporation
R-00963709 (Water)	Wynnewood Water & Sewer Corporation
R-00984257	Consumers Pa. Water Company
R-00984334	National Utilities, Inc.
R-00984375	City of Bethlehem
R-00994672	Superior Water Company
R-00005031	Penn Estates Utilities, Inc.
R-00005050	Emporium Water Company
R-00005212 (Sewer)	Pennsylvania-American Water Company
R-00005997	Jackson Sewer Corporation
R-00027982 (Sewer)	Pennsylvania-American Water Company
R-00049862	City of Lancaster – Sewer Fund
R-00050607	Glendale Yearound Sewer Co.
R-00050659	Wonderview Water Co.
R-00050673	Pocono Water Co.
R-00050678	Mesco, Inc.
R-00050814	Marietta Gravity Water Co.
R-00051030	Aqua Pennsylvania, Inc.
R-00051167	City of Lancaster – Water Fund

PENNSYLVANIA PUBLIC UTILITY COMMISSION (Continued)

<u>Docket Number</u>	<u>Company Name</u>
R-00061297	Emporium Water Co.
R-00061492	Reynolds Disposal Co.
R-00061496	Columbia Water Co.
R-00061617	Allied Utilities Services
R-00061618	Imperial Point Water Co.
R-00061625	Phoenixville Sewer Fund
R-00061645	Eaton Water Co.
R-00062017	Borough of Ambler Water Department
R-00072074 (Sewer)	Aqua PA, Little Washington Division
R-00072075 (Sewer)	Aqua PA, Chesterdale/Williamstown Division
R-00072351	Village Water Company
R-00072491	Clarendon Water Company
R-00072492	City of Bethlehem, Bureau of Water
R-00072493 (Water)	Total Environmental Solutions, Inc., Treasure Lake
R-00072711	Aqua PA
R-2008-2020729	Blue Knob Water Company
R-2008-2020873	Warwick Drainage Company
R-2008-2020885	Warwick Water Works, Inc.
R-2008-2032689	PAWC Coatesville Wastewater Operations
R-2008-2039261	Superior Water Company
R-2008-2045157	Columbia Water Company
R-2008-2047291	Rock Spring Water Company
R-2008-2079310	AQUA, PA
R-2008-2081738	Little Washington Wastewater Company
R-09-2097323	Pennsylvania-American Water Company
R-2009-2102464	Reynoldsville Water Company
R-2009-2103937	PA Utility Company, Inc (Water)
R-2009-2103980	PA Utility Company, Inc (Sewer)
R-2009-2105601	Fryburg Water Company
R-2009-2110093	Birch Acres Water Company
R-2009-2115743	Lake Spangerberg Water Company
R-2009-2116908	Hanover Borough Water
R-2009-2117289	Utilities Inc, Westgate (Water)
R-2009-2117532	Penn Estates Utilities Inc (Water)
R-2009-2117750	Newtown Artesian Water Company
R-2009-2121928	Clean Treatment Sewage Company
R-2009-2122887	United Water Pennsylvania, Inc
R-2009-2132019	AQUA, PA
R-2010-2157062	Tri-Valley Water Supply Company, Inc
R-2010-2166208	Pennsylvania American Water Company (Wastewater)
R-2010-2171339	Reynolds Disposal Company
R-2010-2171918	TESI, Treasure Lake, Water Division
R-2010-2171924	TESI, Treasure Lake, Sewer Division
R-2010-2174643	City of Lock Haven
R-2010-2179103	City of Lancaster Water Department
R-2010-2191376	Superior Water Company
R-2010-2194499	Dear Haven Water Company
R-2010-2194577	Dear Haven Sewer Company
R-2010-2207833	Little Washington Waste Water, Masthope Division
R-2010-2207853	Little Washington Waste Water, SE Consolidated Division
R-2011-2218562	CMV Sewage Company, Inc.

PENNSYLVANIA PUBLIC UTILITY COMMISSION (Continued)

<u>Docket Number</u>	<u>Company Name</u>
R-2011-2232243	Pennsylvania-American Water Company
R-2011-2232985	United Water Company
R-2011-2244756	City of Bethlehem- Bureau of Water
R-2011-2246415	Twin Lakes Utilities, Inc.
R-2011-2248531	Wonderview Sanitary Facilities
R-2011-2248937	Fairview Sanitation Company
R-2011-2251181	Borough of Quakertown, Water
R-2011-2255159	Penn Estates Utility Inc - Water
R-2012-2286118	Audubon Water Company
R-2012-2330887	North Heidelberg Sewer Company
R-2012-2310366	City of Lancaster Sewer Fund
R-2012-2311725	Borough of Hanover - Sewer
R-2012-2315536	Imperial Point Water Company
R-2012-2336662	Rock Springs Water Company
R-2013-2350509	City of DuBois, Bureau of Water
R-2013-2355276	Pennsylvania-American Water Company
R-2013-2360798	Columbia Water Company
R-2013-2370455	Penn Estates Utilities, Inc. - Sewer Division
R-2013-2367108	Fryburg Water Company
R-2013-2367125	Cooperstown Water Company
R-2013-2390244	City of Bethlehem – Bureau of Water
R-2014-2400003	Borough of Ambler – Water Department
R-2014-2420204	Pocono Waterworks Company, Inc. (Water)
R-2014-2420211	Pocono Waterworks Company, Inc. (Sewer)
R-2014-2402324	Emporium Water Company
R-2014-2430945	Plumer Water Company
R-2014-2428304	Borough of Hanover Water Department
R-2014-2410003	City of Lancaster-Bureau of Water
R-2014-2427035	Venango Water Company
R-2014-2427189	B E Rhodes Sewer Company
R-2014-2447138	Hidden Valley Utilities Services - Water
R-2014-2447169	Hidden Valley Utilities Services – Sewer
R-2014-2452705	Delaware Sewer Company
R-2015-2462723	United Water Pennsylvania
R-2015-2470184	Borough of Schuylkill Haven Water Department
R-2015-2479962	Corner Water Supply
R-2015-2506337	Twin Lakes Utilities, Inc.
R-2016-2538600	Community Utilities of Pennsylvania, Inc.
R-2016-2554150	City of DuBois – Bureau of Water
R-2017-2595853	Pennsylvania-American Water Company
R-2017-2598203	Columbia Water Company

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC
UTILITY COMMISSION

v.

SUEZ WATER PENNSYLVANIA, INC.

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DOCKET NO. R-2018-3000834

EXHIBITS ACCOMPANYING THE
DIRECT TESTIMONY OF
TERRY L. FOUGHT

ON BEHALF OF THE
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

JULY 20, 2018

EXHIBIT TLF-1

Pennsylvania Public Utility Commission

v.

SUEZ Water Pennsylvania, Inc.

Docket No. R-2018-3000834

**Interrogatories of the
Office of Consumer Advocate
Set II**

OCA-II-17
(Hollenbach)
May 30, 2018

OCA-II-17 Excluding Formal Complaints filed with the Pennsylvania Public Utility Commission pursuant to 52 Pa. Code § 65.3, for each of the Company's water supply and distribution systems, please provide a list of all customer complaints received by the Company from January 1, 2015 to the present. Provide the list on a computer file in an Excel format (or a similar widely available format) that can be searched and sorted for key words such as "dirty water," "low pressure," "odor," "street," etc. The computer file should be provided electronically or on a compact disc and should contain the following information regarding each complaint: date, address, nature, and action taking by the Company.

Response:

Please refer to OCA-II-17 Attachment which lists the informal service complaints for the periods requested.

BCS #	Problem	Received	Decision	Action Taken
3317671	Service - leaks	1/27/2015	Verbal Close	Builder responsible for service line from curb box to home.
3343277	Service - no notification of construction	5/8/2015	Verbal Close	Company rapid alert called customer and line was busy.
3350652	Service - Dirty Water	5/29/2015	No Decision	Company doing an upgrade project that resulted in discolored water/interruptions. Water has since cleared.
3357256	Service - Leak	6/18/2015	Dismissed	BCS does not have jurisdiction over this complaint. Company posted for shut off until leak was fixed.
3374709	Service delay	8/14/2015	No Decision	Developer for project informed customer that the delay was a Developer issue - not Suez.
3378686	Service - leak/restoration	8/27/2015	Verbal Close	Company provided customer with their planned restoration time. Dismissed without decision.
3380327	Service - damage	9/2/2015	Verbal Close	Company insurance firm paid claim. Case settled.
3386109	Service - no notification of construction	9/22/2015	Dismissed	Company rapid alert called customer and voice message was left.
3395600	Service - denial of new service	10/22/2015	Verbal Close	Landlord set up account in their name instead of tenant. Tenant had two outstanding balances owed.
3398787	Service - Water Quality	11/3/2015	Verbal Close	Dupont Tank project caused some discoloration. Water was tested safe for consumption.
3406191	Service - Water Quality	12/14/2015	Verbal Close	Higher than normal levels of manganese causing issues. Additional treatment and flushing frequently to control the issue.
3423759	Service - Water Pressure	4/6/2016	Verbal Close	Pressure was within PUC guidelines. Customer installed a water pump.
3429876	Service - Meter Change	4/19/2016	Verbal Close	Company complied with regulations regarding termination of service.
3436291	Service - Meter Change	5/5/2016	Verbal Close	Customer needs to schedule new meter install. Dismissed.
3436627	Service - Meter Change	5/5/2016	Verbal Close	Dismissed.
3448508	Service - off for meter change	6/10/2016	still open	Company able to change meter after numerous attempts to contact customer. Water was posted and terminated causing customer to call
3448517	Service - off for meter change	6/10/2016	Decision Issued	Citation for improper notification to terminate service for meter change.
3464739	Service - no notification of main break	8/3/2016	Dismissed	Break occurred before business hours. Rapid Alert system employed for Boil Water Advisory.
3464809	Service - no notification of main break	8/3/2016	Verbal Close	Break occurred before business hours. Rapid Alert system employed for Boil Water Advisory.
3464801	Service - lines busy	8/3/2016	Verbal Close	Largest main break created high call volume with answering service causing busy signals.
3465333	Service - confusing notifications	8/4/2016	Verbal Close	Company issued a follow up rapid alert call to disregard the Boil Water Advisory on previous call.
3466946	Service - leak	8/10/2016	Verbal Close	Company identified customer side leak. Not fixed until company installed meter pit, which then showed leakage.
3476331	Service - Water Quality	9/13/2016	Verbal Close	Company tested water. Water Softener recommended for this customer.
3496111	Service - Leak	12/7/2016	Verbal Close	Company could not gain access to inspect leak. Customer fixed issue by tightening pipe.
3496737	Service - Leak	12/13/2016	Dismissed	Company determined customer side leak. Customer disagreed.
3500578	Service - Water Pressure	1/27/2017	no dec - duplicate	no decision. Duplicate
3500577	Service - Water Pressure	1/27/2017	Verbal Close	Tests showed that pressure was suitable for this area, and within acceptable range set by PUC.
3501497	Service - Leak	2/6/2017	Verbal Close	Leak was located on service line, not on/off valve. Customer's responsibility to repair.
3501919	Service - discolored water	2/9/2017	Verbal Close	Water Quality didn't find any evidence of a water quality issue. Reports supplied in response.
3501894	Service - testing	2/9/2017	Dismissed	SRBC permit renewal. Customer was notified of test.
3502211	Service - no notification of water disruption	2/14/2017	Verbal Close	Customer did not have a current phone number or email address on account at time of notification.
3504507	Service - Water Pressure	3/7/2017	Verbal Close	Low pressure isolated to kitchen. Company sent plumber to residence to correct the problem.
3512950	Service - Water Quality	4/11/2017	Verbal Close	Discolored water due to main break. Flushing credit applied. Water testing also provided.
3517086	Service - Water Pressure	4/21/2017	Decision Issued	PUC confirmed water pressure falls within acceptable range.
3520489	Service - Meter Change	4/29/2017	Dismissed	Company provided notification to terminate service for meter change. Water terminated and restored same day. Meter change scheduled.
3528611	Service - discolored water	5/22/2017	Dismissed	Discoloration may be caused by street sweeper. Customer reported that the issue has cleared.
3541414	Service - restoration	7/5/2017	Verbal Close	Company completed restoration to customer's satisfaction.
3556332	Service - leak	8/23/2017	Verbal Close	Water terminated due to leak. Leak located by plumber. Water off until leak is fixed. No further update if leak was fixed.
3557225	Service - Meter Pit damage	8/25/2017	formal complaint issued	Customer issue. Formal complaint filed. Company settled by fixing the issue.
3557336	Service - restoration	8/28/2017	formal complaint issued	Company provided customer with restoration plans and timeline. Formal complaint papers requested.
3558348	Service - Water Quality	8/30/2017	Verbal Close	Water samples taken and reported safe and within regulated levels. Issue appears to be within apartment complex.
3568996	Service - discolored water	10/10/2017	Verbal Close	Company posted flushing schedule on website.
3575711	Service - restoration	11/6/2017	no decision	Township responsible for restoration involving this side of street.
3589153	Service - high pressure	2/20/2018	Dismissal	company informed the public for the need of an expansion tank when new water main, pit, and backflow preventer were installed.

EXHIBIT TLF-2

Pennsylvania Public Utility Commission

v.

SUEZ Water Pennsylvania, Inc.

Docket No. R-2018-3000834

Interrogatories of the
Office of Consumer Advocate

Set II

OCA-II-23

(Hollenbach)

May 30, 2018

OCA-II-23 For each of the Company's water supply and distribution systems, please provide copies of Schedule 500 of the annual reports submitted to the PUC containing data for the calendar years 2015, 2016 and 2017.

Response: Please see the following pages.

Pennsylvania Public Utility Commission

v.

SUEZ Water Pennsylvania, Inc.

Docket No. R-2018-3000834

**Interrogatories of the
Office of Consumer Advocate**

Set II

SUEZ WATER PENNSYLVANIA, INC. For the Year Ended December 31, 2017
(Company Name)

500. WATER DELIVERED INTO SYSTEM DURING YEAR

Every estimated value shall be supported by such detailed information as will permit a stable identification, analysis, & verification of all relevant facts. The Company shall be prepared to furnish to the Commission this detailed information.

Line No.	Description (a)	(Gallons) (b)	(gpd) (c)
1	Water Delivered for Distribution & Sales:		
2	Water Obtained from Company Sources	6,107,803	16,734
3	Water Obtained from Other Independent Utilities	13,612	37
4	Total Water Delivered	6,121,415	16,771
5	Metered Sales:		
6	Residential	2,297,795	6,295
7	Commercial	1,410,293	3,864
8	Industrial	266,496	730
9	Public	275,756	755
10	Other Water Utilities		
11	Private Fire Protection		
12	Public Fire Protection		
13	Other Metered Sales <i>state</i> Hydrant / Fire Lane Sales	39,794	109
14	Total Metered Sales	4,290,134	11,754
15	Unmetered Sales:		
16	Residential		
17	Commercial		
18	Industrial		
19	Private Fire Protection		
20	Public Fire Protection		
21	Other Unmetered Sales <i>state</i>		
21	Total Unmetered Sales		
22	Total Sales	4,290,134	11,754
23	Non-Revenue Usage Allowances:		
24	Authorized Unmetered Usage:		
25	Main Flushing	15,998	44
26	Blow-off Use	14,413	39
27	Other <i>state</i> Fire Flow, Flushing, Relief Valves, Pumps	55,778	153
28	Unauthorized Use	61,297	168
29	Unavoidable Leakage 1.675 gpd/line of main	596,158	1,469
30	Adjustments	17,550	48
31	Located & Repaired Breaks in Mains & Services	230,125	630
32	Other <i>state</i>		
33	Total Allowances & Adjustments	913,969	2,504
34	Unaccounted-for-Water	917,312	
35	Percentage Unaccounted-for-Water	18.0%	

Pennsylvania Public Utility Commission

v.

SUEZ Water Pennsylvania, Inc.

Docket No. R-2018-3000834

**Interrogatories of the
Office of Consumer Advocate**

Set II

SUEZ WATER PENNSYLVANIA, INC.

For the Year Ended December 31, 2016

(Company Name)

500. WATER DELIVERED INTO SYSTEM DURING YEAR

Every estimated value shall be supported by such detailed information as will permit a ready identification, analysis & verification of all relevant facts. The Company shall be prepared to furnish to the Commission this detailed information

Lane No	Description (a)	(Gallons) (b)	(gpd) (c)
1	Water Delivered for Distribution & Sale:		
2	Water Obtained from Company Sources	6,416,495	17,579
3	Water Obtained from Other Independent Utilities	12,811	35
4	Total Water Delivered	6,429,306	17,615
5	Metered Sales:		
6	Residential	2,319,091	6,354
7	Commercial	1,455,206	3,987
8	Industrial	288,900	792
9	Public	277,508	760
10	Other Water Utilities	0	0
11	Private Fire Protection	0	0
12	Public Fire Protection	0	0
13	Other Metered Sales (includes Hydrant / Fire Line Sales)	114,000	312
14	Total Metered Sales	4,454,705	12,205
15	Unmetered Sales:		
16	Residential	0	0
17	Commercial	0	0
18	Industrial	0	0
19	Private Fire Protection	0	0
20	Public Fire Protection	0	0
21	Other Unmetered Sales (includes)	0	0
21	Total Unmetered Sales	0	0
22	Total Sales	4,454,705	12,205
23	Non-Revenue Usage Allowances:		
24	Authorized Unmetered Usage:		
25	Main Flushing	7,551	21
26	Blow-off Use	115,070	315
27	Others: (includes)	53,519	147
28	Unauthorized Use	64,323	176
29	Unavoidable Leakage (1.781 gpd/mile of main)	575,380	1,576
30	Adjustments:		
31	Located & Repaired Breaks in Mains & Services	237,057	649
32	Others: (includes)	0	0
33	Total Allowances & Adjustments	1,052,900	2,885
34	Unaccounted-for-Water	921,701	
35	Percentage Unaccounted-for-Water	14.3%	

Pennsylvania Public Utility Commission

v.

SUEZ Water Pennsylvania, Inc.

Docket No. R-2018-3000834

**Interrogatories of the
Office of Consumer Advocate
Set II**

SUEZ WATER PENNSYLVANIA, INC.

For the Year Ended December 31, 2015

(Company Name)

500. WATER DELIVERED INTO SYSTEM DURING YEAR

Every estimated value shall be supported by such detailed information as will permit a ready identification, analysis, & verification of all relevant facts. The Company shall be prepared to furnish to the Commission this detailed information.

Line No.	Description (a)	(Gallons) (b)	(gpd) (c)
1	Water Delivered for Distribution & Sale:		
2	Water Obtained from Company Sources	6,455,896	17,687
3	Water Obtained from Other Independent Utilities	18,304	50
4	Total Water Delivered	6,474,200	17,738
5	Metered Sales:		
6	Residential	2,322,859	6,364
7	Commercial	1,481,746	4,090
8	Industrial	275,647	755
9	Public	258,728	709
10	Other Water Utilities	0	0
11	Private Fire Protection	0	0
12	Public Fire Protection	0	0
13	Other Metered Sales <small>None</small>		0
14	Total Metered Sales	4,338,980	11,888
15	Unmetered Sales:		
16	Residential	0	0
17	Commercial		0
18	Industrial	0	0
19	Private Fire Protection	0	0
20	Public Fire Protection		0
21	Other Unmetered Sales <small>None</small>	0	0
21	Total Unmetered Sales	0	0
22	Total Sales	4,338,980	11,888
23	Non-Revenue Usage Allowances:		
24	Authorized Unmetered Usage:		
25	Main Flushing	8,558	23
26	Blow-off Use	5,684	16
27	Others: <small>None</small> Tank Drain, Dist. Instrument Use, Fires, etc	72,321	198
28	Unauthorized Use	64,768	177
29	Unavoidable Leakage 1.569 gpd/maile of main	601,149	1,647
30	Adjustments:		
31	Located & Repaired Breaks in Mains & Services	300,340	823
32	Others <small>None</small>	0	0
33	Total Allowances & Adjustments	1,052,820	2,884
34	Unaccounted-for-Water	1,082,400	
35	Percentage Unaccounted-for-Water	16.7%	

EXHIBIT TLF-3

Pennsylvania Public Utility Commission

v.

SUEZ Water Pennsylvania, Inc.

Docket No. R-2018-3000834

Interrogatories of the
Office of Consumer Advocate

Set II

OCA-II-22
(Hollenbach)

OCA-II-22 **For each of the Company's water supply and distribution systems, please provide copies of all annual reports, including the Chapter 110 Reports and Water Allocation Permit Compliance Reports, submitted to the PaDEP containing data for the calendar years 2015, 2016 and 2017.**

Response: The reports requested above are very voluminous and are included on a USB flash drive.

**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER
PLANNING AND CONSERVATION DIVISION**

**Primary Facility Report for SUEZ WATER PA HARRISBURG (19118)
REPORT FOR CALENDAR YEAR JAN 1 TO DEC 31, 2017**

Client: SUEZ WATER PENNSYLVANIA INC

PRIMARY FACILITY NAME AND MAILING ADDRESS

Name and Address: SUEZ WATER OF PA/HARRISBURG SYS
4405 N 6TH ST
HARRISBURG, PA 17110

Contact Information: CHAD BINGAMAN
PROD SUPT

Phone: 717-232-6207 Ext.1301

Fax: 717-232-4642

Facility e-mail: CHAD.BINGAMAN@SUEZ-NA.COM

PEAK DAY WATER USE FOR REPORT YEAR 2017

Date: 08/13/2017 (mm/dd/yyyy)

Gallons Per Day: 12,485,000

MINIMUM DAY WATER USE FOR REPORT YEAR 2017

Date: 05/27/2017 (mm/dd/yyyy)

Gallons Per Day: 8,157

POPULATION SERVED

Population Served: 106,000

AVERAGE DAILY WATER USE

Type	Metered Connections		Unmetered Connections	
	Number	Water Use (GPD)	Number	Water Use (GPD)
Domestic	32,059	3,715,523	0	0
Commercial	3,289	2,928,559	0	0
Industrial	20	320,819	0	0
Institutional	136	225,715	0	0
Bulk Sales to other PWS	0	0	0	0
Oil and Gas	0	0	0	0
Other	0	0	1	1,512,518
Water Losses				2,101,320
Total	35,504	7,190,616	1	3,613,838

Explain 'Other' Connections: Plant usage, Blow-offs, Street Sweeping, Flushing, Main Breaks

BREAKDOWN OF WATER LOSSES FOR THE SYSTEM

Type	Water Use (GPD)
Apparent Losses	No Information reported.
Real Losses	No Information reported.

PRESENT NUMBER OF CONNECTIONS SERVED

Municipality Name	Present Number of Connections						% Pop Served	Multiple Unit Connections	
	Dom	Comm	Ind	Inst	Oil Gas	Other		No. Conn	No. Units
EAST PENNSBORO TWP	3	2	0	0	0	1	0	0	0

**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER
PLANNING AND CONSERVATION DIVISION**

PRESENT NUMBER OF CONNECTIONS SERVED									
Municipality Name	Present Number of Connections						% Pop Served	Multiple Unit Connections	
	Dom	Comm	Ind	Inst	Oil Gas	Other		No. Conn	No. Units
(CUMBERLAND)									
DAUPHIN BORO (DAUPHIN)	292	26	0	3	0	0	88	1	4
DERRY TWP (DAUPHIN)	40	17	0	0	0	0	1	0	0
HIGHSPIRE BORO (DAUPHIN)	781	95	2	2	0	0	84.5	23	375
HUMMELSTOWN BORO (DAUPHIN)	1538	150	1	16	0	0	95	31	365
LOWER PAXTON TWP (DAUPHIN)	11510	1174	2	33	0	0	93	415	6640
LOWER SWATARA TWP (DAUPHIN)	2183	156	8	38	0	0	80	32	480
MIDDLE PAXTON TWP (DAUPHIN)	189	18	0	0	0	0	15	4	24
PAXTANG BORO (DAUPHIN)	593	58	0	2	0	0	100	2	30
PENBROOK BORO (DAUPHIN)	513	107	0	1	0	0	42	1	15
SOUTH HANOVER TWP (DAUPHIN)	167	5	0	0	0	0	8	2	16
SUSQUEHANNA TWP (DAUPHIN)	5375	525	0	11	0	0	59	123	1175
SWATARA TWP (DAUPHIN)	7693	888	7	29	0	0	100	162	2435
MARYSVILLE BORO (PERRY)	971	65	0	1	0	0	93	4	60
RYE TWP (PERRY)	211	3	0	0	0	0	25	0	0
TOTAL	32059	3289	20	136	0	1		800	11619

METERING, WATER CONSERVATION AND DISTRIBUTION SYSTEM

What is the average age of existing meters? 6 Years

Are you currently installing meters at new connections? YES

Are you currently installing meters at unmetered connections? YES

Is there an active meter replacement program for your water system? YES

How many meters did you replace during the report year? 1697

Did you provide water conservation information to your customers during the report year? YES

What is the type, size (inches), and length of new pipe installed as an extension to your present system during the report year?
4" DI 327ft, 6" DI 541ft, 8" DI 10,029ft, 12" DI 7,467ft

What is the frequency of flushing the distribution system during the past year? 1

Did you work your hydrants during the report year? YES

Did you work the valves in the system during the report year? YES

Does your system have an active leak detection program? YES

What type of equipment or methods do you use for leak detection?

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PLANNING AND CONSERVATION DIVISION**

Leak survey, sounding and metering

Does your system have a cross-connection control program? YES

Has the water pressure been inadequate in any part of the system? NO

If yes, explain

Service Area Boundary Map: The box contains the date of the latest submitted service area boundary map for your system. If this date is older than 5 years, blank, or there has been a change in the area since then, please use the online service area boundary mapping tool to review and submit a current map. (See Instructions) 03/19/2015

Describe major system changes such as purchases and transfers:

REPORT CONTACT INFORMATION

Report Preparer: CHAD BINGAMAN
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4405 N. SIXTH STREET
HARRISBURG, PA 17110
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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER
PLANNING AND CONSERVATION DIVISION

Subfacility Report for HARRISBURG INTL AIRPORT INTC (51736)
REPORT FOR CALENDAR YEAR JAN 1 TO DEC 31, 2017

Client: SUEZ WATER PENNSYLVANIA INC
Primary Facility: SUEZ WATER PA HARRISBURG

MEASURING/METERING OF WATER

Measure Method METERED
Last Date Tested 08/01/2010 (mm/dd/yyyy)
Tested By SARAA

INTERCONNECTIONS WITH OTHER WATER SUPPLIERS

Name of Interconnected Water Supplier
HARRISBURG INTL AIRPORT (19119)

PURCHASED FROM

<u>Month</u>	<u>Total Gallons</u>	<u>Month</u>	<u>Days</u>
Jan Gallons Purchased	0	Jan Days Use Purchased	0
Feb Gallons Purchased	0	Feb Days Use Purchased	0
Mar Gallons Purchased	0	Mar Days Use Purchased	0
Apr Gallons Purchased	0	Apr Days Use Purchased	0
May Gallons Purchased	0	May Days Use Purchased	0
Jun Gallons Purchased	0	Jun Days Use Purchased	0
Jul Gallons Purchased	0	Jul Days Use Purchased	0
Aug Gallons Purchased	0	Aug Days Use Purchased	0
Sep Gallons Purchased	0	Sep Days Use Purchased	0
Oct Gallons Purchased	0	Oct Days Use Purchased	0
Nov Gallons Purchased	0	Nov Days Use Purchased	0
Dec Gallons Purchased	0	Dec Days Use Purchased	0
Total Gallons Purchased	0	Total Days Use Purchased	0

Maximum Water Transfer Capability, GPD From: 1,000,000

Double Counted: N

If changed, Explain why:

REPORT SUBMISSION INFORMATION

Submitted By: Chad Bingaman
Submitted On: 03/26/2018
Submitted By Email: Chad.Bingaman@suez-na.com

**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER
PLANNING AND CONSERVATION DIVISION**

**Subfacility Report for STEELTON BORO AUTH INTC (47493)
REPORT FOR CALENDAR YEAR JAN 1 TO DEC 31, 2017**

Client: SUEZ WATER PENNSYLVANIA INC
Primary Facility: SUEZ WATER PA HARRISBURG

MEASURING/METERING OF WATER

Measure Method METERED
Last Date Tested 06/01/2004 (mm/dd/yyyy)
Tested By IN HOUSE

INTERCONNECTIONS WITH OTHER WATER SUPPLIERS

Name of Interconnected Water Supplier
STEELTON BORO AUTH (19110)

PURCHASED FROM

<u>Month</u>	<u>Total Gallons</u>	<u>Month</u>	<u>Days</u>
Jan Gallons Purchased	0	Jan Days Use Purchased	0
Feb Gallons Purchased	0	Feb Days Use Purchased	0
Mar Gallons Purchased	0	Mar Days Use Purchased	0
Apr Gallons Purchased	0	Apr Days Use Purchased	0
May Gallons Purchased	1,241,019	May Days Use Purchased	4
Jun Gallons Purchased	0	Jun Days Use Purchased	0
Jul Gallons Purchased	0	Jul Days Use Purchased	0
Aug Gallons Purchased	563,000	Aug Days Use Purchased	2
Sep Gallons Purchased	14,000	Sep Days Use Purchased	1
Oct Gallons Purchased	0	Oct Days Use Purchased	0
Nov Gallons Purchased	0	Nov Days Use Purchased	0
Dec Gallons Purchased	0	Dec Days Use Purchased	0
Total Gallons Purchased	1,818,019	Total Days Use Purchased	7

Maximum Water Transfer Capability, GPD From: 1,000,000

Double Counted: N

If changed, Explain why:

REPORT SUBMISSION INFORMATION

Submitted By: Chad Bingaman
Submitted On: 03/26/2018
Submitted By Email: Chad.Bingaman@suez-na.com

**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER
PLANNING AND CONSERVATION DIVISION**

**Subfacility Report for STONY CREEK (613)
REPORT FOR CALENDAR YEAR JAN 1 TO DEC 31, 2017**

Client: SUEZ WATER PENNSYLVANIA INC
Primary Facility: SUEZ WATER PA HARRISBURG

MEASURING/METERING OF WATER	
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Measure Method	METERED
Last Date Tested	06/01/2017 (mm/dd/yyyy)
Tested By	FACTORY

WITHDRAWALS OR USE FOR REPORTING YEAR 2017			
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<u>Month</u>	<u>Total Gallons</u>	<u>Month</u>	<u>Days</u>
Jan Gallons	3,926,000	Jan Days	6
Feb Gallons	1,761,000	Feb Days	3
Mar Gallons	1,992,000	Mar Days	3
Apr Gallons	0	Apr Days	0
May Gallons	0	May Days	0
Jun Gallons	0	Jun Days	0
Jul Gallons	11,237,000	Jul Days	8
Aug Gallons	41,551,000	Aug Days	22
Sep Gallons	1,564,000	Sep Days	3
Oct Gallons	0	Oct Days	0
Nov Gallons	0	Nov Days	0
Dec Gallons	5,018,000	Dec Days	5
Total Gallons	67,049,000	Total Days	50

FOR PUBLIC WATER SUPPLIERS	
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Double Counted:	N
If changed, Explain why:	

REPORT SUBMISSION INFORMATION	
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Submitted By:	Chad Bingaman
Submitted On:	03/26/2018
Submitted By Email:	Chad.Bingaman@suez-na.com

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER
PLANNING AND CONSERVATION DIVISION

Subfacility Report for SUSQUEHANNA RIVER (614)
REPORT FOR CALENDAR YEAR JAN 1 TO DEC 31, 2017

Client: SUEZ WATER PENNSYLVANIA INC
Primary Facility: SUEZ WATER PA HARRISBURG

MEASURING/METERING OF WATER	
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Measure Method	METERED
Last Date Tested	10/18/2016 (mm/dd/yyyy)
Tested By	CONTROL SYSTEMS 21

WITHDRAWALS OR USE FOR REPORTING YEAR 2017			
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<u>Month</u>	<u>Total Gallons</u>	<u>Month</u>	<u>Days</u>
Jan Gallons	236,495,000	Jan Days	31
Feb Gallons	216,303,000	Feb Days	28
Mar Gallons	227,676,000	Mar Days	31
Apr Gallons	226,683,000	Apr Days	30
May Gallons	237,355,000	May Days	31
Jun Gallons	242,931,000	Jun Days	30
Jul Gallons	235,558,000	Jul Days	31
Aug Gallons	200,689,000	Aug Days	31
Sep Gallons	242,416,000	Sep Days	30
Oct Gallons	257,776,000	Oct Days	31
Nov Gallons	243,503,000	Nov Days	30
Dec Gallons	245,207,000	Dec Days	31
Total Gallons	2,812,592,000	Total Days	365

FOR PUBLIC WATER SUPPLIERS	
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Double Counted:	N
If changed, Explain why:	

REPORT SUBMISSION INFORMATION	
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Submitted By:	Chad Bingaman
Submitted On:	03/26/2018
Submitted By Email:	Chad.Bingaman@suez-na.com

EXHIBIT TLF-4

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
TOTALS OF ALL SYSTEMS**

Average Daily Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Domestic	7,378,768	6,294,291	6,295,408
Commercial	3,080,191	4,030,990	3,847,585
Industrial	708,488	854,341	730,030
Institutional	441,380	771,870	753,090
Bulk Sales	784	464	7,767
Oil & Gas	0	0	0
Other*	<u>2,506,161</u>	<u>2,459,000</u>	<u>2,082,381</u>
Subtotal	14,115,772	14,410,956	13,716,261
UFW	<u>4,008,131</u>	<u>3,193,024</u>	<u>3,381,542</u>
Total	18,123,903	17,603,980	17,097,803
%UFW	22.12%	18.14%	19.78%

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
BLOOMSBURG (19071)**

Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Peak Day	3,136,000	2,787,000	3,191,000
Minimum Day	1,566,000	1,583,000	1,119,000
Average Daily Water Use			
Domestic	505,992	499,167	489,704
Commercial	380,397	367,104	378,953
Industrial	357,800	444,099	278,197
Institutional	37,014	204,978	228,926
Bulk Sales	0	0	0
Oil & Gas	0	0	0
Other*	<u>455,317</u>	<u>140,553</u>	<u>27,163</u>
Subtotal	1,736,520	1,655,901	1,402,943
UFW	<u>590,822</u>	<u>0</u>	<u>508,278</u>
Total	2,327,342	1,655,901	1,911,221
Unaccounted for Water %	25%	0%	27%
Number of Metered Customers	6170	5397	5405
Average Meter Age - years	12	8	5
Meters replaced	140	1143	179
Number time flushed	1	1	0
Sources			
Fishing Creek (590)	889,204,000	851,801,000	746,764,000
Total Annual Water from Sources gal/yr	889,204,000	851,801,000	746,764,000
Total Daily Water from Sources gpd	2,436,175	2,327,325	2,045,929
Peak Day	3,136,000	2,787,000	3,191,000
Average Daily Water Use gpd	2,327,342	1,655,901	1,911,221
Ratio	1.35	1.68	1.67

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
BROWN MANOR (19348)**

Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Peak Day		16,000	11,000
Minimum Day		2,000	4,000
Average Daily Water Use			
Domestic	3,570	3,250	3,534
Commercial	0	0	0
Industrial	0	0	0
Institutional	0	0	0
Bulk Sales	0	0	0
Oil & Gas	0	0	0
Other*	<u>1,036</u>	<u>589</u>	<u>354</u>
Subtotal	4,606	3,839	3,888
UFW	<u>1,595</u>	<u>995</u>	<u>1,435</u>
Total	6,201	4,834	5,323
Unaccounted for Water %	26%	21%	27%
Number of Metered Customers	27	27	28
Average Meter Age - years	5	6	7
Meters replaced	2	0	1
Number time flushed	0	0	0
Sources			
Well (8991)	2,263,000	1,769,000	1,943,000
Total Annual Water from Sources gal/yr	2,263,000	1,769,000	1,943,000
Total Daily Water from Sources gpd	6,200	4,833	5,323
Peak Day	0	16,000	16,000
Average Daily Water Use gpd	6,201	4,834	5,323
Ratio	0.00	3.31	3.01

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
CENTER SQUARE (19682)**

Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Peak Day	139,000	204,000	398,000
Minimum Day	66,000	72,000	22,000
Average Daily Water Use			
Domestic	80,607	77,635	78,463
Commercial	1,622	1,595	1,112
Industrial	0	0	0
Institutional	1,130	1,106	36
Bulk Sales	0	0	0
Oil & Gas	0	0	0
Other*	<u>2,008</u>	<u>5,063</u>	9,551
Subtotal	85,367	85,399	89,162
UFW	<u>13,643</u>	<u>26,041</u>	<u>20,325</u>
Total	99,010	111,440	109,487
Unaccounted for Water %	14%	23%	19%
Number of Metered Customers	633	633	635
Average Meter Age - years	10	10	10
Meters replaced	3	4	1
Number time flushed	2	2	2
Sources			
Grantham Intc (43917)	0	0	0
Well 1 (10037)	2,993,000	6,708,000	8,424,000
Well 2 (10038)	33,162,000	34,079,000	31,539,000
Total Annual Water from Sources gal/yr	36,155,000	40,787,000	39,963,000
Total Daily Water from Sources gpd	99,055	111,440	109,488
Peak Day	139,000	204,000	398,000
Average Daily Water Use gpd	99,010	111,440	109,487
Ratio	1.40	1.83	3.64

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
COLUMBIA CNTY (49478)**

Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Peak Day	109,000	980,000	127,000
Minimum Day	6,000	40,000	6,000
Average Daily Water Use			
Domestic	4,322	4,003	4,616
Commercial	2,277	4,044	1,537
Industrial	48,499	13,690	46,699
Institutional	0	0	0
Bulk Sales	0	0	0
Oil & Gas	0	0	0
Other*	<u>4227</u>	<u>6,156</u>	<u>3,863</u>
Subtotal	59,325	27,893	56,715
UFW	<u>1,684</u>	<u>0</u>	<u>1,808</u>
Total	61,009	27,893	58,523
Unaccounted for Water %	2.76%	0.00%	3.09%
Number of Metered Customers	55	49	59
Average Meter Age - years	5	8	7
Meters replaced	24	6	0
Number time flushed	1	1	0
Sources			
McGregor Well 1	9,404,400	7,879,930	8,441,080
McGregor Well 2	12,863,600	11,219,860	12,920,140
Total Annual Water from Sources gal/yr	22,268,000	19,099,790	21,361,220
Total Daily Water from Sources gpd	61,008	52,185	58,524
Peak Day	109,000	980,000	127,000
Average Daily Water Use gpd	61,009	27,893	58,523
Ratio	1.79	35.13	2.17

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
DALLAS (19328)**

	2015	2016	2017
Water Use	Gal/Day	Gal/Day	Gal/Day
Peak Day	598,000	597,000	640,000
Minimum Day	390,000	333,000	315,000
Average Daily Water Use			
Domestic	265,822	296,740	245,337
Commercial	62,107	67,050	45,529
Industrial	5,586	6,980	12,366
Institutional	18,178	18,178	17,340
Bulk Sales	0	0	0
Oil & Gas	0	0	0
Other*	<u>46,921</u>	<u>48,900</u>	<u>150,013</u>
Subtotal	398,614	437,848	470,585
UFW	<u>74,978</u>	<u>35,278</u>	<u>60,510</u>
Total	473,592	473,126	531,095
Unaccounted for Water %	16%	7%	11%
Number of Metered Customers			
Average Meter Age - years	10	11	11
Meters replaced	34	28	60
Number time flushed			
	2	2	2
Sales			
Ecumenical Enterprises Inc Intc 52226		437,000	50,000
Sisters of Mercy Intc 52148		332,000	361,000
Country Club Apts Intc		0	18,000
Shavertown Div Intc 40526		0	-
Total Sales gal/yr	0	769,000	429,000
Sales gpd	0	2,101	1,175
Sources			
Schooley Well D1 (8936)	58,018,000	58,919,000	58,234,000
Snyder Well 2 (8928)	17,420,000	19,430,000	21,241,000
Bunn Well D3 (8931)	14,204,000	13,729,000	17,670,000
Country Club Well D4 (8932)	15,109,000	11,233,000	11,620,000
Gephart Well (57171)	48,191,000	50,707,000	63,522,000
Haddonfield Well D6 (8934)	7,790,000	8,552,000	8,528,000
Aqua PA Midway Intc (66883)	11,843,000	10,424,000	13,035,000
Dallas Savertown Inc (15134)	286,000		
Shavertown Div Intc 40526	-	<u>170,000</u>	<u>0</u>
Total Annual Water from Sources gal/yr	172,861,000	172,994,000	193,850,000
Total Daily Water from Sources gpd	473,592	472,661	531,096
Peak Day			
Average Daily Water Treated gpd	473,592	473,126	531,095
Ratio	1.26	1.26	1.21

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
GRANTHAM (19106)**

Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Peak Day	390,000	504,000	594,000
Minimum Day	134,000	144,000	146,000
Average Daily Water Use			
Domestic	121,198	130,205	62,800
Commercial	2,008	2,927	40,079
Industrial	0	0	0
Institutional	36,654	54,972	82,572
Bulk Sales	0	0	0
Oil & Gas	0	0	0
Other*	<u>6,496</u>	<u>11,268</u>	<u>26,252</u>
Subtotal	166,356	199,372	211,703
UFW	<u>81,810</u>	<u>58,683</u>	<u>52,589</u>
Total	248,166	258,055	264,292
Unaccounted for Water %	33%	23%	20%
Number of Metered Customers	614	614	594
Average Meter Age - years	10	10	10
Meters replaced	7	16	15
Number time flushed	2	2	2
Sources			
Center Square Water Co Intc (40378)	0	0	0
Well 1 (8278)	55,132,000	53,575,000	46,465,000
Well 2 (37266)	35,301,000	40,873,000	50,002,000
Total Annual Water from Sources gal/yr	90,433,000	94,448,000	96,467,000
Total Daily Water from Sources gpd	247,762	258,055	264,293
Peak Day	390,000	504,000	594,000
Average Daily Water Use gpd	248,166	258,055	264,292
Ratio	1.57	1.95	2.25

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
HARRISBURG (19118)**

Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Peak Day	13,236,000	13,210,000	12,485,000
Minimum Day	9,627,000	9,888,000	8,157
Average Daily Water Use			
Domestic	4,884,959	3,753,678	3,715,523
Commercial	2,107,600	3,058,235	2,928,559
Industrial	201,679	293,486	320,819
Institutional	68,734	210,175	225,715
Bulk Sales	0	0	0
Oil & Gas	0	0	0
Other*	<u>1,654,885</u>	<u>1,804,210</u>	<u>1,512,518</u>
Subtotal	8,917,857	9,119,784	8,703,134
UFW	<u>2,376,271</u>	<u>2,287,079</u>	<u>2,101,320</u>
Total	11,294,128	11,406,863	10,804,454
Unaccounted for Water %	21%	20%	19%
* Plant Usae, Blowoffs, Street Sweeping, Flushing, Main Breaks			
Number of Metered Customers	34,777	35,187	35,504
Average Meter Age - years	11	7	6
Meters replaced	3,140	4,460	1,697
Number time flushed	1	1	1
Sales			
Harrisburg Intl Airport Intc (51736)	0	0	0
Sources			
Harrisburg Intl Airport Intc (51736)	0	0	0
PA Amer Water Co Riverton Sys Intc (19107)			
Steelton Boro Auth Intc (47493)	4,273,000	2,387,000	1,818,019
Stony Creek (613)	79,027,000	46,266,000	67,049,000
Susquehanna River (614)	2,791,523,000	2,880,438,000	2,812,592,000
Swatara Creek (616)	1,247,533,000	1,246,059,000	1,160,133,023
Harrisburg Muni Auth 2nd Intc (51808)	0	0	
Harrisburg Muni Auth Edgemont Intc (51810)	0	0	
Harrisburg Muni Auth Raw Intc (40386)	0	0	0
Total Annual Water from Sources gal/yr	4,122,356,000	4,175,150,000	4,041,592,042
Total Daily Water from Sources gpd	11,294,126	11,407,514	11,072,855
Peak Day	13,236,000	13,210,000	12,485,000
Average Daily Water Use gpd	11,294,128	11,406,863	10,804,454
Ratio	1.17	1.16	1.16

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
HARVEYS LAKE (19356)**

Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Peak Day	24,000	20,000	22,000
Minimum Day	6,000	8,000	7,000
Average Daily Water Use			
Domestic	7,293	6,546	6,359
Commercial	3,433	3,978	3,981
Industrial	0	0	0
Institutional	0	0	0
Bulk Sales	0	0	0
Oil & Gas	0	0	0
Other*	<u>986</u>	<u>740</u>	<u>750</u>
Subtotal	11,712	11,264	11,090
UFW	<u>63</u>	<u>26</u>	<u>156</u>
Total	11,775	11,290	11,246
Unaccounted for Water %	0.54%	0.23%	1.39%
Number of Metered Customers	93	92	93
Average Meter Age - years	10	11	12
Meters replaced	2	3	8
Number time flushed	1	0	1
Sources			
Well 1 Route 415 Hwy (42169)	3,224,000	3,370,000	3,422,000
Well 2 Carpenter Rd (9008)	1,074,000	762,000	683,000
Total Annual Water from Sources gal/yr	4,298,000	4,132,000	4,105,000
Total Daily Water from Sources gpd	11,775	11,290	11,247
Peak Day	24,000	20,000	22,000
Average Daily Water Use gpd	11,775	11,290	11,246
Ratio	2.04	1.77	1.96

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
MECHANICSBURG (19096)**

Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Peak Day	3,417,000	3,504,000	3,361,000
Minimum Day	1,153,000	1,973,000	1,268,000
Average Daily Water Use			
Domestic	1,105,681	1,124,478	1,279,814
Commercial	478,506	478,552	393,699
Industrial	88,261	88,288	66,375
Institutional	279,103	279,177	196,589
Bulk Sales	0	0	7,767
Oil & Gas	0	0	0
Other*	<u>220,175</u>	<u>314,975</u>	<u>237,893</u>
Subtotal	2,171,726	2,285,470	2,182,137
UFW	<u>714,235</u>	<u>635,800</u>	<u>485,518</u>
Total	2,885,961	2,921,270	2,667,655
Unaccounted for Water %	25%	22%	18%
Number of Metered Customers	12,114	12,364	11,936
Average Meter Age - years	10	10	10
Meters replaced	193	454	963
Number time flushed	2	2	2
Sales			
PA Amer Water Co Riverton Dist Intc (47495)	0	0	0
Sources			
N Mkt St Well (8260)	238,558,000	247,159,000	237,915,000
PA Amer Water Co Riverton Dist Intc (47495)	2,082,000	0	0
Trindle (8261)	0	0	0
Yellow Breeches Creek (595)	887,217,000	877,120,000	785,393,000
Total Annual Water from Sources gal/yr	1,127,857,000	1,124,279,000	1,023,308,000
Total Daily Water from Sources gpd	3,090,019	3,071,801	2,803,584
Peak Day	3,417,000	3,504,000	3,361,000
Average Daily Water Use gpd	2,885,961	2,921,270	2,667,655
Ratio	1.18	1.20	1.26

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
NEWBERRY (19663)**

	2015	2016	2017
Water Use	Gal/Day	Gal/Day	Gal/Day
Peak Day	655,000	683,000	614,000
Minimum Day	341,000	396,000	287,000
Average Daily Water Use			
Domestic	265,940	266,249	265,353
Commercial	28,795	32,290	36,268
Industrial	493	1,628	2,482
Institutional	545	3,279	1,907
Bulk Sales	0	0	0
Oil & Gas	0	0	0
Other*	<u>90,926</u>	<u>74,279</u>	<u>73,912</u>
Subtotal	386,699	377,725	379,922
UFW	<u>115,959</u>	<u>123,183</u>	<u>135,804</u>
Total	502,658	500,908	515,726
Unaccounted for Water %	23%	25%	26%
Number of Metered Customers			
Number of Metered Customers	2,138	2,281	2,317
Average Meter Age - years	4	12	12
Meters replaced	273	79	44
Number time flushed			
Number time flushed	0	1	0
Sources			
Conley Well 1 (9999)	37,292,000	29,535,000	31,312,000
Conley Well 2 (490120)	32,440,000	32,687,000	32,328,000
Copper Smith Well (10000)	24,112,000	26,123,000	26,782,000
DuPont Well (10003)	15,046,000	16,155,000	14,636,000
Eden Rd Well (10001)	3,932,000	6,951,000	6,470,000
Paddletown Well (63577)	31,636,000	35,048,000	37,831,000
Well 1 (11518)	10,726,000	8,537,000	9,181,000
Well 2 (43518)	10,220,000	8,171,000	9,410,000
Susquehanna Well 1 (11502)	8,855,000	10,754,000	10,663,000
Susquehanna Well 2 (43516)	9,210,000	9,371,000	9,175,000
Total Annual Water from Sources gal/yr	183,469,000	183,332,000	187,788,000
Total Daily Water from Sources gpd	502,655	500,907	514,488
Peak Day	655,000	683,000	614,000
Average Daily Water Use gpd	502,658	500,908	515,726
Ratio	1.30	1.36	1.19

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
NOXEN (19646)**

Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Peak Day	25,000	26,000	15,000
Minimum Day	9,000	8,000	8,000
Average Daily Water Use			
Domestic	9,200	9,101	8,871
Commercial	60	43	41
Industrial	0	0	0
Institutional	0	0	0
Bulk Sales	0	0	0
Oil & Gas	0	0	0
Other*	<u>3858</u>	<u>2268</u>	<u>422</u>
Subtotal	13,118	11,412	9,334
UFW	<u>104</u>	<u>102</u>	<u>1,014</u>
Total	13,222	11,514	10,348
Unaccounted for Water %	0.79%	0.89%	9.80%
Number of Metered Customers	95	96	98
Average Meter Age - years	10	11	12
Meters replaced	9	3	2
Number time flushed	0	0	1
Sources			
Dimmick Hill Well (9945)	4,826,000	4,214,000	3,777,000
Total Annual Water from Sources gal/yr	4,826,000	4,214,000	3,777,000
Total Daily Water from Sources gpd	13,222	11,514	10,348
Peak Day	25,000	26,000	15,000
Average Daily Water Use gpd	13,222	11,514	10,348
Ratio	1.89	2.26	1.45

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
NUREMBERG (19510)**

Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Peak Day	55,000	25,100	38,900
Minimum Day	6,000	11,500	16,300
Average Daily Water Use			
Domestic	12,970	12,499	12,534
Commercial	622	603	756
Industrial	0	0	0
Institutional	22	5	5
Bulk Sales	0	0	0
Oil & Gas	0	0	0
Other*	<u>3,208</u>	<u>33,880</u>	<u>197</u>
Subtotal	16,822	46,987	13,492
UFW	<u>2,025</u>	0	<u>8,661</u>
Total	18,847	46,987	22,153
Unaccounted for Water %	11%	0%	39%
Number of Metered Customers	145	143	145
Average Meter Age - years	14	15	17
Meters replaced	12	10	2
Number time flushed	0	1	0
Sources			
Well 1 (9659)	1,364,800	1,008,800	1,139,300
Well 3 (9661)	1,777,000	1,782,500	1,797,300
Well 4 (54518)	3,737,900	3,463,300	5,041,400
Total Annual Water from Sources gal/yr	6,879,700	6,254,600	7,978,000
Total Daily Water from Sources gpd	18,848	17,089	21,858
Peak Day	55,000	25,100	38,900
Average Daily Water Use gpd	18,847	46,987	22,153
Ratio	2.92	0.53	1.76

**SUEZ PA - DATA FROM CHAPTER 110 REPORTS
SHAVERTOWN (19346)**

Water Use	2015 Gal/Day	2016 Gal/Day	2017 Gal/Day
Peak Day	175,000	423,000	272,000
Minimum Day	53,000	56,000	105,000
Average Daily Water Use			
Domestic	111,214	110,740	122,500
Commercial	12,764	14,569	17,071
Industrial	6,170	6,170	3,092
Institutional	0	0	0
Bulk Sales	784	464	0
Oil & Gas	0	0	0
Other*	<u>16,118</u>	<u>16,119</u>	<u>39,493</u>
Subtotal	147,050	148,062	182,156
UFW	<u>34,942</u>	<u>25,837</u>	<u>4,124</u>
Total	181,992	173,899	186,280
Unaccounted for Water %	19.20%	14.86%	2.21%
Number of Metered Customers			
Number of Metered Customers	1058	1058	1058
Average Meter Age - years			
Average Meter Age - years	10	11	12
Meters replaced			
Meters replaced	32	16	59
Number time flushed			
Number time flushed	6	8	6
Sales			
Dallas Intc gal/yr	286,000	170,000	-
Total Sales gpd	784	464	-
Sources			
Salla Well S1 (8986)	37,140,000	40,401,000	42,187,000
Hassold Well S2 (8984)	29,277,000	23,246,000	25,805,000
United Water PA Dallas (52134)	0	0	0
Total Annual Water from Sources gal/yr	66,417,000	63,647,000	67,992,000
Total Daily Water from Sources gpd	181,964	173,899	186,279
Peak Day			
Peak Day	175,000	423,000	272,000
Average Daily Water Use gpd			
Average Daily Water Use gpd	181,992	173,899	186,280
Ratio	0.96	2.43	1.46

EXHIBIT TLF-5

**PENNSYLVANIA UTILITY COMMISSION v. SUEZ WATER PENNSYLVANIA
R-2018-3000834**

TOTALS OF ALL SUEZ WATER PENNSYLVANIA SYSTEMS

Water Use	2015			2016			2017		
	DEP Chapter 110 Gal/Day	PUC Section 500 1000 gal/yr Gal/Day	PUC Section 500 Gal/Day	DEP Chapter 110 Gal/Day	PUC Section 500 1000 gal/yr Gal/Day	PUC Section 500 Gal/Day	DEP Chapter 110 Gal/Day	PUC Section 500 1000 gal/yr Gal/Day	PUC Section 500 Gal/Day
Water Delivered for Distribution & Sale (Section 500)		6,474,200	17,737,534		6,429,306	17,566,410		6,121,415	16,771,000
Average Daily Water Use - Treated Water Only	17,737,534			17,566,410			16,771,000		
Domestic/Residential	7,378,768	2,322,859	6,363,997	6,294,291	2,319,091	6,336,314	6,295,408	2,297,795	6,295,329
Commercial	3,080,191	1,481,746	4,059,578	4,030,990	1,455,206	3,975,973	3,847,585	1,410,293	3,863,816
Industrial	708,488	275,647	755,197	854,341	288,900	789,344	730,030	266,496	730,126
Institutional/Public	441,380	258,728	708,844	771,870	277,508	758,219	753,090	275,756	755,496
Bulk Sales	784	0	0	464	0	0	7,767	0	0
Oil & Gas (Section 500 includes in Commercial)	0	0	0	0	0	0	0	0	0
Fire Protection	0	0	0	0	114,000	311,475	0	39,794	109,025
Other	0	0	0	0	0	0	0	0	0
Total Sales Chapter 110/Section 500	11,609,611	4,338,980	11,887,616	11,951,956	4,454,705	12,171,325	11,633,880	4,290,134	11,753,792
Main Flushing	23,447	8,558	23,447	20,631	7,551	20,631	43,830	15,998	43,830
Blow-off Use	15,573	5,684	15,573	314,399	115,070	314,399	39,488	14,413	39,488
Other	198,140	72,321	198,140	146,227	53,519	146,227	152,816	55,778	152,816
Unauthorized Use	<u>177,447</u>	<u>64,768</u>	<u>177,447</u>	<u>175,746</u>	<u>64,323</u>	<u>175,746</u>	<u>167,937</u>	<u>61,297</u>	<u>167,937</u>
Sub-Total (Sales+ Other)	12,024,216	4,490,311	12,302,222	12,608,959	4,695,168	12,828,328	12,037,951	4,437,620	12,157,863
UFW Before Credits	5,713,318	1,983,889	5,435,312	4,957,451	1,734,138	4,738,082	4,733,049	1,683,795	4,613,137
UFW Before Credits %	32.21%	30.64%	30.64%	28.22%	26.97%	26.97%	28.22%	27.51%	27.51%
Unavoidable Leakage		601,149	1,646,984		575,380	1,572,077		536,358	1,469,474
Located & Repaired Breaks in Mains & Services		300,340	822,849		237,057	647,697		230,125	630,479
UFW After Credits	<u>5,713,318</u>	<u>1,082,400</u>	<u>2,965,479</u>	<u>4,957,451</u>	<u>921,701</u>	<u>2,518,309</u>	<u>4,733,049</u>	<u>917,312</u>	<u>2,513,184</u>
Total Average Daily Water Use/Water Delivered	17,737,534	6,474,200	17,737,534	17,566,410	6,429,306	17,566,410	16,771,000	6,121,415	16,771,000
UFW After Credits %	32.21%	16.72%	16.72%	28.22%	14.34%	14.34%	28.22%	14.99%	14.99%

EXHIBIT TLF-6

IWA/AWWA Water Audit Method

What is a Water Audit?

An audit has been defined as an examination of records or financial accounts to check their accuracy. The *water audit* typically traces the flow of water from the site of water withdrawal or treatment, through the water distribution system, and into customer properties. The water audit usually exists in the form of a worksheet or spreadsheet that details the variety of consumption and losses that exist in a community water system.

The *water balance* summarizes the components and provides accountability, as all of the water placed into a distribution system should – in theory – equal all of the water taken out of the distribution system.

The IWA/AWWA Water Audit Method

AWWA participated in a five-country task force formed by the International Water Association (IWA) to develop a best practice water audit structure for drinking water utilities. The Task Force published its results in the 2000 IWA publication *Performance Indicators for Water Supply Services*.

AWWA's Water Loss Control Committee advocated use of the IWA/AWWA Water Audit Method in its 2003 Committee Report "Applying Worldwide Best Management Practices in Water Loss Control", published in the *Journal AWWA*.

How does the IWA/AWWA Water Audit Method work?

The IWA/AWWA Water Audit Method is effective because it features sound, consistent definitions for the major forms of water consumption and water loss encountered in drinking water utilities. It also features a set of rational performance indicators that evaluate utilities on system-specific attributes such as the average pressure in the distribution system and total length of water mains. The format of the water balance of this method is given in **Table 1** with definitions for the terms included in **Table 2**.

The performance indicators, shown in **Table 3**, allow water utilities to make a meaningful assessment of their water loss standing, benchmark themselves with other water utilities and set performance targets. The water audit tells us how much of each type of loss occurs and how much it is costing the water utility. The key concept around this method is that all water is quantified – via measurement or estimate – as either a form of beneficial consumption or as wasteful loss. A cost is placed on each volume component in order to assess its financial impact to the water utility.



Photo courtesy of Hughes Supply - Utilities Services Group.

Table 1. IWA/AWWA Water Balance (All data in volume for the period of reference, typically one year)

System Input Volume (corrected for known errors)	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption (including water exported)	Revenue Water
			Billed Unmetered Consumption	
		Unbilled Authorized Consumption	Unbilled Metered Consumption	Non-Revenue Water (NRW)
			Unbilled Unmetered Consumption	
	Water Losses	Apparent Losses	Unauthorized Consumption	
			Customer Metering Inaccuracies	
		Real Losses	Systematic Data Handling Errors	
			Leakage on Transmission and Distribution Mains	
	Leakage and Overflows at Utility's Storage Tanks			
	Leakage on Service Connections up to point of Customer metering			

Table 2. Components and Definitions of the IWA/AWWA Water Balance

Water Balance Component	Definition
System Input Volume	The annual volume input to the water supply system
Authorized Consumption	The annual volume of metered and/or unmetered water taken by registered customers, the water supplier and others who are authorized to do so
Water Losses	The difference between System Input Volume and Authorized Consumption, consisting of Apparent Losses plus Real Losses
Apparent Losses	Unauthorized Consumption, all types of metering inaccuracies and systematic data handling errors
Real Losses	The annual volumes lost through all types of leaks, breaks and overflows on mains, service reservoirs and service connections, up to the point of customer metering.
Revenue Water	Those components of System Input Volume which are billed and produce revenue
Non-Revenue Water (NRW)	The difference between System Input Volume and Billed Authorized Consumption

Table 3. Performance Indicators for Non-revenue Water and Water Losses

Performance Indicator	Function	Comments
Volume of Non-revenue water as a percentage of system input volume	Financial - Non-revenue water by volume	Can be calculated from a simple water balance; good only as a general financial indicator
Volume of Non-revenue water as a percentage of the annual cost of running the water system	Financial - Non-revenue water by cost	Allows different unit costs for Non-revenue water components
Volume of Apparent Losses per service connection per day	Operational - Apparent Losses	Basic but meaningful indicator once the volume of apparent losses has been calculated or estimated
Real Losses as a percentage of system input volume	Inefficiency of use of water resources	Unsuitable for assessing efficiency of management of distribution systems
Normalized Real Losses - Gallons/service connection/day when the system is pressurized	Operational: Real Losses	Good operational performance indicator for target-setting for real loss reduction
Unavoidable Annual Real Losses (UARL)	$\text{UARL (gallons/day)} = (5.41L_m + 0.15N_c + 7.5L_p) \times P$ <p>where</p> <p>L_m = length of water mains, miles</p> <p>N_c = number of service connections</p> <p>L_p = total length of private pipe, miles = $N_c \times$ average distance from curbstop to customer meter</p> <p>P = average pressure in the system, psi</p>	<p>A theoretical reference value representing the technical low limit of leakage that could be achieved if all of today's best technology could be successfully applied. A key variable in the calculation of the Infrastructure Leakage Index (ILI)</p> <p>It is not necessary that systems set this level as a target unless water is unusually expensive, scarce or both</p>
Infrastructure Leakage Index (ILI)	Operational: Real Losses	Ratio of Current Annual Real Losses (CARL) to Unavoidable Annual Real Losses (UARL); good for operational benchmarking for real loss control.

EXHIBIT TLF-7

**R-2018-3000834
CREDITS CLAIMED IN SECTION 500**

Unavoidable Leakage	2015	2016	2017
Total Credit in Gallons	601,149,000	575,380,000	536,358,000
Total Credit in Gallons/Day	1,646,984	1,572,077	1,469,474
gpd/mile of main	1,569	1,781	1,675
Calculated Miles of Mains	1,050	883	877

Located & Repaired Breaks in Mains & Services

Total Credit in Gallons	300,340,000	237,057,000
Number of Main Breaks ¹	209	169
Average Gallons per Break	1,437,033	1,402,704
Breaks/Mile ¹	0.237	0.192
Miles of Mains	882	880

¹ SWPA 2017 LTIP, pg. 24

EXHIBIT TLF-8

**PENNSYLVANIA UTILITY COMMISSION v. SUEZ WATER PENNSYLVANIA
R-2018-3000834**

Year	Suez Water Pennsylvania 1,000 Gal/Day			Aqua Pennsylvania 1,000 Gal/Day			Pennsylvania-American 1,000 Gal/Day			York Water Company 1,000 Gal/Day		
	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
Total Water Delivered	17,738	17,566	16,771	122,890	120,349	115,777	194,747	190,176	184,847	18,506	18,850	18,378
Total Metered & Unmetered Sales	<u>11,888</u>	<u>12,171</u>	<u>11,754</u>	<u>95,120</u>	<u>95,714</u>	<u>92,356</u>	<u>130,278</u>	<u>125,640</u>	<u>125,169</u>	<u>15,946</u>	<u>16,178</u>	<u>15,572</u>
UFW without Allowances & Adjustments	5,850	5,395	5,017	27,770	24,635	23,421	64,469	64,536	59,678	2,560	2,672	2,806
Allowances & Adjustments												
Main Flushing	23	21	44	0	0	0	586	1,483	573	196	222	100
Blow-off Use	16	314	39	0	0	0	390	461	542	31	10	108
Others:	198	146	153	0	0	0	1,953	1,525	2,592	134	121	106
Unauthorized Use	177	176	168	0	0	0	183	79	62	0	0	0
Unavoidable Leakage	1,647	1,572	1,469	0	0	0	17,268	17,293	18,345	0	0	0
Located & Repaired Breaks	823	<u>648</u>	<u>630</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>12,828</u>	<u>11,957</u>	<u>9,733</u>	<u>7</u>	<u>18</u>	<u>27</u>
Total Allowances & Adjustments	2,884	2,877	2,504	0	0	0	33,209	32,799	31,847	369	371	342
Unaccounted For Water	2,965	2,518	2,513	27,770	24,635	23,421	31,261	31,738	27,831	2,192	2,301	2,464
	Percent - %			Percent - %			Percent - %			Percent - %		
	2015	2016	2017	2015	2016	2017	2,015	2,016	2,017	2015	2016	2017
UFW without Allowances & Adjustments	32.98%	30.71%	29.92%	22.60%	20.47%	20.23%	33.10%	33.93%	32.29%	13.83%	14.17%	15.27%
UFW Reduction for Credits	<u>16.26%</u>	<u>16.38%</u>	<u>14.93%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>17.05%</u>	<u>17.25%</u>	<u>17.23%</u>	<u>1.99%</u>	<u>1.97%</u>	<u>1.86%</u>
UFW with Allowances & Adjustments	16.72%	14.34%	14.99%	22.60%	20.47%	20.23%	16.05%	16.69%	15.06%	11.84%	12.21%	13.41%

EXHIBIT TLF-9

Pennsylvania Public Utility Commission

v.

SUEZ Water Pennsylvania, Inc.

Docket No. R-2018-3000834

Interrogatories of the
Office of Consumer Advocate

Set II

OCA-II-22
(Hollenbach)

OCA-II-22 For each of the Company's water supply and distribution systems, please provide copies of all annual reports, including the Chapter 110 Reports and Water Allocation Permit Compliance Reports, submitted to the PaDEP containing data for the calendar years 2015, 2016 and 2017.

Response: The reports requested above are very voluminous and are included on a USB flash drive.

WATER ALLOCATION PERMIT COMPLIANCE REPORT

Permit No.: WA-19 -144C Report Year: 2015
 Permittee: Suez Water PA - Bloomsburg
 Address: 90 Irondale Road
Bloomsburg, PA

Have the Chapter 110 Primary and Subfacility Reports for the most recent calendar year been submitted by the due date? Yes No. A review of the Permit Compliance Report cannot be completed without the reports. Please submit the reports if you have not yet done so at www.depgreenport.state.pa.us.

Water Meter Management

1. Please complete the following table describing your source metering. All source meters should be tested annually. Each column must be completed including last Date Tested, even if the source, including interconnections, was not used during the report year. Public water suppliers purchasing water through an interconnection where the meter is owned and maintained by the selling public water supplier must contact the seller to obtain the information for all columns including last Date Tested.

Source(s)	Meter Size (Inches)	Meter Type	Metered Individually	Metered in Combination	Date Tested
Fishing Creek (590)	14	Ultrasoni	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1/27/2015
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

2. If you have not installed source meters, please explain why or submit your installation schedule.
 NA

3. Please calculate the metered ratio and daily per capita water use. Indicate if data used in calculations was taken from the current year Primary Facility Report, or quarterly meter records. If quarterly meter records are used, please indicate which quarter _____ and provide water use by type of connection. Sources include all Surface and Groundwater including Purchased Water.

A. Metered Ratio

1. Metered Ratio (MR) = Water Metered at Service Connections ÷ Total Water Withdrawn from All Sources x 100

$$(MR) = \frac{574,105,000}{889,204,000} \times 100 = 65 \%$$

2. If the MR is less than 80% please explain the reason why, if known. Unknown system leaks

Leakage/Loss Control

1. Please complete the following table describing your leakage and loss control program.

Frequency	Method/Equipment
<input type="checkbox"/> Irregular – Last date _____	<input type="checkbox"/> Leak Detection Consultant
<input checked="" type="checkbox"/> System-wide Survey Completed Every _____ Months	<input type="checkbox"/> Geophones
<input type="checkbox"/> _____ Years	<input checked="" type="checkbox"/> Aquascope
	<input checked="" type="checkbox"/> Correlator
	<input checked="" type="checkbox"/> Other: Note type of equipment used DMA's _____

2. A. Please complete the following table describing your leakage control efforts during the past year.

	Fire Hydrants	Main Valves	Service Valves	Miles of Mains
System Total	298	966	5595	81
No. Exercised	298	55	150	N/A
No. Tested for Leaks	298	55	150	81 Miles
No. of Leaks Detected	4	2	6	13
No. of Leaks Repaired	4	2	6	13

B. Does the metered ratio reported on page 1 reflect improved system efficiency resulting from leaks repaired?

Yes

No Please explain why.

Water Conservation

1. Please list specific efforts you made to provide water conservation information to your customers during the past year. (Enclose copies of literature.)

How to Prevent Frozen Pipes, Customer Communications Questions, A Guide To Water Conservation

2. Please identify schools served by your system and list specific efforts you made to provide water education materials and/or opportunities to the administrators, faculty or students. (Enclose copies of materials.)

Bloomsburg Elementary, Middle School & High Schools, WW Evans Elementary School, Saint Columba Catholic School, Central Columbia Elementary, Middle School & High Schools, Columbia – Montour Vo-Tech, Bloomsburg University



WATER ALLOCATION PERMIT COMPLIANCE REPORT

Permit No.: WA-22 -3031 Report Year: 2015
 Permittee: Suez Water Pennsylvania - Harrisburg Operation
 Address: 4211 East Park Circle
Harrisburg, PA 17111
 Period Ending December 2015

Have the Chapter 110 Primary and Subfacility Annual Water Supply Reports for the most recent calendar year been submitted by the due date? Yes No. A review of the Permit Compliance Report cannot be completed without the reports. Please submit the reports if you have not yet done so at www.depgreenport.state.pa.us.

Water Meter Management

1. Please complete the following table describing your source metering. All source meters should be tested annually. Each column must be completed including last Date Tested, even if the source, including interconnections, was not used during the report year. Public water suppliers purchasing water through an interconnection where the meter is owned and maintained by the selling public water supplier must contact the seller to obtain the information for all columns including last Date Tested.

Source(s)	Meter Size (Inches)	Meter Type	Metered Individually	Metered in Combination	Date Tested
Stoney Creek	0	Insertion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/31/2015
Susquehanna River	24	MAG	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9/2/2015
HIA Interconnect	8" & 12"	PROP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8/31/2015
Steeltown	4	TURBO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/31/2015
Swatara Creek	12	MAG	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9/1/2015

- SEE ADDITIONAL SOURCE ATTACHED

2. If you have not installed source meters, please explain why or submit your installation schedule.
N/A
3. Please calculate the metered ratio and daily per capita water use. Indicate if data used in calculations was taken from the Annual Water Supply Report, or quarterly meter records. If quarterly meter records are used, please indicate which quarter _____ and provide water use by type of connection. Sources include all Surface and Groundwater including Purchased Water.

A. Metered Ratio

1. Metered Ratio (MR) = Water Metered at Service Connections ÷ Total Water Withdrawn from All Sources x 100

$$(MR) = \frac{2650984780}{4122356000} \times 100 = 64 \%$$

2. If the MR is less than 80% please explain the reason why, if known. Water lost through main breaks and hydrant and watermain flushing is accounted for under unmetered connections. Even though volume of water is calculated based on volume of water lost through SCADA and historic hydrant flow data based on pressure and nozzle diameter, the water is considered unmetered. Un-accounted for water (UFW) makes up the remainder of the difference.

Leakage/Loss Control

1. Please complete the following table describing your leakage and loss control program.

Frequency		Method/Equipment	
<input type="checkbox"/>	Irregular – Last date _____	<input type="checkbox"/>	Leak Detection Consultant
<input checked="" type="checkbox"/>	System-wide Survey Completed Every _____ Months	<input type="checkbox"/>	Geophones
	1 _____ Years	<input type="checkbox"/>	Aquascope
		<input checked="" type="checkbox"/>	Correlator
		<input type="checkbox"/>	Other: Note type of equipment used _____
			<u>DMA's, Accoustical Microphones</u>

2. A. Please complete the following table describing your leakage control efforts during the past year.

	Fire Hydrants	Main Valves	Service Valves	Miles of Mains
System Total	2266	7154	35511	512
No. Exercised	679	732	10400	N/A
No. Tested for Leaks	679	732	10400	512 Miles
No. of Leaks Detected	4	5	142	120
No. of Leaks Repaired	4	5	142	120

B. Does the metered ratio reported on page 1 reflect improved system efficiency resulting from leaks repaired?
 Yes
 No Please explain why.

Water Conservation

- Please list specific efforts you made to provide water conservation information to your customers during the past year. (Enclose copies of literature.)
 Periodic updates relating to conservation were posted on the company's website and two seasonal bill inserts were included with all residential water bills. See attachments. We also continued to share the benefits of conservation with the members of the company's Harrisburg Operation Region Customer Advisory Council during 2015.
- Please identify schools served by your system and list specific efforts you made to provide water education materials and/or opportunities to the administrators, faculty or students. (Enclose copies of materials.)



WATER ALLOCATION PERMIT COMPLIANCE REPORT

Permit No.: WA-21 -183D Report Year: 2015
 Permittee: Suez Water PA Mechanicsburg
 Address: 4211 East Park Circle
Harrisburg, PA 17111-2806

Have the Chapter 110 Primary and Subfacility Reports for the most recent calendar year been submitted by the due date? X Yes No. A review of the Permit Compliance Report cannot be completed without the reports. Please submit the reports if you have not yet done so at www.depgreenport.state.pa.us.

Water Meter Management

1. Please complete the following table describing your source metering. All source meters should be tested annually. Each column must be completed including last Date Tested, even if the source, including interconnections, was not used during the report year. Public water suppliers purchasing water through an interconnection where the meter is owned and maintained by the selling public water supplier must contact the seller to obtain the information for all columns including last Date Tested.

Source(s)	Meter Size (Inches)	Meter Type Sensus	Metered Individually	Metered in Combination	Date Tested
Yellow Breeches Creek	16	Propellor	x	<input type="checkbox"/>	06/11/2015
		Endress			
		Hauser	x	<input type="checkbox"/>	10/28/2015
North Market Street Well	4	Promag			
PA American Riverton	0	na	<input type="checkbox"/>	<input type="checkbox"/>	
Trindle Spring	0	na	<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	

2. If you have not installed source meters, please explain why or submit your installation schedule.

3. Please calculate the metered ratio and daily per capita water use. Indicate if data used in calculations was taken from the x current year Primary Facility Report, or quarterly meter records. If quarterly meter records are used, please indicate which quarter _____ and provide water use by type of connection. Sources include all Surface and Groundwater including Purchased Water.

A. Metered Ratio

1. Metered Ratio (MR) = Water Metered at Service Connections ÷ Total Water Withdrawn from All Sources x 100

(MR) = 712,316,000 ÷ 1,125,775,000 x 100 = 63.3 %

Leakage/Loss Control

1. Please complete the following table describing your leakage and loss control program.

Frequency		Method/Equipment	
<input type="checkbox"/>	Irregular – Last date _____	<input type="checkbox"/>	Leak Detection Consultant
x	System-wide Survey Completed Every	x	Geophones
	6 _____ Months	<input type="checkbox"/>	Aquascope
	_____ Years	x	Correlator
		x	Other: Note type of equipment used <u>STS, Metrotech 2000</u>

2. A. Please complete the following table describing your leakage control efforts during the past year.

	Fire Hydrants	Main Valves	Service Valves	Miles of Mains
System Total	640	2456	12114	152
No. Exercised	640	612	275	N/A
No. Tested for Leaks	640	612	275	90 Miles
No. of Leaks Detected	8	6	101	34
No. of Leaks Repaired	8	6	101	34

B. Does the metered ratio reported on page 1 reflect improved system efficiency resulting from leaks repaired?

- Yes x
 No Please explain why.

Water Conservation

1. Please list specific efforts you made to provide water conservation information to your customers during the past year. (Enclose copies of literature.)

2. Please identify schools served by your system and list specific efforts you made to provide water education materials and/or opportunities to the administrators, faculty or students. (Enclose copies of materials.)

- South Filbert Elementary
- Broad Street Elementary
- Northside Elementary
- Upper Allen Elementary
- Shepherdstown Elementary
- East Elmwood Intermediate
- Mechanicsburg High School
- Mechanicsburg Middle School
- St Joseph Catholic School



WATER ALLOCATION PERMIT COMPLIANCE REPORT

Permit No.: WA-19-144C Report Year: 2016
 Permittee: Suez Water PA - Bloomsburg
 Address: 90 Irondale Road
Bloomsburg, PA 17815

Have the Chapter 110 Primary and Subfacility Reports for the most recent calendar year been submitted by the due date? Yes No. A review of the Permit Compliance Report cannot be completed without the reports. Please submit the reports if you have not yet done so at www.depgreenport.state.pa.us.

Water Meter Management

1. Please complete the following table describing your source metering. All source meters should be tested annually. Each column must be completed including last Date Tested, even if the source, including interconnections, was not used during the report year. Public water suppliers purchasing water through an interconnection where the meter is owned and maintained by the selling public water supplier must contact the seller to obtain the information for all columns including last Date Tested.

Source(s)	Meter Size (Inches)	Meter Type	Metered Individually	Metered in Combination	Date Tested
Fishing Creek (590)	12	Mag	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9/6/16
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

2. If you have not installed source meters, please explain why or submit your installation schedule.
 NA

3. Please calculate the metered ratio and daily per capita water use. Indicate if data used in calculations was taken from the current year Primary Facility Report, or quarterly meter records. If quarterly meter records are used, please indicate which quarter _____ and provide water use by type of connection. Sources include all Surface and Groundwater including Purchased Water.

A. Metered Ratio

1. Metered Ratio (MR) = Water Metered at Service Connections ÷ Total Water Withdrawn from All Sources x 100

$$(MR) = \frac{536,929,000}{807,317,000} \times 100 = 67\%$$

2. If the MR is less than 80% please explain the reason why, if known. **Unknown system leaks.**

Leakage/Loss Control

1. Please complete the following table describing your leakage and loss control program.

Frequency		Method/Equipment	
<input type="checkbox"/>	Irregular – Last date _____	<input type="checkbox"/>	Leak Detection Consultant
<input checked="" type="checkbox"/>	System-wide Survey Completed Every _____ Months 1 _____ Years	<input type="checkbox"/>	Geophones
		<input checked="" type="checkbox"/>	Aquascope
		<input checked="" type="checkbox"/>	Correlator
		<input checked="" type="checkbox"/>	Other: Note type of equipment used DMA's _____

2. A. Please complete the following table describing your leakage control efforts during the past year.

	Fire Hydrants	Main Valves	Service Valves	Miles of Mains
System Total	298	966	5658	81.5
No. Exercised	298	96	1142	N/A
No. Tested for Leaks	298	96	1142	81.5 Miles
No. of Leaks Detected	2	4	6	7
No. of Leaks Repaired	2	4	6	7

B. Does the metered ratio reported on page 1 reflect improved system efficiency resulting from leaks repaired?

Yes
 No Please explain why.

Water Conservation

1. Please list specific efforts you made to provide water conservation information to your customers during the past year. (Enclose copies of literature.)

Via billing stuffers, Suez Water Pennsylvania encourages all customers to utilize our online resources for water education at <http://www.mysuezwater.com/pennsylvania/support-center/faq>

2. Please identify schools served by your system and list specific efforts you made to provide water education materials and/or opportunities to the administrators, faculty or students. (Enclose copies of materials.)

Bloomsburg Elementary, Middle School & High Schools, WW Evans Elementary School, Saint Columba Catholic School, Central Columbia Elementary, Middle School & High Schools, Columbia – Montour Vo-Tech School, and Bloomsburg University. Suez Water offers tailored educational programs about water filtration, resource protection and environmental sustainability to public and private schools throughout our eight county service area.



WATER ALLOCATION PERMIT COMPLIANCE REPORT

Permit No.: WA-22 -303I Report Year: 2016
 Permittee: Suez Water Pennsylvania - Harrisburg Operation
 Address: 4211 East Park Circle
Harrisburg, PA 17111

Have the Chapter 110 Primary and Subfacility Reports for the most recent calendar year been submitted by the due date? Yes No. A review of the Permit Compliance Report cannot be completed without the reports. Please submit the reports if you have not yet done so at www.depgreenport.state.pa.us.

Water Meter Management

1. Please complete the following table describing your source metering. All source meters should be tested annually. Each column must be completed including last Date Tested, even if the source, including interconnections, was not used during the report year. Public water suppliers purchasing water through an interconnection where the meter is owned and maintained by the selling public water supplier must contact the seller to obtain the information for all columns including last Date Tested.

Source(s)	Meter Size (Inches)	Meter Type	Metered Individually	Metered in Combination	Date Tested
Stoney Creek	24	MAG	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6/26/2017
Susquehanna River	24	MAG	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10/18/2016
HIA Interconnect	8" & 12"	PROP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8/31/2015
Steellon	4	Turbo	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/31/2015
Swatara Creek	12	Mag	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10/31/2016

SEE ATTACHED FOR ADDITIONAL METER

2. If you have not installed source meters, please explain why or submit your installation schedule.
 N/A

3. Please calculate the metered ratio and daily per capita water use. Indicate if data used in calculations was taken from the current year Primary Facility Report, or quarterly meter records. If quarterly meter records are used, please indicate which quarter _____ and provide water use by type of connection. Sources include all Surface and Groundwater including Purchased Water.

A. Metered Ratio

1. Metered Ratio (MR) = Water Metered at Service Connections + Total Water Withdrawn from All Sources x 100

$$(MR) = \frac{7315574}{4175150000} \times 100 = 63. \text{ \%}$$

2. If the MR is less than 80% please explain the reason why, if known. Water lost through main breaks and hydrant and watermain flushing is accounted for under unmetered connections. Even though volume of water is calculated based on volume of water lost through SCADA and historic hydrant flow data based on pressure and nozzle diameter, the water is considered unmetered. Un-accounted for water (UFW) makes up the remainder of the difference.

Leakage/Loss Control

1. Please complete the following table describing your leakage and loss control program.

Frequency		Method/Equipment	
<input type="checkbox"/>	Irregular – Last date _____	<input type="checkbox"/>	Leak Detection Consultant
<input checked="" type="checkbox"/>	System-wide Survey Completed Every _____ Months	<input type="checkbox"/>	Geophones
	1 _____ Years	<input type="checkbox"/>	Aquascope
		<input checked="" type="checkbox"/>	Correlator
		<input type="checkbox"/>	Other: Note type of equipment used <u>DMA, Accoustical microphones</u>

2. A. Please complete the following table describing your leakage control efforts during the past year.

	Fire Hydrants	Main Valves	Service Valves	Miles of Mains
System Total	2280	7270	35685	515
No. Exercised	261	552	9564	N/A
No. Tested for Leaks	261	552	9564	515 Miles
No. of Leaks Detected	4	2	139	101
No. of Leaks Repaired	4	2	139	101

B. Does the metered ratio reported on page 1 reflect improved system efficiency resulting from leaks repaired?

- Yes
- No Please explain why.

Water Conservation

1. Please list specific efforts you made to provide water conservation information to your customers during the past year. (Enclose copies of literature.)

•We included an annual bill insert with all water bills in June titled "Use Water Wisely." The brochure includes water conservation information that features tips on how customers can become more water efficient, both inside and outside.

•This insert was distributed at several public events where the company had a display. The largest events follow:

a.SUEZ "Trout Day" community event held at SUEZ Rabold Water Treatment Plant, which attracted over 100 people, including non-SUEZ customers.

b.Earth Day Festival in Downtown Mechanicsburg. The crowd estimate for this event was over 1,500.

2. Please identify schools served by your system and list specific efforts you made to provide water education materials and/or opportunities to the administrators, faculty or students. (Enclose copies of materials.)



WATER ALLOCATION PERMIT COMPLIANCE REPORT

Permit No.: WA-21 -183D 2016
 Permittee: Suez Water PA Mechanicsburg
 Address: 4211 East Park Circle
Harrisburg, PA 17111-2806

Have the Chapter 110 Primary and Subfacility Reports for the most recent calendar year been submitted by the due date? Yes No. A review of the Permit Compliance Report cannot be completed without the reports. Please submit the reports if you have not yet done so at www.depgreenport.state.pa.us.

Water Meter Management

1. Please complete the following table describing your source metering. All source meters should be tested annually. Each column must be completed including last Date Tested, even if the source, including interconnections, was not used during the report year. Public water suppliers purchasing water through an interconnection where the meter is owned and maintained by the selling public water supplier must contact the seller to obtain the information for all columns including last Date Tested.

Source(s)	Meter Size (Inches)	Meter Type Endress-	Metered Individually	Metered in Combination	Date Tested
<u>Yellow Breeches Creek</u>	<u>16</u>	<u>Hauser ProMag</u>	<u>X</u>	<input type="checkbox"/>	<u>1/11/2016</u>
<u>North Market Street Well</u>	<u>4</u>	<u>Hauser ProMag</u>	<u>X</u>	<input type="checkbox"/>	<u>10/7/2016</u>
<u>PA American Riverton</u>	<u>0</u>	<u>na</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u> </u>
<u>Trindle Spring</u>	<u>0</u>	<u>na</u>	<input type="checkbox"/>	<input type="checkbox"/>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<input type="checkbox"/>	<input type="checkbox"/>	<u> </u>

2. If you have not installed source meters, please explain why or submit your installation schedule.
3. Please calculate the metered ratio and daily per capita water use. Indicate if data used in calculations was taken from the current year Primary Facility Report, or quarterly meter records. If quarterly meter records are used, please indicate which quarter and provide water use by type of connection. Sources include all Surface and Groundwater including Purchased Water.

A. Metered Ratio

1. Metered Ratio (MR) = Water Metered at Service Connections ÷ Total Water Withdrawn from All Sources x 100

(MR) = 721,201,000 ÷ 1124,279,000 x 100 = 64.1 %

Leakage/Loss Control

1. Please complete the following table describing your leakage and loss control program.

Frequency	Method/Equipment
<input type="checkbox"/> Irregular – Last date _____	<input type="checkbox"/> Leak Detection Consultant
<input checked="" type="checkbox"/> System-wide Survey Completed Every 6 _____ Months _____ Years	<input checked="" type="checkbox"/> Geophones <input type="checkbox"/> Aquascope <input checked="" type="checkbox"/> Correlator <input checked="" type="checkbox"/> Other: Note type of equipment used <u>STS, Metrotech 2000, Sewerin Loggers</u>

2. A. Please complete the following table describing your leakage control efforts during the past year.

	Fire Hydrants	Main Valves	Service Valves	Miles of Mains
System Total	637	2656	12364	155
No. Exercised	637	642	525	N/A
No. Tested for Leaks	637	642	575	125 miles
No. of Leaks Detected	12	29	123	101
No. of Leaks Repaired	12	29	123	101

B. Does the metered ratio reported on page 1 reflect improved system efficiency resulting from leaks repaired?

- Yes
 No Please explain why.

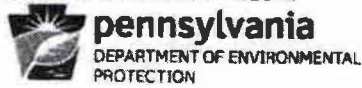
Water Conservation

1. Please list specific efforts you made to provide water conservation information to your customers during the past year. (Enclose copies of literature.)

A pamphlet titled "Use Water Wisely, a guide to water conservation" was mailed to customers.

2. Please identify schools served by your system and list specific efforts you made to provide water education materials and/or opportunities to the administrators, faculty or students. (Enclose copies of materials.)

- South Filbert Elementary
- Broad Street Elementary
- Northside Elementary
- Upper Allen Elementary
- Shepherdstown Elementary
- East Elmwood Intermediate
- Mechanicsburg High School
- Mechanicsburg Middle School
- St Joseph Catholic School



WATER ALLOCATION PERMIT COMPLIANCE REPORT

Permit No.: WA-19-144C Report Year: 2017
 Permittee: Suez Water PA - Bloomsburg
 Address: 90 Irondale Road
Bloomsburg, PA 17815

Have the Chapter 110 Primary and Subfacility Reports for the most recent calendar year been submitted by the due date? Yes No. A review of the Permit Compliance Report cannot be completed without the reports. Please submit the reports if you have not yet done so at www.depgreenport.state.pa.us.

Water Meter Management

1. Please complete the following table describing your source metering. All source meters should be tested annually. Each column must be completed including last Date Tested, even if the source, including interconnections, was not used during the report year. Public water suppliers purchasing water through an interconnection where the meter is owned and maintained by the selling public water supplier must contact the seller to obtain the information for all columns including last Date Tested.

Source(s)	Meter Size (Inches)	Meter Type	Metered Individually	Metered in Combination	Date Tested
Fishing Creek (590)	16	Mag	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10/25/17
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

2. If you have not installed source meters, please explain why or submit your installation schedule.
 NA

3. Please calculate the metered ratio and daily per capita water use. Indicate if data used in calculations was taken from the current year Primary Facility Report, or quarterly meter records. If quarterly meter records are used, please indicate which quarter _____ and provide water use by type of connection. Sources include all Surface and Groundwater including Purchased Water.

A. Metered Ratio

1. Metered Ratio (MR) = Water Metered at Service Connections ÷ Total Water Withdrawn from All Sources x 100

$$(MR) = \frac{509,033,745}{746,764,000} \times 100 = 68\%$$

2. If the MR is less than 80% please explain the reason why, if known. **Unknown system leaks.**

Leakage/Loss Control

1. Please complete the following table describing your leakage and loss control program.

Frequency		Method/Equipment	
<input type="checkbox"/>	Irregular – Last date _____	<input type="checkbox"/>	Leak Detection Consultant
<input checked="" type="checkbox"/>	System-wide Survey Completed Every _____ Months 1 _____ Years	<input type="checkbox"/>	Geophones
		<input checked="" type="checkbox"/>	Aquascope
		<input checked="" type="checkbox"/>	Correlator
		<input checked="" type="checkbox"/>	Other: Note type of equipment used DMA's _____

2. A. Please complete the following table describing your leakage control efforts during the past year.

	Fire Hydrants	Main Valves	Service Valves	Miles of Mains
System Total	298	966	5658	81.5
No. Exercised	298	96	1142	N/A
No. Tested for Leaks	298	96	1142	81.5 Miles
No. of Leaks Detected	2	0	5	15
No. of Leaks Repaired	2	0	5	15

B. Does the metered ratio reported on page 1 reflect improved system efficiency resulting from leaks repaired?
 Yes
 No Please explain why.

Water Conservation

1. Please list specific efforts you made to provide water conservation information to your customers during the past year. (Enclose copies of literature.)

Via billing stuffers, Suez Water Pennsylvania encourages all customers to utilize our online resources for water education at <http://www.mysuezwater.com/pennsylvania/support-center/faq>

2. Please identify schools served by your system and list specific efforts you made to provide water education materials and/or opportunities to the administrators, faculty or students. (Enclose copies of materials.)

Bloomsburg Elementary, Middle School & High Schools, WW Evans Elementary School, Saint Columba Catholic School, Central Columbia Elementary, Middle School & High Schools, Columbia – Montour Vo-Tech School, and Bloomsburg University. Suez Water offers tailored educational programs about water filtration, resource protection and environmental sustainability to public and private schools throughout our eight county service area.



WATER ALLOCATION PERMIT COMPLIANCE REPORT

Permit No.: WA-21 -183D Report Year: 2017
 Permittee: Suez Water Pennsylvania Mechanicsburg
 Address: 4211 east Park Circle
Harrisburg, PA 17111-2806

Have the Chapter 110 Primary and Subfacility Reports for the most recent calendar year been submitted by the due date? Yes No. A review of the Permit Compliance Report cannot be completed without the reports. Please submit the reports if you have not yet done so at www.depgreenport.state.pa.us .

Water Meter Management

1. Please complete the following table describing your source metering. All source meters should be tested annually. Each column must be completed including last Date Tested, even if the source, including interconnections, was not used during the report year. Public water suppliers purchasing water through an interconnection where the meter is owned and maintained by the selling public water supplier must contact the seller to obtain the information for all columns including last Date Tested.

Source(s)	Meter Size (Inches)	Meter Type Endress-	Metered Individually	Metered in Combination	Date Tested
Yellow Breeches Creek	16	Hauser ProMag	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1/11/2016
North Market Street Well	4	Endress Hauser ProMag	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10/7/2016
PA American Riverton	0	na	<input type="checkbox"/>	<input type="checkbox"/>	
Trindle Spring	0	na	<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	

2. If you have not installed source meters, please explain why or submit your installation schedule.

3. Please calculate the metered ratio and daily per capita water use. Indicate if data used in calculations was taken from the current year Primary Facility Report, or quarterly meter records. If quarterly meter records are used, please indicate which quarter _____ and provide water use by type of connection. Sources include all Surface and Groundwater including Purchased Water.

A. Metered Ratio

1. Metered Ratio (MR) = Water Metered at Service Connections ÷ Total Water Withdrawn from All Sources x 100

$$(MR) = \frac{706,814,000}{1023,308,000} \times 100 = 69.1\%$$

Leakage/Loss Control

1. Please complete the following table describing your leakage and loss control program.

Frequency	Method/Equipment
<input type="checkbox"/> Irregular – Last date _____	<input type="checkbox"/> Leak Detection Consultant
<input type="checkbox"/> System-wide Survey Completed Every	<input checked="" type="checkbox"/> Geophones
6 _____ Months	<input type="checkbox"/> Aquascope
_____ Years	<input checked="" type="checkbox"/> Correlator
	<input checked="" type="checkbox"/> Other: Note type of equipment used <u>STS, Metrotech 2000, Sewerin Loggers</u>

2. A. Please complete the following table describing your leakage control efforts during the past year.

	Fire Hydrants	Main Valves	Service Valves	Miles of Mains
System Total	637	2656	12364	155
No. Exercised	637	853	423	N/A
No. Tested for Leaks	637	853	423	130 Miles
No. of Leaks Detected	6	5	83	112
No. of Leaks Repaired	6	5	83	112

B. Does the metered ratio reported on page 1 reflect improved system efficiency resulting from leaks repaired?
 Yes
 No Please explain why.

Water Conservation

1. Please list specific efforts you made to provide water conservation information to your customers during the past year. (Enclose copies of literature.)

A pamphlet titled "Use Water Wisely, a guide to water conservation" was mailed to customers.

2. Please identify schools served by your system and list specific efforts you made to provide water education materials and/or opportunities to the administrators, faculty or students. (Enclose copies of materials.)

- South Filbert Elementary
- Broad Street Elementary
- Northside Elementary
- Upper Allen Elementary
- Shepherdstown Elementray
- East Elmwood Intermediate
- Mechanicsburg High School
- Mechanicsburg Middle School
- St. Joseph Catholic School

