PAPUC

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION
COMMONWEALTH KEYSTONE BUILDING
400 NORTH STREET, HARRISBURG, PA 17120

BUREAU OF
INVESTIGATION
&
ENFORCEMENT

December 16, 2021

<u>*Via Electronic Filing*</u>
Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

    Re: Pennsylvania Public Utility Commission v.
           The Borough of Hanover – Hanover Municipal Waterworks
           Docket No.: R-2021-3026116
           I&E Pre-Served Testimony, Exhibits, and Verification Statements

Dear Secretary Chiavetta:

        Enclosed for electronic filing please find the **Pre-Served Testimony, Exhibits, and Verification Statements** of the Bureau of Investigation & Enforcement's (I&E) witnesses. The following documents were admitted into the record pursuant to Administrative Law Judge Brady's Interim Order Granting Joint Stipulation for Admission of Evidence entered on December 15, 2021:

Zachari Walker:	I&E Statement No. 1
	I&E Exhibit No. 1
	I&E Statement No. 1-SR
	I&E Exhibit No. 1-SR
	Verification Statement
Christopher Keller:	I&E Statement No. 2
	I&E Exhibit No. 2
	I&E Statement No. 2-SR
	Verification Statement
Esyan Sakaya:	I&E Statement No. 3
	I&E Exhibit No. 3
	Verification Statement

Copies of this letter are being served on parties of record per the attached Certificate of Service. Should you have any questions, please do not hesitate to contact me.

Sincerely,

Erika L. McLain
Prosecutor
Bureau of Investigation and Enforcement
PA Attorney ID No. 320526
(717) 783-6170
ermclain@pa.gov

ELM/ac
Enclosures

cc: Administrative Law Judge F. Joseph Brady (*Cover Letter & Certificate of Service only – via email)*
    Per Certificate of Service (*Cover Letter & Certificate of Service only – via email*)

Pennsylvania Public Utility Commission	:	
	:	
v.	:	Docket No.: R-2021-3026116
	:	
The Borough of Hanover –	:	
Hanover Municipal Waterworks	:	

CERTIFICATE OF SERVICE

I hereby certify that I am serving the foregoing **Letter Regarding Pre-Served Testimony, Exhibits, and Verification Statements** dated December 16, 2021, in the manner and upon the persons listed below:

Served via Electronic Mail Only

Administrative Law Judge F. Joseph Brady
Office of Administrative Law Judge
Pennsylvania Public Utility Commission
801 Market Street, Suite 4063
Philadelphia, PA 19107

Thomas T. Niesen, Esq.
Thomas Niesen & Thomas, LLC
212 Locust Street, Suite 302
Harrisburg, PA 17101
tniesen@tntlawfirm.com
Counsel for the Borough of Hanover

Charis Mincavage, Esq.
Kenneth R. Stark, Esq.
McNees Wallace & Nuric,
100 Pine Street
P.O. Box 1166
Harrisburg, PA 17108
cmincavage@mcneeslaw.com
kstark@mcneeslaw.com

Steven C. Gray, Esq.
Office of Small Business Advocate
555 Walnut Street
1st Floor, Forum Place
Harrisburg, PA 17101-1923
sgray@pa.gov

Laura J. Antinucci, Esq.
Erin L. Gannon, Esq.
Office of Consumer Advocate
555 Walnut Street
5th Floor, Forum Place
Harrisburg, PA 17101-1923
lantinucci@paoca.org
egannon@paoca.org

Stacy L. Sherwood
Jerry Mierzwa
Exeter Associates, Inc.
10480 Little Patuxent Parkway, Suite 300
Columbia, MD 21044-3575
sherwood@exeterassociates.com
jmierzwa@exeterassociates.com
Witnesses for OCA

David Garrett
Resolve Utility Consulting, PLLC
101 Park Avenue, Suite 1125
Oklahoma City, OK 73102
dgarrett@resolveuc.com
Witness for OCA

Terry L. Fought
780 Cardinal Drive
Harrisburg, PA 17111
foughtbusiness@gmail.com
Witness for OCA

_____
Erika L. McLain
Prosecutor
Bureau of Investigation and Enforcement
PA Attorney ID No. 320526

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

BOROUGH OF HANOVER
HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Direct Testimony

of

Zachari Walker

Bureau of Investigation and Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES

CASH WORKING CAPITAL

TABLE OF CONTENTS

INTRODUCTION

1   **INTRODUCTION**

2   **Q.**   **PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3   A.   My name is Zachari Walker, and my business address is Pennsylvania Public Utility

4   Commission, 400 North Street, Harrisburg, PA 17120.

5

6   **Q.**   **BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

7   A.   I am employed by the Pennsylvania Public Utility Commission (Commission or PUC)

8   in the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial

9   Analyst.

10

11   **Q.**   **WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT BACKGROUND?**

12   A.   My education and employment background is attached as Appendix A.

13

14   **Q.**   **PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

15   A.   I&E is responsible for representing the public interest in rate and other proceedings

16   before the Commission. I&E's analysis in this proceeding is based on its

17   responsibility to represent the public interest. This responsibility requires balancing

18   the interests of ratepayers, the regulated utility, and the regulated community as a

19   whole.

20

21   **Q.**   **WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

22   A.   The purpose of my direct testimony is to review the base rate filing of the Borough of

23   Hanover – Hanover Municipal Water Works (Hanover or Borough) and recommend

1		adjustments to Hanover's proposed operating and maintenance (O&M) expenses and
2		cash working capital claims for the fully projected future test year (FPFTY) ending
3		December 31, 2022. It should be noted that the following recommended adjustments
4		are for customers outside the Borough limits and expenses allocated to these
5		customers only.
6		
7	**Q.**	**DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**
8	A.	Yes. I&E Exhibit No. 1 contains schedules that support my direct testimony.
9		
10	**Q.**	**PLEASE SUMMARIZE THE BOROUGH'S REQUESTED REVENUE**
11		**INCREASE.**
12	A.	Hanover's base rate case was filed on June 29, 2021,[1] with a requested increase of
13		$1,563,100 to claimed present rate revenues of $5,659,214 resulting in a FPFTY total
14		overall revenue requirement of $7,222,314 for jurisdictional customers.[2]
15		
16	**Q.**	**HOW HAVE YOU ESTABLISHED YOUR RECOMMENDED**
17		**ALLOWANCES FOR PUC JURISDICTIONAL CUSTOMERS?**
18	A.	I established my recommended allowances for O&M expenses in accordance with the
19		allocation factors in Hanover's current cost of service allocation study (COSS).[3] The
20		allocation factors provide the breakdown for specific expenses between inside- and

---

[1]   Hanover filing, p. 1.
[2]   Hanover Exhibit GRH-1, Schedule 1, p. 1.
[3]   Hanover Exhibit CEH-1, Schedules D and E.

1   outside-borough customers. The allocation factor references are specified in column

2   2 following the corresponding expense account in column 1 of the COSS.

3

4   **Q.   PLEASE SUMMARIZE YOUR ADJUSTMENTS.**

5   A.   The following table summarizes my recommended adjustments:

	Borough Claim	**I&E Recommended Allowance**	**I&E Adjustment**
O&M Expenses:			
Rate Case Expense	$141,033	$108,026	($33,007)
Sewer Bill	$222,022	$146,925	($75,097)
Total O&M Adjustments			**($108,104)**
Rate Base:			
Cash Working Capital	$436,001	$409,091	($26,910)
Total Rate Base Adjustments			**($26,910)**

6

7

8   **I&E OVERALL RECOMMENDED REVENUE REQUIREMENT**

9   **Q.   WHAT IS I&E'S TOTAL RECOMMENDED REVENUE REQUIREMENT?**

10   A.   I&E's total recommended revenue requirement for Hanover is $6,467,054. This

11   recommended revenue requirement represents an increase of $807,840 to Hanover's

12   present rate revenues of $5,659,214. This total recommended allowance incorporates

13   my adjustments made in this testimony to O&M expenses, taxes, and rate base, and

14   those recommended adjustments made in the testimony of I&E witness Christopher

15   Keller (I&E Statement No. 2).

1   A calculation of the I&E total recommended revenue requirement is shown

2   below:

Borough of Hanover			TABLE I			
R-2021-3026116			INCOME	SUMMARY		
	12/31/22		INVESTIGATION & ENFORCEMENT			
	Proforma		[---]			
	Present Rates	Adjustments	Present Rates	Allowances	Proposed
	$	$	$	$	$
Operating Revenue	5,659,214	0	5,659,214	807,840	6,467,054
Deductions:					
O&M Expenses	3,464,160	-108,104	3,356,056	0	3,356,056
Depreciation	1,386,991	0	1,386,991		1,386,991
Taxes, Other	111,071	0	111,071	0	111,071
Income Taxes:					
Current State	0	0	0	0	0
Current Federal	0	0	0	0	0
Deferred Taxes	0	0	0		0
ITC	0	0	0		0
Total Deductions	4,962,222	-108,104	4,854,118	0	4,854,118
Income Available	696,992	108,104	805,096	807,840	1,612,936
Rate Base	36,029,944	-26,910	36,003,034	0	36,003,034
Rate of Return	1.93%		2.24%		4.48%

3

4

5   **RATE CASE EXPENSE**

6   **Q.   DESCRIBE THE NATURE AND TYPES OF EXPENDITURES TYPICALLY**

7   **ALLOWED AS PART OF A REGULATED UTILITY'S OVERALL RATE**

8   **CASE EXPENSE.**

9   A.   The nature and types of individual expenditures that comprise a utility's allowable

10   claim for rate case expense are those directly incurred to compile, present, and defend

11   a utility's request for a rate base increase before the Commission. The actual

12   expenditures and estimated costs typically found in an allowable rate case expense

4

1		claim include legal fees for outside counsel, fees to outside consultants, and the cost
2		of printing, document assembly, and postage.
3		
4	**Q.**	**HOW HAS THE COMMISSION TRADITIONALLY TREATED RATE CASE**
5		**EXPENSE FOR RATEMAKING PURPOSES?**
6	A.	The Commission has historically stated that it considers prudently incurred rate case
7		expense as an ongoing expense, occurring at irregular intervals, related to the
8		rendering of utility service. Thus, it is necessary to normalize rate case expense for
9		ratemaking purposes. The Commission has also cited the importance of considering
10		the involved utility's history regarding the frequency of rate case filings as an
11		essential element in determining the normalized level of rate case expense for
12		ratemaking purposes.
13		
14	**Q.**	**HOW IS THE FREQUENCY OF RATE CASE FILINGS DETERMINED?**
15	A.	The frequency is determine by calculating the average number of months between the
16		filing dates of a utility's previous base rate cases.
17		
18	**Q.**	**WHAT IS HANOVER'S CLAIM FOR RATE CASE EXPENSE IN THIS**
19		**PROCEEDING?**
20	A.	Hanover's total claimed rate case expense is $423,100, which it normalized over three
21		years resulting in an annual claim of $141,033 ($423,100 ÷ 3 years).[4] The total claim

---

[4]   Hanover Statement No. 2, p. 5.

1		for rate case expense is allocated solely to jurisdictional customers based on the
2		COSS.
3		
4	**Q.**	**WHAT IS THE BASIS FOR THE BOROUGH'S THREE-YEAR**
5		**NORMALIZATION PERIOD?**
6	A.	In response to I&E-RE-3, Hanover states its claim acknowledges that rate case
7		expense should be spread over a period of years that does not penalize the Borough
8		for delaying the filing of a rate case due to costs, requirements from the previous case,
9		and limited resources.[5] Estimated rate case expenses are based on a fully litigated
10		case and include legal fees, professional consulting fees for revenue requirement, rate
11		base, rate of return, and rate design exhibits, supporting data and testimony as well as
12		customer notice expenses.[6]
13		
14	**Q.**	**DO YOU AGREE WITH THE BOROUGH'S CLAIM?**
15	A.	No.
16		
17	**Q.**	**WHAT IS YOUR RECOMMENDATION FOR RATE CASE EXPENSE?**
18	A.	I recommend the Borough's rate case expense be normalized over a period of 47
19		months resulting in an annual allowance of \$108,026 [(\$423,100 ÷ 47 months) x 12]
20		or a reduction of \$33,007 (\$141,033 - \$108,026) to the Borough's annual rate case
21		expense claim.

---

[5] I&E Exhibit No. 1, Schedule 1.
[6] Hanover Statement No. 2, p. 5.

1	Q.	**WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

1   Q.   **WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

2   A.   Hanover's historic filing frequency does not support a three-year normalization period

3   for rate case expense. Hanover's three most recent rate case filings occurred on

4   August 28, 2009; June 29, 2012; and July 11, 2014. Including the current rate case,

5   the average filing frequency is 47 months ((34 months + 24 months + 84 months) ÷

6   3). The recommended 47-month normalization period agrees with the Commission's

7   emphasis on the importance of considering the utility's history of rate case filings

8   when determining the normalization period of rate case expenses. A three-year

9   normalization period should be disallowed as it would result in an unreasonable

10   increase in customer rates.

11

12 Q.   **ARE THERE ANY COMMISSION DECISIONS THAT SUPPORT YOUR**

13   **RECOMMENDATION FOR A RATE CASE FILING INTERVAL BASED ON**

14   **HISTORIC FILING FREQUENCY?**

15 A.   Yes. In a base rate case filed by Emporium Water Company, the Commission

16   adopted the I&E recommended historic filing frequency finding in favor of I&E's

17   recommended five-year normalization period based on historic average filing

18   frequency that was rounded down from 64 months.[7]

19   Similarly, the Commission agreed with I&E's recommendation in the City of

20   DuBois base rate case to use a historic filing frequency finding in favor of I&E's

---

[7]   *PA PUC v. Emporium Water Company,* Docket No. R-2014-2402324, p. 50 (Order Entered January 28, 2015).

1   recommended 64-month normalization period, matching the actual historic filing

2   frequency.[8]

3   Likewise, in the 2020 Columbia Gas base rate case proceeding, the

4   Commission confirmed the normalization period should align with the historic data

5   rather than the Company's intent to file its next rate case.[9]

6   Finally, the Commission determined a normalization period based on actual

7   historic filing frequency is more reliable than future speculation in the 2020 PECO

8   Gas rate case. In the PECO case, the Commission accepted I&E's recommended

9   five-year normalization period in contrast to PECO's claim based on a three-year

10   period.[10]

11

12 **SEWER BILL**

13 **Q.**   **WHAT IS HANOVER'S CLAIM FOR THE SEWER BILL?**

14 A.   Hanover's total system claim for the sewer bill is $323,506.[11] The PUC jurisdictional

15   claim is $222,022 ($323,506 x 0.6863) based on the COSS allocation factor of

16   0.6863.

---

[8]   *PA PUC v. City of DuBois – Bureau of Water,* Docket No. R-2016-2554150, pp. 65-66 (Order Entered March 28, 2017); *PA PUC v. City of DuBois – Bureau of Water,* Docket No. R-2016-2554150, p. 13 (Order Entered May 18, 2017).

[9]   *PA PUC v. Columbia Gas,* Docket No. R-2020-3018835, Opinion and Order, pp. 78-79 (Order Entered February 19, 2021).

[10]   *PA PUC v. PECO Energy Company – Gas Division,* Docket No. R-2020-3018929, Opinion and Order, pp. 117-119 (Order Entered June 22, 2021).

[11]   Hanover Exhibit GRH-1, Schedule 3, p. 1.

1	Q.	**WHAT IS THE BASIS FOR HANOVER'S CLAIM?**
2	A.	Hanover states the historic test year expense increased due to surcharges to the
3		quarterly billings based on higher concentration of BOD/SS.[12] The FPFTY claim is
4		based on the historic test year expense. The jurisdictional allocation of the sewer bill
5		is based on the pro forma test year average daily consumption for each customer
6		classification.

7

| 8 | Q. | **DO YOU AGREE WITH HANOVER'S SEWER BILL CLAIM?** |
| 9 | A. | No. |

10

11	Q.	**WHAT IS YOUR RECOMMENDATION FOR THE SEWER BILL?**
12	A.	I recommend an allowance of $146,925 or a reduction of $75,097 ($222,022 -
13		$146,925) to Hanover's jurisdictional claim.

14

15	Q.	**WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**
16	A.	My recommendation is based on the historic three-year average expense amounts for
17		2018 ($110,645), 2019 ($157,755), and 2020 ($323,506) obtained from the Borough's
18		response to I&E RE-1 part C,[13] adjusted for inflation, and forecasted to the FPFTY.
19		My recommendation normalizes material expense variances utilizing a historic
20		average adjusted for inflation to produce a more accurate projection of future costs.

---

[12] Hanover Exhibit D I-1 Attachment, p. 2.
[13] I&E Exhibit No. 1, Schedule 2, p. 3.

1	Q.	**HOW DID YOU CALCULATE YOUR RECOMMENDATION?**
2	A.	I determined my recommendation by calculating the allocation of sewer bill attributed
3		to jurisdictional customers based on the COSS allocation factor, 0.6863 (0.2990 +
4		0.0591 + 0.0630 + 0.2612 + 0.0025 + 0.0015).[14] Outside-borough annual totals were
5		calculated to be $75,936 ($110,645 x 0.6863) in 2018; $108,267 ($157,755 x 0.6863)
6		in 2019; and $222,022 ($323,506 x 0.6863) in 2020. Then, I applied an average of
7		consumer price index (CPI)[15] inflation factors of 2.47% and 1.25% for the three
8		quarters in 2019 and the four quarters in 2020 respectively to adjust the annual
9		jurisdictional totals to HTY-equivalent values, yielding $78,784 [{$75,936 x (1 +
10		2.47%)} x (1 + 1.25%)] for 2018 and $109,620 [$108,267 x (1 + 1.25%)] for 2019.
11		Next, I calculated the three-year historic average $136,809 (($78,784 + $109,620 +
12		$222,022) ÷3) and applied the CPI forecasted inflation factors for the FTY (5.00%)
13		and FPFTY (2.28%) resulting in the recommended allowance for the FPFTY sewer
14		bill of $146,925 [{136,809 x (1 + 5.00%)} x (1 + 2.28%)].[16] The result is a reduction
15		of $75,097 ($222,022 - $146,925) to the Borough's sewer bill claim.
16		

17 **CASH WORKING CAPITAL**

18	Q.	**WHAT IS A CASH WORKING CAPITAL (CWC) ALLOWANCE FOR**
19		**RATEMAKING PURPOSES?**
20	A.	CWC can be defined as the amount of liquidity needed to meet short-term obligations

---

[14]   Hanover Exhibit CEH-1, Schedule E, p. 1.
[15]   Blue Chip Financial Forecasts Vol 40, No. 6, June 1, 2021, p. 2 and Vol 40, No. 9, September 1, 2021, p. 2.
[16]   I&E Exhibit No. 1, Schedule 3.

1		and should be sufficient to cover daily operations expense payments until receiving
2		funds from customers.
3		
4	**Q.**	**WHAT IS THE BOROUGH'S CWC CLAIM?**
5	A.	The Borough's FPFTY CWC claim for outside borough customers is $436,001.[17]
6		
7	**Q.**	**HOW DID THE BOROUGH CALCULATE ITS CWC CLAIM?**
8	A.	Hanover used the rule-of-thumb method, also known as the one-eighth method. First,
9		Hanover calculated the net total of its FPFTY total system operating and maintenance
10		expenses to arrive at $5,375,258 ($5,210,095 + $165,163).[18] Then, the net total was
11		multiplied the net total by 1/8 to determine the total system CWC requirement of
12		$671,907 [$5,375,258 x (1/8)].
13		
14	**Q.**	**HOW DID THE BOROUGH CALCULATE ITS PUC JURISDICTIONAL**
15		**CWC CLAIM?**
16	A.	The total system CWC was multiplied by the COSS allocation factor 13, 0.6489
17		(0.3784 + 0.0525 + 0.0388 + 0.1232 + 0.0303 + 0.0257),[19] to arrive at $436,001
18		($671,907 x 0.6489) for the outside-Borough CWC claim.

---

[17] Hanover Statement No. 2, p. 9.
[18] Hanover Exhibit GRH-1, Schedule 3, p. 5, lns. 124 and 129.
[19] Hanover Exhibit CEH-1, Schedule E, p. 21.

1	Q.	DO YOU AGREE WITH HANOVER'S CLAIM?

1 **Q. DO YOU AGREE WITH HANOVER'S CLAIM?**

2 A. No. I have concerns about Hanover's CWC calculation method. Additionally, I have

3 two adjustments to Hanover's CWC claim.

4

5 **Q. PLEASE STATE YOUR CONCERNS ABOUT HANOVER'S CWC**

6 **CALCULATION METHOD.**

7 A. Hanover utilized the rule-of thumb method to determine CWC. While this method is

8 appropriate in certain instances, Commission regulations require that general rate

9 increase requests exceeding $1 million in additional revenues must support the CWC

10 claim using a lead/lag study.[20] Therefore, the use of the rule-of-thumb method is

11 technically inappropriate in this proceeding with a claimed revenue increase of

12 $1,563,100.

13

14 **Q. WHAT DOES A LEAD/LAG STUDY MEASURE?**

15 A. A lead/lag study measures the differences in time between: (1) the time services are

16 rendered until payment of those services is received; (2) the time between the point

17 when a utility has incurred an expense and the actual payment of the expense.

18 Alternatively stated, the lead/lag study measures how many days exist on average

19 between the midpoint of the service period and the date the payment is made.

---

[20] 52 Pa. Code § 53.53.

1	Q.	HOW DOES A LEAD/LAG STUDY ESTABLISH A CWC CLAIM?

1   **Q. HOW DOES A LEAD/LAG STUDY ESTABLISH A CWC CLAIM?**

2   A.   The net lag days are multiplied by the average daily expenses to establish a claim for

3   CWC.

4

5   **Q. DID THE BOROUGH EXPLAIN WHY IT DID NOT USE THE REQUIRED**

6   **METHOD TO CALCULATE THEIR CWC CLAIM?**

7   A.   Yes. In response to I&E-RE-17, the Borough stated it did not perform a lead/lag

8   study due to the cost of the study, and therefore used the rule of thumb method of

9   calculating the cash working capital needs for the filing.[21]

10

11   **Q. DO YOU OBJECT TO THE BOROUGH'S USE OF THE RULE-OF-THUMB**

12   **METHOD?**

13   A.   Generally speaking, yes. Without the Commission granting a formal waiver for the

14   Borough, its use of the $1/8^{th}$ Method is not proper. However, the I&E recommended

15   revenue increase in this proceeding is below $1 million. Therefore, while I

16   understand that a lead/lag study can be expensive, and since I&E's recommended

17   increase in revenues falls below $1 million, I accept Hanover's use of the $1/8^{th}$

18   Method in this proceeding. However, in future proceedings, when filing for a

19   requested increase over $1 million, the Commission should require Hanover to

20   request permission for a waiver of this requirement to use a lead/lag study. This

---

[21]   I&E Exhibit No. 1, Schedule 4.

1		should be done in advance of filing a base rate case by Hanover, or the Commission
2		should reject the filing in its entirety.
3		
4	**Q.**	**DO YOU HAVE ANY ADJUSTMENTS TO THE BOROUGH'S CWC CLAIM?**
5	A.	Yes. I recommend an allowance of $409,091 or a reduction of $26,910 ($436,001 -
6		$409,091) to the Borough's claim.[22]
7		
8	**Q.**	**WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**
9	A.	I disagree with the inclusion of taxes other than income in the calculation of the
10		Borough's CWC claim. When applying the 1/8th Method, companies should remove
11		all non-cash items such as uncollectible accounts expense, depreciation, and taxes.
12		These taxes include taxes other than income, because as a rule, tax payments are
13		made after the revenues have been received. Thus, taxes other than income should be
14		removed prior to applying the 1/8th Method. When taxes are removed from the O&M
15		expenses the result is $5,210,095 ($5,375,258 - $165,163). The 1/8th Method can then
16		be applied to the adjusted O&M expenses resulting in $651,262 [$5,210,095 x (1/8)]
17		for total system CWC. Next, applying the COSS factor 13 results in $422,604
18		($651,262 x .6489) for the outside-borough CWC claim or a reduction of $13,397
19		($436,001 - $422,604). The final adjustment is made to recognize the expense

---

[22]   I&E Exhibit No. 1, Schedule 5.

1	adjustments recommended in my testimony for those expenses included in the CWC
2	computation. The adjustments are as follows:

O&M Expenses	Adjustment
Rate Case Expense	($33,007)
Sewer Bill	($75,097)
Total	**($108,104)**

3

4   The sum of my O&M adjustments reduces the Borough's CWC claim by an

5   additional $13,513 ($108,104 ÷ 8).

6   Applying both the removal of taxes and the adjustments for O&M expenses

7   yields an overall reduction of $26,910 ($13,397 + $13,513) or a recommended

8   jurisdictional CWC allowance of $409,091 ($436,001 - $26,910).

9

10   **Q.**   **DOES YOUR RECOMMENDED CASH WORKING CAPITAL ALLOWANCE**

11   **REPRESENT A FINAL RECOMMENDED ALLOWANCE FOR CASH**

12   **WORKING CAPITAL?**

13   **A.**   No. All adjustments to the Borough's claims for revenues, expenses, taxes, and rate

14   base must be consistently brought together in the ALJ's Recommended Decision and

15   again in the Commission's Final Order. This process, which is known as iteration,

16   effectively prevents the determination of a precise calculation until such time as all

17   adjustments have been made to the Borough's claim.

18

19   **Q.**   **DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

20   **A.**   Yes.

ZACHARI WALKER

PROFESSIONAL AND EDUCATIONAL BACKGROUND

EXPERIENCE:

<u>Pennsylvania Public Utility Commission</u>, Harrisburg, Pennsylvania
March 2021 to Present:
Fixed Utility Financial Analyst, Bureau of Investigation and Enforcement

<u>Bridgestone Retail Operations, LLC,</u> Nashville, Tennessee
December 2014 to July 2020:
Business Manager
Evaluated and validated accounting entry postings. Monitored, reconciled, and corrected daily transactions and accounts. Ensured accuracy of daily reports of business and researched inaccuracies. Utilized data analysis to determine key performance indicators and corresponding trends.

EDUCATION/PROFESSIONAL DEVELOPMENT:

Bridging the Gap, Holly Ridge, North Carolina, 2021
Business Analyst Blueprint Training Program, 36 PD hours earned

Stevenson University, Stevenson, Maryland, 2014
Bachelor of Science, *magna cum laude*, Business Administration
Concentration in Finance

Professional Affiliations:

International Institute of Business Analysis (IIBA), Pickering, Ontario, Canada
Active Member 2021

UTILITY-RELATED TRAININGS & OTHER COURSES/WEBINARS:

Michigan State University IPU Accounting and Ratemaking Course 2021, September 14-16, 2021

NARUC Staff Subcommittee on Accounting and Finance, Spring 2021 Virtual Conference, April 6-8, 2021

TESTIMONY SUBMITTED:

R-2021-3025206	Community Utilities of Pennsylvania Inc. – Water Division
R-2021-3025207	Community Utilities of Pennsylvania Inc. – Wastewater Division

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

BOROUGH OF HANOVER
HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Exhibit to Accompany

the

Direct Testimony

of

Zachari Walker

Bureau of Investigation & Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES

CASH WORKING CAPITAL

BUREAU OF INVESTIGATION AND ENFORCEMENT INTERROGATORIES

BOROUGH OF HANOVER – HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Witness: G. Herbert

I&E-RE-3   Reference Hanover Statement No. 2, p. 5, lines 6-10; Hanover Exhibit GRH-1, Schedule 6, p. 1, Adjustment E2; and Exhibit D III-4 concerning rate case expense. Provide the following:

      A.   A justification for Hanover's three-year normalization period;

      B.   An explanation of the claimed rate case expense normalization period (3 years mentioned in Adjustment E2 versus four years mentioned on Exhibit D III-4); and

      C.   A detailed explanation with supporting documentation for each category of current rate case expense as reflected on Schedule 6, p. 1, Adjustment E1.

RESPONSE:

A. The Borough views a normalization of rate case expense over several years is appropriate as the expense for a rate case is only incurred during the period of the actual rate case but the benefits of increased rates last more than one year. A three-year normalization period is reasonable as it acknowledges that rate case expense should be spread over a period of years, but also does not penalize the Borough for delaying a rate case due to costs, requirements from the previous case, and limited resources.

B. The mention of four years was a typo on Exhibit D III-4 and should have said "3" years.

C. See 'Exhibit D III-4 Attachment' included with filing requirement Exhibit D III-4 that includes the invoices up to the file date of June 28, 2021, and 'I&E RE-3 Attachment' that includes the invoices from June 29, 2021 to date related to rate case expense.

BUREAU OF INVESTIGATION AND ENFORCEMENT INTERROGATORIES

BOROUGH OF HANOVER – HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Witness: G. Herbert

I&E-RE-1   Provide the following in Microsoft Excel Spreadsheet format with all cells enabled and all formulas intact:

      A.   Hanover Exhibit GRH-1, Schedule 1, including a similar schedule with two added columns for 2018 and 2019 historic data prior to the existing Column (2);

      B.   Hanover Exhibit GRH-1, Schedule 3, including a similar schedule with two added columns for 2018 and 2019 historic data prior to the existing Column (2); and

      C.   Hanover Exhibit GRH-2, Exhibit D I-1 Attachment pp. 1-5 including a similar schedule with an added column for 2018 historic data prior to the existing Column 2019.

RESPONSE:

A. See 'I&E RE-1 Attachment A' for the Microsoft Excel spreadsheet format of Exhibit GRH-1, Schedule 1 that includes data for the years 2018 and 2019. The 2018 and 2019 outside-Borough allocations are based on the cost of service study performed for this rate proceeding as cost of service studies were not performed in the years 2018 and 2019.

B. See 'I&E RE-1 Attachment B' for the Microsoft Excel spreadsheet format of Exhibit GRH-1, Schedule 3 that includes data for the years 2018 and 2019.

C. See 'I&E RE-1 Attachment C' for the Microsoft Excel spreadsheet format of Exhibit D I-1 that includes data for the years 2018 and 2019. Exhibit D I-1 in the original filing mistakenly did not include account 134 – Professional Services – Engineering Services. The attached is a revised version of Exhibit D I-1 that includes account 134.

HANOVER BOROUGH - HANOVER MUNICIPAL WATER WORKS

COMPARATIVE OPERATING STATEMENTS FOR YEARS ENDED DECEMBER 31, 2019 AND 2020

	2018	2019	2020	Increases/ Decreases	Percentage Difference	Reason for Variance
Revenue						
Residential	$ 4,277,654	$ 4,191,753	$ 4,385,043	$ 193,290	4.6%	Residential customer growth continued, primarily in Penn Township and within the Borough. Overall consumption in this class increased from 655,489,000 to 754,588,000, particularly in 3rd/4th quarter, as COVID-19 stay-at-home orders, remote working/schooling, etc. likely played a part
Commercial	851,025	800,660	759,308	(41,352)	-5.2%	Commercial usage overall was down from 163,775,000 to 150,087,000, primarily in the 2nd/3rd quarters during initial COVID-19 closures and reduced public activities
Industrial	1,732,615	1,976,066	2,074,073	98,007	5.0%	Industrial consumption rose from 547,843,000 to 603,737,000, with almost every billed cycle throughout the year showing increase, especially during the initial COVID-19 wave, as it appeared industrial customers ramped production to meet demands.
Public	122,958	149,801	138,302	(11,499)	-7.7%	Decline in Public use from 30,821,000 to 26,591,000 primarily in first three quarters, majority of which correlates with COVID-19 closures for municipal offices and parks/playgrounds (and related facilities).
Private Fire	294,208	294,895	299,598	4,703	1.6%	
Public Fire	124,116	127,724	131,772	4,048	3.2%	
Total Revenue - Sale of Water	7,402,576	7,540,898	7,788,095			
Other Revenues						
Joyce Bardin	240	240	240			
Jacob Roads Farm	-	-	-			
Cell Tower	95,935	97,438	96,687			
Rent	-	-	-			
Rents and Misc. Revenue	96,175	97,678	96,927	$ (751)	-0.8%	
Unmetered Sales	36,123	41,903	41,964	61	0.1%	
Electricity Buy back	-	-	-	-		
Penalties	24,340	20,860	19,867	(993)	-4.8%	
Reconnection Fees	-	-	1	1		
Retirees reimbursment	39,803	43,092	46,151	3,059	7.1%	
Merchandising and Jobbing	243,691	114,951	123,650	8,700	7.6%	
Total Other Revenues	440,132	318,484	328,561			
Total Revenue	7,842,708	7,859,382	8,116,655			

HANOVER BOROUGH - HANOVER MUNICIPAL WATER WORKS

COMPARATIVE OPERATING STATEMENTS FOR YEARS ENDED DECEMBER 31, 2019 AND 2020

	2018	2019	2020	Increases/ Decreases	Percentage Difference	Reason for Variance
Operation and Maintenance						
Source of Supply						
Operating Expense						
350 Labor	221,937	223,856	254,489	$ 30,633	13.7%	This is the "home" labor account for dams maintenance and management; partial increase for contract rates, and partial increase due to COVID-19 stay-at-home periods where other project work was not performed.
351 Gas and Diesel	4,456	2,974	1,860	(1,114)	-37.5%	
351 Miscellaneous Operating Expenses	11,454	22,075	18,047	(4,028)	-18.2%	
351 Power	9,055	8,550	11,177	2,627	30.7%	
Total Operating Expense	246,902	257,455	285,572			
Maintenance Expense						
353 Labor	1,729	1,988	2,901	913	45.9%	
353 Miscellaneous Maintenance Expenses	19,252	16,258	27,602	11,344	69.8%	$10,780 related to the budgeted replaced roof on caretaker home and garage
Total Maintenance Expense	20,981	18,246	30,503			
Total Source of Supply	267,883	275,702	316,075			
Water Treatment						
Operating Expense						
354 Labor	297,129	312,942	301,776	(11,166)	-3.6%	Related to more Plant personnel time shifting to repair/maintenance of the plant and pump stations (see below).
355 Lab - Water Testing	21,015	27,747	23,594	(4,154)	-15.0%	
355 Diesel Fuel	-	1,032	-	(1,032)	-100.0%	
355 Chemicals	190,332	226,113	234,800	8,686	3.8%	
355 Power	58,933	58,710	52,978	(5,732)	-9.8%	
355 Sewer Bill	110,645	157,755	323,506	165,752	105.1%	Increased due to surcharges to the quarterly billings based on higher concentration of BOD/SS.
355 Stormwater Bill	1,901	1,901	950			
355 Miscellaneous	25,779	53,354	55,691	2,338	4.4%	
Total Operating Expense	705,733	839,553	993,294			
Maintenance Expense						
356 Labor	33,048	33,995	48,413	14,418	42.4%	Related to more Plant personnel time shifting to repair/maintenance of the plant and pump stations (see above).
356 Miscellaneous Maintenance Expenses	19,228	18,992	16,963	(2,029)	-10.7%	
Total Maintenance Expense	52,277	52,987	65,376			
Total Water Treatment	758,009	892,540	1,058,670			

HANOVER BOROUGH - HANOVER MUNICIPAL WATER WORKS

COMPARATIVE OPERATING STATEMENTS FOR YEARS ENDED DECEMBER 31, 2019 AND 2020

	2018	2019	2020	Increases/ Decreases	Percentage Difference	Reason for Variance
Power and Pumping						
Operating Expense						
						Related to more Plant personnel time shifting to repair/maintenance of the plant and pump stations (see below).
362 Labor	273,472	297,647	286,098	(11,549)	-3.9%	
365 Supplies and Expenses	18,311	23,181	21,038	(2,144)	-9.2%	
366 Power	165,582	164,009	173,179	9,170	5.6%	
Total Operating Expense	457,365	484,838	480,315			
Maintenance Expense						
						Related to more Plant personnel time shifting to repair/maintenance of the plant and pump stations (see above).
367 Pump Station - Labor	32,930	33,861	48,507	14,646	43.3%	
367 Supplies and Equipment	9,246	22,662	26,255	3,594	15.9%	
367 Misc Maintenance Expense	-	-	-	-		
Total Maintenance Expense	42,176	56,523	74,762			
Total Power and Pumping	499,540	541,361	555,077			
Transmission and Distribution						
Operating Expense						
						This is the "home" labor account for distribution maintenance and management; partial increase for contract rates, and primary increase due to COVID-19 stay-at-home periods where other project/capital work was not performed.
368 Labor	148,501	152,642	219,597	66,955	43.9%	
369 Meter - Labor	128,358	117,778	118,259	481	0.4%	
371 Streets Dept.	22,825	21,989	20,694	(1,295)	-5.9%	
371 Streets Dept. - Misc Exp	2,916	238	3,653	3,415	1433.6%	
372 Meter Dept.	1,176	1,981	1,144	(837)	-42.2%	
373 Other Distribution Expense	8,766	8,937	9,219	282	3.2%	
374 Gratutious Services	395	69	-	(69)	-100.0%	
Total Operating Expense	312,936	303,634	372,567			
Maintenance Expense						
375 Transmission Mains - Labor	1,513	-	-	-		
375 Transmission Mains - Supplies	-	-	-	-		

HANOVER BOROUGH - HANOVER MUNICIPAL WATER WORKS

COMPARATIVE OPERATING STATEMENTS FOR YEARS ENDED DECEMBER 31, 2019 AND 2020

	2018	2019	2020	Increases/ Decreases	Percentage Difference	Reason for Variance
376 Labor - Cleaning mains	92,928	31,277	69,310	38,032	121.6%	Increase due to ramp up in cleaning program.
376 Distribution Mains - Labor	116,164	168,557	128,610	(39,947)	-23.7%	Bulk of capital labor outsourced in 2020; also, stay-at-home time classification for COVID-19 periods shifted above (see 368).
376 Distribution Mains - Supplies	21,654	75,680	58,327	(17,353)	-22.9%	Reduced restoration/repair due to stay-at-home periods during COVID-19.
376 Distribution Mains - Contract Cleaning	298,894	501,256	1,450,343	949,087	189.3%	Contract cleaning is capitalized. Borough significantly expanded their water line replacement and cleaning/lining programs in 2018 through 2020 for system investment through use of reserves above a "standard" annual spending campaign (roughly $750,000-$1million).
377 Service Lines - Labor	81,885	81,257	86,266	5,009	6.2%	
377 Service Lines - Labor - Carlisle St. Project	-	-	-	-		
377 Service Lines	16,258	26,529	19,506	(7,023)	-26.5%	
377 Service Lines - Carlisle St. Project	-	-	-	-		
378 Tanks and Reservoirs - Labor	10,406	13,608	8,622	(4,986)	-36.6%	
378 Tanks and Reservoirs	8,798	8,224	57,498	49,275	599.2%	Cost to repaint the exterior of the Water Filtration Plant storage tank (other storage tanks evaluated were moderate or better; but will require painting in the future).
379 Meters -Labor	127,014	106,867	109,005	2,138	2.0%	
379 Meters	19,563	10,280	13,285	3,005	29.2%	
380 Hydrants - Labor	17,953	8,191	10,772	2,581	31.5%	
380 Hydrants	4,736	2,365	7,400	5,035	212.9%	
Total Maintenance Expense	817,765	1,034,090	2,018,944			
Total Transmission and Distribution	1,130,701	1,337,725	2,391,510			
Administrative and General Expenses						
382 Wages and Salaries - Professional Staff	36,050	37,053	43,750	6,697	18.1%	
383 Wages - General Office	314,850	347,525	370,177	22,652	6.5%	
384 Office Supplies	103	-	-	-		
386 Misc Office Exp	321	6,638	2,706	(3,932)	-59.2%	
387 General Office - Data Processing Maint.	5,853	-	-	-		
387 General Office - Computer Programs	7,289	13,758	10,679	(3,079)	-22.4%	
387 General Office - Misc	8,465	8,255	8,635	380	4.6%	
387 General Office - Rent	92,351	91,229	93,199	1,970	2.2%	
387 General Office - Postage	38,449	32,206	35,620	3,414	10.6%	
388 General Office - Rate Study	-	-	-	-		
387 General Office - Auditors	14,400	7,200	10,448	3,248	45.1%	
387 General Office - Public Relations	-	-	-	-		
388 General Property Expense - Labor	70,498	80,547	83,775	3,228	4.0%	
388 General Property Expense - Vehicle	19,667	18,852	14,117	(4,735)	-25.1%	
388 General Property Expense - Misc	71,255	69,095	73,891	4,797	6.9%	
390 Taxes	3,373	2,949	3,325	376	12.7%	

HANOVER BOROUGH - HANOVER MUNICIPAL WATER WORKS

COMPARATIVE OPERATING STATEMENTS FOR YEARS ENDED DECEMBER 31, 2019 AND 2020

	2018	2019	2020	Increases/ Decreases	Percentage Difference	Reason for Variance
391 Return Customer Check	-	-	-			
392 Legal Expenses	23,588	18,185	54,165	35,980	197.9%	Legal support for claim filed against the Borough to the PUC involving the Borough moving a distribution main in Penn Township and requirements of customers to cover the costs to move their customer-side lines due to the main movement, at their own cost. The case is in mediation with additional legal fees in early 2021.
396 Insurance - Hospitalization	789,469	732,151	854,777	122,626	16.7%	Increase in insurance rates under IIC/Benecon cost-sharing consortium; also significant decline in return of "surplus" (occurs in year following) from consortium due to higher utilization rates in 2019 (overall refund in 2019 was $482k, and only $268k in 2020 -- allocated on pro-rata basis across funds).
396 Insurance - Workman's Comp	44,170	47,353	50,752	3,399	7.2%	
396 Insurance - Fire and Liability	42,995	35,808	36,730	922	2.6%	
396 Insurance -Life	5,279	5,222	5,504	282	5.4%	
396 Insurance -Prescriptions	8,006	-	-	-		
396 Retirees Hospitalization and Health	31,139	30,454	48,210	17,756	58.3%	Four additional employees retired, and reduced surplus received in 2020 (see above).
397 Employee Pension	89,074	123,512	124,790	1,278	1.0%	
397 Unemployment Compensation	-	-	-	-		
401 General Prop. Labor Exp	11,998	13,788	14,598	810	5.9%	
608 Bank Fees	1,638	2,353	5,325	2,972	126.3%	
Total Administrative and General Expenses	1,730,280	1,724,133	1,945,173			
Total Operation and Maintenance Exp.	4,386,413	4,771,461	6,266,506			
Non-Operating Expense						
550 Merchandising and Jobbing - Labor	60,798	22,419	17,612	(4,807)	-21.4%	
550 Merchandising and Jobbing - Misc	78,596	33,027	41,225	8,198	24.8%	
559 Other Non-operating Expense	-	-	-	-		
Total Non-Operating Expense	139,394	55,446	58,837			
Unappropriated Reserves						
Contribution to Social Security	163,918	169,469	176,726	7,257	4.3%	
TOTAL	4,689,725	4,996,376	6,502,069			
134 Professional Services - Engineering Services	63,219	75,119	105,690	30,571	40.7%	

Borough of Hanover
I&E Calculated Recommendation for Sewer Bill Adjustment
For the Twelve Months Ending December 31,2022

		2018	2019	2020	FTY	FPFTY
(1)	Hanover Total System[1]	$ 110,645	$ 157,755	$ 323,506		
(2)	Outside-Borough Total (Sewer Bill x 0.6863[2])	$ 75,936	$ 108,267	$ 222,022		
(3)	2019 Historic Inflation[3]	(1 + 2.47%)				
(4)	(2) x (3)	$ 77,812				
(5)	2020 Historic Inflation[3]	(1 + 1.25%)	(1 + 1.25%)			
(6)	Outside-Borough Total 2020 Value (4) x (5)	$ 78,784	$ 109,620	$ 222,022		
(7)	HTY Historic Three-Year Average [2018 (6) + 2019 (6) + 2020 (6)] ÷ 3			$ 136,809		
(8)	2021 Inflation Forecast[3]			(1 + 5.00%)		
(9)	FTY Forecast Outside-Borough Total (7) x (8)				$ 143,649	
(10)	2022 Inflation Forecast[3]				(1 + 2.28%)	
(11)	FPFTY Forecast Outside-Borough Total (9) x (10)					$ 146,925
(12)	Borough Claim					$ 222,022
(13)	I&E Recommended Allowance					$ 146,925
(14)	**I&E Recommended Adjustment**					$ (75,097)

[1] Per response to I&E RE-1, part C.
[2] Per Hanover Exhibit CEH-1, Schedule E, p. 1.
[3] Per Blue Chip Financial Forecasts Vol 40, No. 6, June 1, 2021, p. 2
   and Vol 40, No. 9, September 1, 2021, p. 2.

BUREAU OF INVESTIGATION AND ENFORCEMENT INTERROGATORIES

BOROUGH OF HANOVER – HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Witness: G. Herbert

I&E-RE-17   Reference Hanover Statement No. 2, p. 9, lines 19-23 and Exhibit GRH-1, Schedule 4 concerning cash working capital. Explain why it is appropriate to use the one-eighth method to compute cash working capital for this base rate filing where Hanover is proposing a revenue increase greater than a $1 million for outside-borough customers.

RESPONSE:

The Borough did not perform a lead lag study due to the cost of the study, and therefore used the rule of thumb method of calculating the cash working capital needs for the filing.

Borough of Hanover
I&E Calculated Recommendation for Cash Working Capital Adjustment
For the Twelve Months Ending December 31,2022

Borough Claim

	Total System	Outside Borough
Total System O&M Expenses[1]	$ 5,375,258	
Cash Working Capital[2]	$ 671,907	**$ 436,001**

I&E Analysis

	Total System	Outside Borough
Total System O&M Expenses	$ 5,375,258	
Taxes Other Than Income[3]	$ 165,163	
Adjusted Total System O&M Expenses	$ 5,210,095	
CWC excluding Taxes[2]	$ 651,262	$ 422,604
Expense CWC Adjustment		$ (13,513)
I&E CWC Recommendation		**$ 409,091**
I&E CWC Adjustment		**$ (26,910)**

[1] Hanover Statement No. 2, Exhibit GRH-1, Schedule 3, P. 5, lns. 124, 129.

[2] Outside-Borough CWC is calculated using Factor 13 as per COSS in Exhibit CEH-1.

[3] Hanover Statement No. 2, Exhibit GRH-1, Schedule 3, P. 5, ln. 129.

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

BOROUGH OF HANOVER – HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Direct Testimony

of

Christopher Keller

Bureau of Investigation & Enforcement

Concerning:

Rate of Return

TABLE OF CONTENTS

INTRODUCTION

1

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Christopher Keller. My business address is Pennsylvania Public

4 Utility Commission, Commonwealth Keystone Building, 400 North Street,

5 Harrisburg, PA 17120.

6

7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in

9 the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial

10 Analyst.

11

12 **Q. WHAT IS YOUR EDUCATION AND EMPLOYMENT BACKGROUND?**

13 A. An outline of my education and employment history is attached as Appendix A.

14

15 **Q. PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

16 A. I&E is responsible for protecting the public interest in proceedings before the

17 Commission. I&E's analysis in the proceedings is based on its responsibility to

18 represent the public interest. This responsibility requires the balancing of the

19 interests of ratepayers, the regulated utility, and the regulated community as a

20 whole.

1 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

2 A. The purpose of my testimony is to review the base rate filing of the Borough of

3 Hanover – Hanover Municipal Water Works (Hanover or Water Fund) and make

4 recommendations regarding Hanover's rate of return, including capital structure,

5 cost of long-term debt, the cost of equity, and the overall fair rate of return for the

6 fully projected future test year (FPFTY) ending December 31, 2022.

7

8 **Q. DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**

9 A. Yes. I&E Exhibit No. 2 contains schedules that support my direct testimony.

10

11 **BACKGROUND**

12 **Q. WHAT IS THE GENERAL DEFINITION OF RATE OF RETURN IN THE**

13 **CONTEXT OF A RATE CASE?**

14 A. Rate of return is one of the components of the revenue requirement formula. Rate

15 of return is the amount of revenue an investment generates in the form of net

16 income and is usually expressed as a percentage of the amount of capital invested

17 over a given period of time.

18

19 **Q. WHAT IS THE REVENUE REQUIREMENT FORMULA?**

20 A. The revenue requirement formula used in base rate cases is as follows:

21 $$RR = E + D + T + (RB \times ROR)$$

1	Where:		
2		RR	=	Revenue Requirement
3		E	=	Operating Expenses
4		D	=	Depreciation Expense
5		T	=	Taxes
6		RB	=	Rate Base
7		ROR	=	Overall Rate of Return

8 In the above formula, the rate of return is expressed as a percentage. The

9 calculation of that percentage is independent of the determination of the

10 appropriate rate base value for ratemaking purposes. As such, the appropriate total

11 dollar return is dependent upon the proper computation of the rate of return and

12 the proper valuation of Hanover's rate base.

13

14 **Q.   WHAT CONSTITUTES A FAIR AND REASONABLE OVERALL RATE**

15   **OF RETURN?**

16 A.   A fair and reasonable overall rate of return is one that will allow the utility an

17   opportunity to recover those costs prudently incurred by all classes of capital used

18   to finance the rate base during the prospective period in which its rates will be in

19   effect.

20   The *Bluefield Water Works & Improvements Co. v. Public Service Comm.*

21   *of West Virginia,* 262 U.S. 679, 692-93 (1923), and the *FPC v. Hope Natural Gas*

22   *Co.,* 320 U.S. 591, 603 (1944) cases set forth the principles that are generally

1   accepted by regulators throughout the country as the appropriate criteria for

2   measuring a fair rate of return:

3   1. A utility is entitled to a return similar to that being earned by other

4   enterprises with corresponding risks and uncertainties, but not as high as

5   those earned by highly profitable or speculative ventures.

6   2. A utility is entitled to a return level reasonably sufficient to assure financial

7   soundness.

8   3. A utility is entitled to a return sufficient to maintain and support its credit

9   and raise necessary capital.

10 4. A fair return can change (increase or decrease) along with economic

11   conditions and capital markets.

12

13 **Q. EXPLAIN HOW THE OVERALL RATE OF RETURN IS**

14 **TRADITIONALLY CALCULATED IN BASE RATE PROCEEDINGS.**

15 A. In base rate proceedings, the overall rate of return is traditionally calculated using

16   the weighted average cost of capital method. To calculate the weighted average

17   cost of capital, a company's capital structure must first be determined by

18   comparing the percentage of each capitalization component, which has financed

19   rate base, to total capital. Next, the effective cost rate of each capital structure

20   component must be determined. The historical component of the cost rate of debt

21   can be computed accurately, and any future debt issuances are based on estimates.

22   The cost rate of common equity is not fixed and is more difficult to measure.

1		Because of this difficulty, a proxy group is used as discussed later in this
2		testimony. Next, each capital structure component percentage is multiplied by its
3		corresponding effective cost rate to determine the weighted capital component cost
4		rate. The I&E table in the *"I&E Position"* section below demonstrates the
5		interaction of each capital structure component and its corresponding effective
6		cost rate. Finally, the sum of the weighted cost rates produces the overall rate of
7		return. This overall rate of return is multiplied by the rate base to determine the
8		return portion of a company's revenue requirement.
9		
10		**WATER FUND'S RATE OF RETURN CLAIM**
11	**Q.**	**WHO IS THE WATER FUND'S RATE OF RETURN WITNESS?**
12	A.	Hanover witness Harold Walker, III of Gannett Fleming Valuation and Rate
13		Consultants, LLC is the primary witness addressing rate of return (Hanover
14		Statement No. 5). Mr. Walker provided analysis for the claimed capital structure,
15		long-term debt, and cost of common equity for Hanover.
16		
17	**Q.**	**PLEASE SUMMARIZE THE WATER FUND'S RATE OF RETURN**
18		**CLAIM.**
19	A.	Mr. Walker has made two recommendations for rate of return. Mr. Walker's first
20		recommendation does not include a tax adjustment while his alternative
21		recommendation includes a tax adjustment, and both recommendations are based
22		on the FPFTY ending December 31, 2022 (Hanover Exhibit HW-1, Schedule 1

1   and Hanover Exhibit HW-1, Schedule 21):

2

Without Tax Adjustment			
Type of Capital	**Ratio**	**Cost Rate**	**Weighted Cost Rate**
Long-Term Debt	48.00%	2.98%	1.43%
Common Equity	52.00%	10.45%	5.43%
Total	100.00%		6.86%

3

With Tax Adjustment			
Type of Capital	**Ratio**	**Cost Rate**	**Weighted Cost Rate**
Long-Term Debt	48.00%	2.98%	1.43%
Common Equity	52.00%	9.30%	4.84%
Total	100.00%		6.27%

4

5   **I&E POSITION**

6   **Q.   PLEASE SUMMARIZE YOUR RATE OF RETURN**

7   **RECOMMENDATION.**

8   A.   As shown in the table below, I have provided one rate of return recommendation

9   which includes an implied tax rate adjustment for the Water Fund (I&E Exhibit

10   No. 2, Schedule 1):

11

Type of Capital	**Ratio**	**Cost Rate**	**Weighted Cost Rate**
Long-Term Debt	56.00%	2.98%	1.67%
Common Equity	44.00%	6.39%	2.81%
Total	100.00%		4.48%

12   I will discuss in further detail below why it is necessary to include an implied tax

13   rate adjustment within the Water Fund's rate of return.

PROXY GROUP

1

2 Q. **WHAT IS A PROXY GROUP AS USED IN BASE RATE CASES?**

3 A. A proxy group is a set of companies that have similar traits of risk in comparison

4 to the subject utility. This group of companies acts as a benchmark for

5 determining the subject utility's rate of return in a base rate case.

6

7 Q. **WHAT ARE THE REASONS FOR USING A PROXY GROUP?**

8 A. A proxy group's cost of equity is used as a benchmark to satisfy the long-

9 established guideline of utility regulation that seeks to provide the subject utility

10 with the opportunity to earn a return similar to that of enterprises with

11 corresponding risks and uncertainties.

12 A proxy group is typically utilized since the use of data exclusively from

13 one company may be less reliable. The lower reliability occurs because the data

14 for one company may be subject to events that can cause short-term anomalies in

15 the marketplace. The rate of return on common equity for a single company could

16 become distorted in these circumstances and would therefore not be representative

17 of similarly situated companies. Therefore, a proxy group has the effect of

18 smoothing out potential anomalies associated with a single company.

19

20 Q. **WHAT CRITERIA DID YOU USE IN SELECTING YOUR WATER**

21 **INDUSTRY PROXY GROUP?**

22 A. The criteria for my proxy group was designed to select companies that are

1		representative of Hanover. I applied the following criteria to Value Line's Water
2		Utility company group:
3		1.	Fifty percent or more of the company's revenues must be generated from
4			the regulated water utility industry;
5		2.	The company's stock must be publicly traded;
6		3.	Investment information for the company must be available from more than
7			one source, which includes Value Line;
8		4.	The company must not be currently involved/targeted in an announced
9			material merger or acquisition; and
10		5.	The company must have four consecutive years of historic earnings data.
11			
12	**Q.**	**WHAT CRITERIA DID MR. WALKER USE IN SELECTING HIS WATER**
13		**PROXY GROUP COMPANIES?**
14	A.	Mr. Walker determined his proxy group of seven water companies by using the
15		following criteria (Hanover Statement No. 5, p. 10, line 17 thought p. 11, line 6):
16		1.	All U.S. water utilities covered by several security analysts as measured by
17			the existence of several sources of published projected five-year growth
18			rates in earnings per share (EPS);
19		2.	With a Standard Industrial Classification (SIC) of 4941 (i.e., Water Supply
20			Facilities and Infrastructure);
21		3.	With a North American Industry Classification System (NAICS) of 221310
22			(i.e., Water Supply and Irrigation Systems);

1   4.   Are not the announced subject of an acquisition;

2   5.   Currently pay a common dividend and have not reduced their common

3   dividend within the past four years;

4   6.   Have market value of common stock, the product of multiplying the closing

5   stock price by the number of common shares outstanding, greater than

6             $200.0 million; and

7   7.   Have a total enterprise, the sum of market value, preferred stock and total

8   debt, greater than $450.0 million.

9

10 **Q. WHAT PROXY GROUP DID YOU USE IN YOUR ANALYSIS?**

11 A.   I included the following seven companies in my proxy group (I&E Exhibit No. 2,

12   Schedule 2):

13

American Water Works	AWK
American States Water Co.	AWR
California Water Services Group	CWT
Middlesex Water Co	MSEX
SJW Group	SJW
Essential Utilities	WTRG
York Water Company	YORW

14

15 **Q. WHAT PROXY GROUP DID MR. WALKER USE IN HIS ANALYSIS?**

16 A.   While Mr. Walker's and my criteria vary to some degree, Mr. Walker and I

17   utilized the same companies in our proxy groups (Hanover Exhibit HW-1,

18   Schedule 2, p. 2).

CAPITAL STRUCTURE

1

2   **Q.   WHAT IS A CAPITAL STRUCTURE?**

3   A.   A capital structure represents how a firm has financed its rate base with different

4   sources of funds. The primary funding sources are long-term debt and common

5   equity. A capital structure may also include preferred stock and/or short-term

6   debt.

7

8   **Q.   WHAT IS THE WATER FUND'S CLAIMED CAPITAL STRUCTURE?**

9   A.   The Water Fund's claimed *hypothetical* capital structure is summarized in the

10   table below (Hanover Statement No. 5, p. 13, lines 11-14 and Hanover Exhibit

11   HW-1, Schedule 1, p. 1):

12

Type of Capital	Ratio
Long-Term Debt	48.00%
Common Equity	52.00%
Total	100.00%

13

14   **Q.   WHAT IS THE BASIS FOR THE WATER FUND'S CLAIMED CAPITAL**

15   **STRUCTURE?**

16   A.   Mr. Walker stated that the Water Fund does not raise its own capital since it is

17   essentially a "subsidiary," or more specifically, a "department" of the Borough of

18   Hanover. Because of this, he opined that the Water Fund has no managerial

19   control over its capital structure and is not able to obtain its equity and debt

20   financing in the open market. Therefore, Mr. Walker imputed a capital structure

1		of 48% long-term debt and 52% common equity based upon his Comparable
2		Group analysis. He claimed this methodology is consistent with Title 66 PA. C.S.
3		Section 1301(b) (Hanover Statement No. 5, p. 12, line 13 through p. 14, line 4).
4		
5	**Q.**	**DO YOU ACCEPT THE WATER FUND'S CLAIMED CAPITAL**
6		**STRUCTURE?**
7	A.	No. While I agree that a hypothetical capital structure is appropriate for this
8		proceeding, I recommend using a hypothetical capital structure of 56% long-term
9		debt and 44% equity.
10		
11	**Q.**	**WHAT IS THE BASIS FOR YOUR RECOMMENDED HYPOTHETICAL**
12		**CAPITAL STRUCTURE?**
13	A.	Generally, municipalities are typically able to acquire debt at lower cost rates than
14		publicly traded utility companies. In large part, this is because a municipality can
15		use its taxing authority to ensure repayment of its debt, which reduces risk. The
16		risk reduction commands a lower interest rate on long-term debt. Accordingly, the
17		taxing authority that is unique to municipalities enables them to tolerate more debt
18		in their capital structure to finance rate base. Additionally, it is inappropriate and
19		unnecessary to pass larger proportions of more expensive equity costs on to
20		ratepayers, especially when the Water Fund does not have equity investors.

1	Q.	IN THE DETERMINATION OF JUST AND REASONABLE RATES,
2		WHAT DIRECTIVES ARE PROVIDED WITH RESPECT TO
3		MUNICIPAL CAPITAL STRUCTURES BEING USED IN BASE RATE
4		CASES?
5	A.	Title 66, Section 1301(b), which was effective December 21, 2017, states the
6		following:

7
8
9
10
11
12
13

> In determining a just and reasonable rate furnished or rendered by a municipal corporation or by the operating agencies of a municipal corporation providing public utility water or wastewater service beyond its corporate limits, the commission shall employ an imputed capital structure of comparable public utilities providing water or wastewater service.

14	Q.	HAS SECTION 1301(b) INFLUENCED YOUR RECOMMENDED
15		CAPITAL STRUCTURE FOR THIS PROCEEDING AS COMPARED TO
16		I&E RECOMMENDATIONS IN PRIOR MUNICIPAL BASE RATE
17		PROCEEDINGS?
18	A.	Yes. While I believe that a capital structure between 80% debt and 20% equity
19		and 70% debt and 30% equity is more appropriate for the Water Fund in this
20		proceeding, this fails to comply with Section 1301(b) as it is outside the range of
21		equity ratios in my proxy group. Therefore, I am recommending that the
22		Commission adopt the hypothetical capital structure made up of 56% long-term
23		debt and 44% equity. The resulting 44% equity ratio more closely resembles the
24		low end of the range of equity ratios of the average capital structures in my proxy
25		group which is 43.67% (I&E Exhibit No. 2, Schedule 2).

1   **Q.**   **WHY IS YOUR RECOMMENDED CAPITAL STRUCTURE BASED ON**

2   **THE LOW END OF THE RANGE FOR COMMON EQUITY OF YOUR**

3   **PROXY GROUP?**

4   **A.**   My recommendation is designed to comply with Section 1301(b), while not

5   inappropriately overburdening ratepayers. As stated above, if the non-

6   jurisdictional portion of the Water Fund requires increased funding, the

7   municipality has the ability to acquire debt and/or increase taxes to generate funds.

8   Moreover, municipally owned water/wastewater utilities differ from investor-

9   owned utilities in that they have no equity investors. Accordingly, they do not

10   have the burden of compensating investors with a competitive, market-based

11   return on equity. As such, it is inappropriate to pass along a large proportion of

12   the higher equity cost to the Water Fund's ratepayers. This difference in utility

13   ownership more than adequately supports using the low end of an investor-owned

14   utility proxy group's capital structure.

15

16   **COST OF LONG-TERM DEBT**

17   **Q.**   **WHAT IS THE WATER FUND'S CLAIMED COST RATE OF LONG-**

18   **TERM DEBT?**

19   **A.**   The Water Fund's claimed long-term debt cost rate is 2.98% for the FPFTY

20   (Hanover Statement No. 5, p. 15, lines 17-18).

1   Q.   **WHAT IS YOUR RECOMMENDATION REGARDING THE WATER**

2   **FUND'S COST RATE OF LONG-TERM DEBT?**

3   A.   I recommend using the Water Fund's long-term debt cost rate of 2.98%.

4

5   Q.   **WHAT IS THE BASIS FOR YOUR RECOMMENDATION TO USE THE**

6   **WATER FUND'S COST RATE OF LONG-TERM DEBT?**

7   A.   The Water Fund's cost rate of long-term debt is reasonable, as it is representative

8   of the industry. It falls within my proxy group's implied long-term debt cost range

9   of 2.69% to 5.67%, with an average implied long-term debt cost of 4.04% (I&E

10   Exhibit No. 2, Schedule 3). Therefore, I recommend the Water Fund's cost rate of

11   long-term debt be used.

12

13   **COST OF COMMON EQUITY**

14   **COMMON METHODS**

15   Q.   **WHAT METHODS ARE COMMONLY PRESENTED BY UTILITIES IN**

16   **DETERMINING THE COST OF COMMON EQUITY?**

17   A.   Four methods commonly presented to estimate the cost of common equity are the

18   Discounted Cash Flow (DCF), the Capital Asset Pricing Model (CAPM), the Risk

19   Premium (RP) Method, and the Comparable Earnings (CE) Method.

20

21   Q.   **WHAT IS THE THEORETICAL BASIS FOR THE DCF METHOD?**

22   A.   The DCF method is the "dividend discount model" of financial theory, which

1		maintains that the value (price) of any security or commodity is the discounted
2		present value of all future cash flows. The DCF method assumes that investors
3		evaluate stocks in the classical economic framework, which maintains that the
4		value of a financial asset is determined by its earning power, or its ability to
5		generate future cash flows.
6		
7	Q.	**WHAT IS THE THEORETICAL BASIS FOR THE CAPM?**
8	A.	The CAPM describes the relationship of a stock's investment risk and its market
9		rate of return. It identifies the rate of return investors expect so that it is
10		comparable with returns of other stocks of similar risk. This method hypothesizes
11		that the investor-required return on a company's stock is equal to the return on a
12		"risk free" asset plus an equity premium reflecting the company's investment risk.
13		In the CAPM, two types of risk are associated with a stock: (1) firm-specific risk
14		(unsystematic risk); and (2) market risk (systematic risk), which is measured by a
15		firm's beta. The CAPM allows for investors to receive a return only for bearing
16		systematic risk. Unsystematic risk is assumed to be diversified away, and
17		therefore, does not earn a return.
18		
19	Q.	**WHAT IS THE THEORETICAL BASIS FOR THE RP METHOD?**
20	A.	The theoretical basis for the RP method is a simplified version of the CAPM. The
21		RP method's theory is that common stock is riskier than debt, and thus, investors
22		require a higher expected return on stocks than bonds. In the RP approach, the

1		cost of equity is made up of the cost of debt and a risk premium. While the
2		CAPM uses the market risk premium, it also directly measures the systematic risk
3		of a company group through the use of beta. The RP method does not measure the
4		specific risk of a company.
5		
6	**Q.**	**WHAT IS THE THEORETICAL BASIS FOR THE CE METHOD?**
7	A.	The CE method utilizes the concept of "opportunity cost." This means that
8		investors will likely dedicate their capital to the investment offering the highest
9		return with similar risk to alternative investments. Unlike the DCF, CAPM, and
10		the RP methods, the CE method is not market-based and relies upon historic
11		accounting data. The most problematic issue with the CE method is determining
12		what constitutes comparable companies.
13		
14	**Q.**	**WHAT METHOD DO YOU RECOMMEND USING TO DETERMINE AN**
15		**APPROPRIATE COST OF COMMON EQUITY FOR THE WATER**
16		**FUND?**
17	A.	I recommend using the DCF method as the primary method to determine the cost
18		of common equity. I also recommend using the results of the CAPM as a
19		comparison to the DCF results. My recommendation is consistent with the

1   methodology historically used by the Commission in base rate proceedings, even

2   as recently as 2017, 2018, 2020, and 2021.[1]

3

4 **Q.   PLEASE EXPLAIN WHY YOU CHOSE TO USE THE DCF AND CAPM IN**

5 **YOUR ANALYSIS.**

6 A.   I have used the DCF as the primary method for several reasons. First, the DCF is

7   appealing to investors as it is based upon the concept that the receipt of dividends

8   in addition to expected appreciation is the total return requirement determined by

9   the market.[2] Second, the use of a growth rate and expected dividend yield are also

10   strengths of the DCF, as this recognizes the time value of money and is forward-

11   looking. Third, the use of the utilities' own, or in this case, the proxy group's

12   stock prices and growth rates directly in the calculation also causes the DCF to be

13   industry and company specific. Finally, the DCF method is the superior method

14   for determining the rate of return for the current economic market because it

15   measures the cost of equity directly.

[1]   *Pa. PUC v. City of DuBois – Bureau of Water*; Docket No. R-2016-2554150 (Order Entered March 28, 2017).
       See generally Disposition of Cost Rate Models, pp. 96-97; *Pa. PUC v. UGI Utilities, Inc. – Electric Division;*
       Docket No. R-2017-2640058 (Order Entered October 25, 2018). *See generally* Disposition of Cost of Common
       Equity, p. 119; *Pa. PUC v. Wellsboro Electric Company;* Docket No. R-2019-3008208 (Order Entered April 29,
       2020). *See generally* Disposition of Primary Methodology to Determine ROE, pp. 80-81; *Pa. PUC v. Citizens
       Electric Company of Lewisburg, PA;* Docket No. R-2019-3008212 (Order Entered April 29, 2020). *See generally*
       Disposition of Cost of Common Equity, pp. 91-92. *Pa. PUC v. Columbia Gas of Pennsylvania, Inc.;* Docket No.
       R-2020-3018835 (Order Entered February 19, 2021). *See generally* Disposition of Cost of Common Equity,
       p. 131; *Pa. PUC v. PECO Energy Company – Gas Division*; Docket No. R-2020-3018929 (Order Entered
       June 22, 2021). *See generally* Disposition of Return of Rate on Common Equity, p. 171.
[2]   David C. Parcell, "The Cost of Capital – A Practitioner's Guide," 2010 Edition, p. 151.

1   I have included a CAPM analysis as a comparison because the CAPM and

2   the DCF include inputs that allow the results to be specific to the utility industry,

3   although the CAPM is far less responsive to changes in the industry than the DCF.

4   The CAPM is based on the performance of U.S. Treasury bonds and the

5   performance of the market as measured through the S&P 500 and is company-

6   specific only through the use of beta. Beta reflects a stock's volatility relative to

7   the overall market, thereby incorporating an industry-specific aspect to the CAPM,

8   but only as a measure of how reactive the industry is compared to the market as a

9   whole. Although changes in the utility industry are likely more accurately

10   reflected in the DCF, which uses the companies' actual prices, dividends, and

11   growth rates, I have included the results of my CAPM analysis because changes in

12   the market, whether as a whole or specific to the utility industry, affect the

13   outcome of each method in different ways. Although I have chosen to use the

14   CAPM as a secondary method, it does have several disadvantages and should not

15   be used as a primary method.

16

17 Q. **EXPLAIN THE DISADVANTAGES OF THE CAPM.**

18 A. The CAPM, and the RP method by virtue of its similarities to the CAPM, give

19   results that indicate to an investor what the equity cost rate should be if current

20   economic and regulatory conditions are the same as those present during the

21   historical period in which the risk premiums were determined. This is because

22   beta, which is the only company-specific variable in the CAPM model, measures

1   the *historical* volatility of a stock compared to the *historical* overall market return.

2   Reliance on historical values is especially problematic now given the recent

3   impact of the coronavirus on economic conditions. Although the CAPM and RP

4   results can be useful to investors in making rational buy and sell decisions within

5   their portfolios, the DCF method is the superior method for determining the rate of

6   return for the current economic market and measuring the cost of equity directly.

7   The CAPM and the RP methods are less reliable indicators because they measure

8   the cost of equity indirectly and risk premiums vary depending on the debt and

9   equity being compared. Also, regulators can never be certain that economic and

10   regulatory conditions underlying the historical period during which the risk

11   premiums were calculated are the same today or will be the same in the future.

12

13   **Q.   IS THERE ANY ACADEMIC EVIDENCE THAT QUESTIONS THE**

14   **CREDIBILITY OF THE CAPM MODEL?**

15   A.   Yes. An article, "Market Place; A Study Shakes Confidence in the Volatile-Stock

16   Theory," which appeared in the *New York Times* on February 18, 1992,

17   summarized a CAPM study conducted by professors Eugene F. Fama and

18   Kenneth R. French.[3] Their study examined the importance of beta, CAPM's risk

19   factor, in explaining returns on common stock. In CAPM theory a stock with a

20   higher beta should have a higher expected return. However, they found that the

---

[3]   Berg, Eric N. "Market Place; A Study Shakes Confidence in the Volatile-Stock Theory" *The New York Times*, 18 Feb 1992: *nytimes.com* Web. 23 Mar 2016.

1	model did not do well in predicting actual returns and suggested the use of more
2	elaborate multi-factor models.
3	A more recent article, "The Capital Asset Pricing Model: Theory and
4	Evidence," which appeared in the *Journal of Economic Perspectives,* states that
5	"the attraction of the CAPM is that it offers powerful and intuitively pleasing
6	predictions about how to measure risk and the relation between expected return
7	and risk. Unfortunately, the empirical record of the model is poor - poor enough
8	to invalidate the way it is used in applications."[4] As a result, I conclude that the
9	CAPM's relevance to the investment decision making process does not carry over
10	into the regulatory rate setting process.
11	
12	**Q. PLEASE EXPLAIN WHY YOU HAVE CHOSEN TO EXCLUDE THE RP**
13	**METHOD FROM YOUR ANALYSIS.**
14	A. The RP method is excluded because it is a simplified version of the CAPM and is
15	subject to the same faults listed above. Additionally, unlike the CAPM, the RP
16	method does not recognize company-specific risk through beta.
17	
18	**Q. EXPLAIN WHY YOU HAVE CHOSEN TO EXCLUDE THE CE METHOD**
19	**FROM YOUR ANALYSIS.**
20	A. The CE method is excluded because the choice of which companies are

---

[4] Fama, Eugene F. and French, Kenneth R., "The Capital Asset Pricing Model: Theory and Evidence." *Journal of Economic Perspectives* (2004): Volume 18, Number 3, pp. 25-46.

1	comparable is highly subjective, and it is debatable whether historic accounting
2	values are representative of the future. Moreover, its historical usage in this
3	regulatory forum has been minimal.
4	

5 **SUMMARY OF THE WATER FUND'S RESULTS**

6 **Q. WHAT ARE THE RESULTS OF THE WATER FUND'S COST OF**

7 **EQUITY ANALYSES?**

8 A. Mr. Walker employed the DCF, CAPM, and RP methods in analyzing the Water

9 Fund's cost of equity. Ultimately, Mr. Walker opined that a cost of equity of

10 10.45% is warranted unless the Commission decides to include an adjustment to

11 reflect the tax status of the investors of the Water Fund, in which case he

12 recommended a cost of equity of 9.30% (Hanover Statement No. 5, p. 36, line 19

13 through p. 37, line 2 and Hanover Exhibit HW-1, Schedule 21).

14

15 **I&E RECOMMENDATION**

16 **Q. WHAT IS YOUR RECOMMENDED COST OF COMMON EQUITY FOR**

17 **THE WATER FUND?**

18 A. Based upon my analysis, I recommend a cost of common equity of 6.39% which

19 includes a 28.31% downward adjustment in consideration of the tax status of the

20 Water Fund (I&E Exhibit No. 2, Schedule 1).

| 1 | **Q.** | **WHAT IS THE BASIS FOR YOUR RECOMMENDATION?** |

1 **Q.** **WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

2 **A.** My recommendation is based on the use of the DCF method. As explained below,

3   I used my CAPM result only to present the Commission with a comparison of my

4   DCF results. My DCF analysis uses a spot dividend yield, a 52-week dividend

5   yield, and earnings growth forecasts.

6

7   **DISCOUNTED CASH FLOW**

8 **Q.** **PLEASE EXPLAIN YOUR DCF ANALYSIS.**

9 **A.** My analysis employs the constant growth DCF model as portrayed in the

10   following formula:

11      $K = D_1/P_0 + g$

12   Where:

13   K = Cost of equity

14   D_1 = Dividend expected during the year

15   P_0 = Current price of the stock

16   g = Expected growth rate

17   When a forecast of D_1 is not available, D_0 (the current dividend) must be adjusted

18   by one half of the expected growth rate to account for changes in the dividend paid

19   in period one. As forecasts for each company in my proxy group were available

20   from Value Line, no dividends were adjusted for the purpose of my analysis.

1 Q. **PLEASE EXPLAIN HOW YOU DEVELOPED THE DIVIDEND YIELDS**

2   **USED IN YOUR DCF ANALYSIS.**

3 A. A representative dividend yield must be calculated over a time frame that avoids

4   the problems of both short-term anomalies and stale data series. For my DCF

5   analysis, the dividend yield calculation places equal emphasis on the most recent

6   spot and the 52-week average dividend yields. The following table summarizes

7   my dividend yield computations for the proxy group (I&E Exhibit No. 2,

8   Schedule 4):

9

Seven-Company Proxy Group	Dividend Yield
Spot	1.64%
52-week average	1.87%
Average	1.76%

10

11 Q. **WHAT INFORMATION DID YOU RELY UPON TO DETERMINE YOUR**

12   **EXPECTED GROWTH RATE?**

13 A. I have used five-year projected growth rate estimates from Value Line, Yahoo!

14   Finance, Zacks, and Morningstar.

15

16 Q. **WHAT WERE THE RESULTS OF YOUR FORECASTED EARNINGS**

17   **GROWTH RATES?**

18 A. The expected average growth rates for the seven-company proxy group ranged

1   from 2.70% to 13.00% with an overall average of 7.15% (I&E Exhibit No. 2,

2   Schedule 5).

3

4   **Q.**   **WHAT IS THE RESULT OF YOUR DCF ANALYSIS BASED ON YOUR**

5   **RECOMMENDED DIVIDEND YIELD AND GROWTH RATE?**

6   A.   The results of my DCF analysis are calculated as follows (I&E Exhibit No. 2,

7   Schedule 6):

8

$$
\begin{array}{ccccccc}
K & = & D_1/P_0 & + & g \\
8.91\% & = & 1.76\% & + & 7.15\%
\end{array}
$$

9

10   __CAPITAL ASSET PRICING MODEL__

11   **Q.**   **PLEASE EXPLAIN YOUR CAPM ANALYSIS.**

12   A.   My analysis employs the traditional CAPM as portrayed in the following formula:

13       $K = R_f + \beta(R_m - R_f)$

14   Where:

15   K =   Cost of equity

16   R_f =   Risk-free rate of return

17   R_m =   Expected rate of return on the overall stock market

18   β =   Beta measures the systematic risk of an asset

1 **Q. WHAT IS BETA AS EMPLOYED IN YOUR CAPM ANALYSIS?**

2 A. Beta is a measure of the systematic risk of a stock in relation to the rest of the

3 stock market. A stock's beta is estimated by calculating the linear regression of a

4 stock's return against the return on the overall stock market. The beta of a stock

5 with a price pattern identical to that of the overall stock market will equal one. A

6 stock with a price movement that is greater than the overall stock market will have

7 a beta that is greater than one and would be described as having more investment

8 risk than the market. Conversely, a stock with a price movement that is less than

9 the overall stock market will have a beta of less than one and would be described

10 as having less investment risk than the market.

11

12 **Q. HOW DID YOU DETERMINE YOUR BETA FOR YOUR CAPM**

13 **ANALYSIS?**

14 A. In estimating an equity cost rate for my proxy group of seven water companies, I

15 used the average of the betas for the companies as provided in the Value Line

16 Investment Survey. The average beta for my proxy group is 0.78 (I&E Exhibit

17 No. 2, Schedule 7).

18

19 **Q. WHAT RISK-FREE RATE OF RETURN HAVE YOU USED FOR YOUR**

20 **FORECASTED CAPM ANALYSIS?**

21 A. I used the risk-free rate of return (R_f) from the projected yield on 10-year Treasury

22 Notes. While the yield on the short-term T-Bill is a more theoretically correct

1   parameter to represent a risk-free rate of return, it can be extremely volatile. The

2   volatility of short-term T-Bills is directly influenced by Federal Reserve policy.

3   At the other extreme, the 30-year Treasury Bond exhibits more stability but is not

4   risk-free. Long-term Treasury Bonds have substantial maturity risk associated

5   with market risk and the risk of unexpected inflation. Long-term treasuries

6   normally offer higher yields to compensate investors for these risks. As a result, I

7   used the yield on the 10-year Treasury Note because it mitigates the shortcomings

8   of the other two alternatives. Additionally, the Commission has recently

9   recognized the 10-year Treasury Note as the superior measure of the risk-free rate

10   of return.[5] The forecasted yield on the 10-year Treasury Note, as can be seen in

11   Blue Chip Financial Forecasts, is expected to be between 1.60% and 2.00% from

12   the fourth quarter of 2021 through the fourth quarter of 2022, and it is forecasted

13   to be 2.90% from 2023-2027. For my forecasted CAPM analysis, I used 1.98%,

14   which is the average of all the yield forecasts I observed (I&E Exhibit No. 2,

15   Schedule 8).

16

17 Q. **HOW DID YOU DETERMINE THE RETURN ON THE OVERALL**

18   **STOCK MARKET IN YOUR FORECASTED CAPM ANALYSIS?**

19 A. To arrive at a representative expected return on the overall stock market, I

20   observed Value Line's 1700 stocks and the S&P 500. Value Line expects its

---

[5] *Pa. PUC v. UGI Utilities, Inc. – Electric Division;* Docket No. R-2017-2640058 (Order Entered October 25, 2018). *See generally* Disposition of Capital Asset Pricing Model (CAPM), p. 99.

1		universe of 1700 stocks to have an average yearly return of 9.59% over the next
2		three to five years based on a forecasted dividend yield of 1.80% and a yearly
3		index appreciation of 35%. The S&P 500 index is expected to have an average
4		yearly return of 14.68% over the next five years based upon Barron's forecasted
5		dividend yield of 1.38% and Morningstar's average expected increase in the S&P
6		500 index of 13.30% (I&E Exhibit No. 2, Schedule 9).
7		
8	**Q.**	**WHAT IS THE EXPECTED RETURN ON THE OVERALL STOCK**
9		**MARKET BASED ON YOUR FORECASTED ANALYSIS?**
10	A.	The expected return on the overall market is 12.13% for my forecasted analysis
11		(I&E Exhibit No. 2, Schedule 9).
12		
13	**Q.**	**WHAT IS THE COST OF EQUITY RESULT FROM YOUR CAPM**
14		**ANALYSIS?**
15	A.	The result of my analysis is as follows (I&E Exhibit No. 2, Schedule 10):

$$K = R_f + \beta(R_m - R_f)$$

$$9.89\% = 1.98\% + 0.78(12.13\% - 1.98\%)$$

18		
19		**IMPLIED TAX RATE ADJUSTMENT**
20	**Q.**	**WHAT IS THE IMPLIED TAX RATE ADJUSTMENT?**
21	A.	The implied tax rate adjustment recognizes that interest paid to municipal
22		bondholders is exempt from taxation while interest paid to corporate bondholders

1		is not exempt. Accordingly, a municipal bondholder requires less interest from
2		their bond to receive the same yield as that of that a corporate bondholder.
3		Therefore, an adjustment is made to the cost of common equity based on the idea
4		that an investor would accept a lower return on a municipal bond due to the tax
5		exemption. Since neither Mr. Walker's nor my proxy groups contain any tax-
6		exempt municipalities, the calculated cost of equity for the proxy group must be
7		higher to achieve the same yield as the Water Fund. Therefore, the proxy group's
8		cost of common equity cannot be compared to the Water Fund without a
9		downward tax adjustment.
10		
11	**Q.**	**WHAT IS YOUR RECOMMENDATION FOR THE IMPLIED TAX RATE**
12		**ADJUSTMENT?**
13	A.	I recommend that the cost of common equity be adjusted by a tax rate of 28.31%.
14		This adjustment reduces my common equity recommendation from 8.91% to
15		6.39% (8.91% x (1 – 28.31%)).
16		
17	**Q.**	**WHAT IS THE BASIS FOR YOUR ADJUSTMENT?**
18	A.	I have compared Moody's A-Rated monthly Municipal Bond Yields to Moody's
19		A-Rated monthly Public Utility Bond Yields for September 2020 to August 2021.
20		The implied tax rate for this time period ranged between 17.54% to 37.54%, with
21		an average of 28.31% (I&E Exhibit No. 2, Schedule 11).

| 1 | Q. | **WHAT TAX RATE IS MR. WALKER RECOMMENDING FOR THIS** |
| | | **PROCEEDING?** |

1   Q.   **WHAT TAX RATE IS MR. WALKER RECOMMENDING FOR THIS**

2   **PROCEEDING?**

3   A.   Mr. Walker has chosen an implied tax adjustment of 11.00% (Hanover Exhibit

4   HW-1, Schedule 20).

5

6   Q.   **WHAT IS THE BASIS FOR MR. WALKER'S IMPLIED TAX RATE**

7   **ADJUSTMENT?**

8   A.   Similar to what I have done, Mr. Walker compared bond yield averages for

9   Moody's Municipal Bonds and Public Utility Bonds to come up with his tax

10   adjustment. When calculating his tax factor, Mr. Walker's analysis included

11   comparisons for both A-Rated and Baa-Rated bonds. Mr. Walker claimed that the

12   credit quality of each type of bond needs to be matched so that credit quality

13   differences are not measured (Hanover Statement No. 5, p. 59, lines 12-17). Mr.

14   Walker chose a tax factor of 11.00% which was the average calculated tax factor

15   for his A-Rated bonds and Baa bonds analysis.

16

17   Q.   **WHAT IS THE DIFFERENCE BETWEEN MR. WALKER'S AND YOUR**

18   **RECOMMENDED TAX RATE ADJUSTMENTS?**

19   A.   While I have only employed A-Rated bonds for my analysis, Mr. Walker

20   performed the same analysis on both A-Rated and Baa-Rated bonds. Additionally,

21   I used the most recent twelve-month historical period while Mr. Walker used the

22   twelve-month historical period ending February 2021.

1   Q.   **PLEASE EXPLAIN WHY YOU HAVE ONLY EMPLOYED A-RATED**

2   **BONDS IN YOUR IMPLIED TAX ADJUSTMENT?**

3   A.   I have only employed the A-Rated Bonds because Moody's only offers three

4   different ratings categories (Aa, A, and Baa) for Public Utility Bonds. I believe it

5   is appropriate and logical to use the middle rating to avoid any bias. Additionally,

6   the more important comparison is between municipal bonds and public utility

7   bonds and not the specific bond rating being used.

8

9   **CRITIQUE OF MR. WALKER'S PROPOSED COST OF EQUITY**

10 Q.   **DO YOU AGREE WITH MR. WALKER'S PROPOSED COST OF**

11   **EQUITY?**

12 A.   No. I disagree with Mr. Walker's proposed cost of equity analysis for several

13   reasons. First, I disagree with the weights given to the results of Mr. Walker's

14   CAPM and RP analyses in his recommendation. Next, Mr. Walker

15   inappropriately adds 90 basis points to account for a perceived size effect and 9

16   basis points for what he calls a COVID-19 default adjustment to his CAPM

17   results. Then, he uses an unsupported 110 basis point leverage adjustment to his

18   DCF, and finally, Mr. Walker proposes an additional 25 basis points to each of his

19   DCF, CAPM, and RP results due to alleged investment risk.

1		**WEIGHTS GIVEN TO THE CAPM AND RP METHODS**
2	Q.	**DO YOU AGREE WITH MR. WALKER'S RELIANCE ON THE CAPM**
3		**AND RP MODELS?**
4	A.	No. While I am not opposed to providing the Commission the results of the
5		CAPM for a point of comparison to the results of the DCF calculation, I am
6		opposed to giving the CAPM and RP considerable weight. For the reasons
7		discussed above, including my reference to recent Commission orders, it is not
8		appropriate to give the CAPM and RP models similar weight to the DCF as Mr.
9		Walker has done in creating his recommended cost of equity range (Hanover
10		Statement No. 5, p. 3, lines 6-9). As discussed above, the CAPM measures the
11		cost of equity indirectly and can be manipulated by the time period chosen. Since
12		the RP is a simplified version of the CAPM, it suffers these same flaws.
13		
14		**LEVERAGE (MARKET-TO-BOOK) ADJUSTMENT**
15	Q.	**WHAT IS FINANCIAL LEVERAGE?**
16	A.	Financial leverage is the use of debt capital to supplement equity capital. A firm
17		with significantly more debt than equity is considered to be highly leveraged.
18		
19	Q.	**WHAT IS A MARKET-TO-BOOK RATIO?**
20	A.	A market-to-book ratio is a comparison of a company's book or accounting value
21		to its market value as determined by the market through the company's market
22		capitalization.

1	Q.	**WHAT LEVERAGE ADJUSTMENT HAS MR. WALKER PROPOSED IN**

1   **Q.**   **WHAT LEVERAGE ADJUSTMENT HAS MR. WALKER PROPOSED IN**

2   **HIS ANALYSIS?**

3   A.   Mr. Walker proposed to make at least a 110 basis point leverage adjustment to his

4   DCF result, which is approximately the average of a 180 basis point estimate using

5   the Hamada Model, described below, and a 40 basis point yield spread. This

6   adjustment increased his DCF result from 9.0% to 10.10% (Hanover Statement

7   No. 5, p. 48, lines 12-18).

8

9   **Q.**   **WHAT IS THE BASIS FOR MR. WALKER'S PROPOSED LEVERAGE**

10   **ADJUSTMENT?**

11   A.   Mr. Walker claimed that since the Comparable Group's current market-to-book

12   average is 326%, the DCF understates their common equity cost rate. Mr. Walker

13   claimed this is because the DCF-derived equity cost rate is applied to a book value

14   rate base while investors' returns are measured relative to stock price levels

15   (Hanover Statement No. 5, p. 44, lines 10-20). Mr. Walker then used the average

16   of the "Hamada Formula" and the yield spread to adjust for this perceived risk

17   (Hanover Statement No. 5, p. 45, line 1 through p. 48, line 18).

18

19   **Q.**   **WHAT IS A YIELD SPREAD?**

20   A.   A yield spread is the difference in yields between two groups of bonds.

1	**Q.** **WHAT IS THE BASIS FOR MR. WALKER'S PROPOSED YIELD**
2	**SPREAD?**
3	**A.** Mr. Walker stated that "…if the Comparable Group's debt were rated based on
4	market value debt ratios they would command an Aaa rating" (Hanover Statement
5	No. 5, p. 48, lines 7-8). Mr. Walker then compared the yield spread from January
6	2020 through February 2021 on bonds rated Aaa versus A rated bonds, to
7	determine a 43 basis point spread (Hanover Exhibit HW-1, Schedule 16, p. 3).
8	
9	**Q.** **BASED ON THE WATER FUND'S FILED OUTSIDE CUSTOMER RATE**
10	**BASE AND CLAIMED CAPITAL STRUCTURE, WHAT IS THE VALUE**
11	**OF AN ADDITIONAL 110 BASIS POINTS TO THE COST OF EQUITY**
12	**FOR OUTSIDE CUSTOMERS?**
13	**A.** The example below illustrates the impact of 110 additional basis points to the
14	Water Fund's cost of equity for outside customers:
15	

<div align="center">

Borough of Hanover – Hanover Municipal Water Works

Claimed Equity Percentage of Capital Structure	44.00%
Additional Basis Points to Calculated Cost of Equity	110
Total Outside Customer Rate Base*	$36,029,944
Total Impact on Outside Customers (0.4400 x 0.0110 x $36,029,944)	**$174,385**

* (Hanover Exhibit GRH-1, Schedule 1)

</div>

1		In this example, an addition of 110 basis points to the cost of equity would force
2		outside customers to fund an unwarranted additional amount of $174,385.
3		
4	**Q.**	**DO YOU AGREE WITH MR. WALKER'S LEVERAGE AND YIELD**
5		**ADJUSTMENTS?**
6	A.	No. Mr. Walker's adjustment is inappropriate because of the way rating agencies
7		characterize financial risk, Commission precedent, and investment information
8		available to the public. Furthermore, the yield adjustment is inappropriate.
9		
10	**Q.**	**EXPLAIN HOW RATING AGENCIES ASSESS FINANCIAL RISK.**
11	A.	Rating agencies assess financial risk based upon a company's booked debt
12		obligations and the ability of its cash flow to cover the interest payments on those
13		obligations. The agencies use a company's financial statements for their analysis,
14		not market capital structure. The income statement reflects the financial risk of a
15		company because it represents the performance of the company over a certain
16		period of time. A change in the market value of the stock is not reflected in the
17		income statement nor is a change in market value capital structure reflected in the
18		book value capital structure unless treasury stock is purchased. It is a company's
19		financial statements that affect the market value of the stock, and therefore, the
20		financial statements and the book value capital structure that is relied upon in an
21		analysis such as that done by rating agencies.

1   **Q.   HAS THE COMMISSION RECENTLY REJECTED THE USE OF A**

2   **LEVERAGE ADJUSTMENT?**

3   A.   Yes. The following five cases are the most recent instances where the

4   Commission has rejected the use of a "leverage adjustment."

5   First, in *Pennsylvania Public Utility Commission v. Aqua Pennsylvania,*

6   *Inc.*, at Docket No. R-00072711 (Order Entered July 31, 2008), p. 38, the

7   Commission rejected the ALJ's recommendation for a leverage adjustment stating,

8   "[t]he fact that we have granted leverage adjustments in the past does not mean

9   that such adjustments are indicated in all cases."

10   Second, in *Pennsylvania Public Utility Commission, et al v. City of*

11   *Lancaster – Bureau of Water*, at Docket No. R-2010-2179103 (Order Entered

12   July 14, 2011), p. 79, the Commission agreed with the I&E position and stated,

13   "any adjustment to the results of the market based DCF are unnecessary and will

14   harm ratepayers. Consistent with our determination in *Aqua 2008* there is no need

15   to add a leverage adjustment."

16   Third, in *Pennsylvania Public Utility Commission, et al v. UGI Utilities,*

17   *Inc. – Electric Division*, at Docket No. R-2017-2640058 (Order Entered October

18   25, 2018), pp. 93-94, the Commission agreed with the I&E position and stated,

19   "we conclude that an artificial adjustment in this proceeding is unnecessary and

20   contrary to the public interest. Accordingly, we decline to include a leverage

21   adjustment in our calculation of the DCF cost of equity."

1		Fourth, in *Pennsylvania Public Utility Commission, et. al v. Columbia Gas*
2		*of Pennsylvania, Inc.*, at Docket R-2020-3018835 (Order Entered February 19,
3		2021), pp. 137-141, the Commission adopted the ALJ's recommendation to use
4		I&E's DCF methodology, which excludes the use of a leverage adjustment.
5		Finally, in the most recent case of *Pennsylvania Public Utility Commission,*
6		*et. al v. PECO Energy Company – Gas Division*, at Docket R-2020-3018929
7		(Order Entered June 22, 2021), p. 173, the Commission adopted the ALJ's
8		recommendation to use I&E's DCF methodology, which excludes the use of a
9		leverage adjustment.
10		
11	Q.	**HOW DOES MR. WALKER CALCULATE HIS LEVERAGE**
12		**ADJUSTMENT?**
13	A.	Mr. Walker determined the unleveraged beta for the Comparable Group using the
14		"Hamada formula," and then re-leverages it, using the book value capital structure.
15		Mr. Walker then applied the difference in the betas to the risk premium to get the
16		1.86% increase to common equity (Hanover Exhibit HW-1, Schedule 16, p. 2).
17		The "Hamada formula," used by Mr. Walker was intended to separate the financial
18		risk of a levered firm from its business risk and is as follows (Hanover Statement
19		No. 5, p. 47, lines 3-12):
20		$B1 = Bu\ (1 + (1 – t)\ D/E + P/E)$
21		Where:
22		B1 = observed, leveraged beta

1		Bu = calculated, unleveraged beta
2		t = income tax rate
3		D = debt ratio
4		P = preferred stock ratio
5		E = common equity ratio
6		

7   **Q.**   **DO YOU HAVE ANY FURTHER COMMENTS REGARDING THE**

8   **LEVERAGE ADJUSTMENT?**

9   A.   Yes. As an example, Yahoo! Finance publishes the book value of debt and equity,

10   and the Value Line Investment Survey publishes book value capital structure

11   percentages (not the market valued capital structure) and the book value of debt

12   for utilities which demonstrates that investors are aware of and have access to the

13   book values of the utilities. In addition, the concept of market-to-book ratios is

14   widely known, and as such, it can be assumed that investors will be aware of the

15   difference between the book and market value of a company. The efficient market

16   hypothesis dictates that the price of a security fully reflects available information

17   and so the difference between the market value and the book value is already

18   reflected in the price and no leverage adjustment is needed. Mr. Walker's

19   leverage adjustment assumes that the difference between market and book values

20   is not reflected in the price of a stock and that investors depend upon market value

21   capital structures for investment decisions. The availability of book value capital

1		structures and market-to-book ratios demonstrates that Mr. Walker's assumptions
2		are not valid.
3		
4	**Q.**	**DO YOU AGREE WITH MR. WALKER'S YIELD SPREAD TO ADJUST**
5		**THE COST RATE OF COMMON EQUITY?**
6	A.	No. The use of this arbitrary spread is inappropriate. Mr. Walker is speculating
7		on what the Comparable Group's bond rating would be if it were rated on market
8		value debt. However, since they are rated based on book value, and an Aaa rating
9		is unavailable in the Public Utility Bond market, there is no reason to speculate
10		and adjust for an any conceived difference in yield spreads.
11		Any adjustments to the known bond rating for the Comparable Group
12		would be purely speculative and inappropriate for application in this proceeding.
13		
14	**Q.**	**PLEASE SUMMARIZE YOUR RECOMMENDATION REGARDING THE**
15		**LEVERAGE AND YIELD ADJUSTMENTS.**
16	A.	I recommend the Commission reject the 110 basis point leverage adjustment to the
17		DCF because Commission precedent does not support its use in this case, true
18		financial risk is a function of the amount of interest expense, and information on
19		the differences between the market and book value of a firm are known and
20		therefore already reflected in the stock price. I further recommend rejection of the
21		yield spread adjustment as it is inappropriate based on these factors.

1		**INVESTMENT RISK ADJUSTMENT**
2	Q.	**WHAT INVESTMENT RISK ADJUSTMENT DOES MR. WALKER**
3		**PROPOSE IN HIS ANALYSIS?**
4	A.	Mr. Walker proposed a 25 basis point investment risk adjustment to the DCF,
5		CAPM, and RP methods (Hanover Statement No. 5, p. 58, line 21 through p. 59,
6		line 2).
7		
8	Q.	**WHAT IS THE BASIS FOR MR. WALKER'S INVESTMENT RISK**
9		**ADJUSTMENT?**
10	A.	Mr. Walker discussed capital intensity, size, risk comparison, taxes, bond ratings,
11		and the debt service coverage ratio as reasons to make an adjustment for risk
12		(Hanover Statement No. 5, p. 16 line 5 through p. 30).
13		
14		**CAPITAL INTENSITY**
15	Q.	**WHAT IS CAPITAL INTENSITY?**
16	A.	Capital intensity describes the amount of plant, property, equipment, inventory,
17		and other tangible or physical assets required to generate a unit of sales revenue.
18		
19	Q.	**HOW IS THE CAPITAL INTENSITY RATIO CALCULATED?**
20	A.	It can be calculated by dividing total assets by sales revenue over a given time
21		period. It can also be calculated by dividing annual capital expenditures by annual
22		revenues.

| 1 | Q. | **HOW HAS MR. WALKER CALCULATED CAPITAL INTENSITY?** |

| 2 | A. | Mr. Walker calculated capital intensity by dividing gross plant, property, and |

| 3 | | equipment by net annual sales revenue. |

4

| 5 | Q. | **WHAT DID MR. WALKER CONCLUDE FROM HIS ANALYSIS?** |

| 6 | A. | Mr. Walker provided a schedule showing that among the Water Fund, the Water |

| 7 | | Group Followed by Analysts, and S&P Utilities, the Water Fund was the most |

| 8 | | capital intensive, at $7.68 in plant to produce $1 in revenue (Hanover Exhibit HW- |

| 9 | | 1, Schedule 7). He further proposed that the depreciation rate, or rate of capital |

| 10 | | recovery of an entity was an indication of risk, with a lower capital recovery rate |

| 11 | | equating to a higher risk. In this proceeding, Mr. Walker stated that the Water |

| 12 | | Fund had a lower capital recovery rate than the Comparable Group, and therefore, |

| 13 | | implied more risk (Hanover Statement No. 5, p. 18, lines 14-18). |

14

| 15 | Q. | **DO YOU AGREE WITH MR. WALKER'S METHOD OF CALCULATING** |

| 16 | | **CAPITAL INTENSITY?** |

| 17 | A. | No. While Mr. Walker used sales, and plant, property, and equipment (PP&E) as |

| 18 | | the factors, he is using PP&E unadjusted for depreciation. If Mr. Walker were to |

| 19 | | perform the same calculation using net PP&E, his capital intensity ratio would be |

| 20 | | significantly lower. Also, a high capital intensity ratio may indicate a growing |

| 21 | | business as large capital expenditures in one year may not result in additional |

| 22 | | revenues until the following year. |

1 Q.   **DO YOU AGREE WITH MR. WALKER'S ASSESSMENT OF THE**

2   **WATER FUND'S CAPITAL INTENSITY AND SUGGESTED RISK?**

3 A.   No. A report published by the Water Research Foundation (WRF) explains that

4   while municipal utilities can be more capital intensive, state utility regulators and

5   representatives from investor owned utilities (IOUs) opined that this can be due to

6   the unregulated nature of their business.[6] Since municipal providers in

7   Pennsylvania are only regulated outside their borders, inside plant is not subject to

8   the used and useful standard, a standard that constrains IOUs from oversizing

9   plant. The WRF report also noted that municipalities can be pressured from

10   elected officials to build plant that might not meet the cost-benefit test, and

11   therefore may be oversized. Also, IOU's have higher operating and maintenance

12   costs per person served than do municipal water utilities. The WRF report further

13   concludes that highly capital-intensive businesses must be efficient in their capital

14   process and related decision making.

15

16   **SIZE ADJUSTMENT**

17 Q. **HOW DOES MR. WALKER PROPOSE THAT SIZE IS A**

18   **DETERMINATION OF RISK?**

19 A.   Mr. Walker opined that a company's size is an indicator of business risk and that a

20   smaller company requires the employment of proportionately less financial

---

[6]   Olstein, Myron A., Jennings, Jason D., Geist, Robert; Improving Water Utility Capital Efficiency. Water Research
      Foundation, 2009, pp. 9-13.

1	leverage than a larger company to balance out investment risk. He discussed the
2	impacts of the loss of a large customer, diverse geographic operations of large
3	companies, the number of customers, and size as a barrier to fluid access to capital
4	markets and liquidity. Mr. Walker also claimed that S&P recognizes that size
5	plays a role in credit ratings (Hanover Statement No. 5, p. 19, line 3 through p. 22,
6	line 13). Ultimately, he adds 90 basis points to his CAPM results to account for
7	the Water Fund's small size (Hanover Exhibit HW-1, Schedule 17, p. 1).
8	

9 **Q.** **DO YOU HAVE ANY COMMENTS REGARDING THE STANDARD &**

10 **POOR'S QUOTE RELIED ON BY MR. WALKER?**

11 A. Yes. Mr. Walker relied on Corporate Ratings Criteria to attempt to show size is a

12 factor. However, as discussed below, this is not a factor applicable to utilities.

13 Furthermore, as stated in paragraph 21 of S&P's *Key Credit Factors For The*

14 *Regulated Utilities Industry*,

15 The regulatory framework/regime's influence is of critical
16 importance when assessing regulated utilities' credit risk
17 because it defines the environment in which a utility operates
18 and has a significant bearing on a utility's financial
19 performance.[7]

20 Additionally, Mr. Walker's quotation from the S&P statement is

21 incomplete. The excerpt from S&P's 2008 Corporate Criteria: *Analytical*

22 *Methodology* states:

---

[7] Standard & Poor's RatingsDirect, *Key Credit Factors For The Regulated Utilities Industry*, S&P Global Market Intelligence, p. 4, November 19, 2013.

It is relative-not absolute-size that is crucial in determining market position, extent of diversification, and financial flexibility. Small companies also can enjoy the competitive advantages that accompany a dominant market position…In this sense, sheer mass is not important; demonstrable market advantage is.[8]

Q. DO YOU HAVE ANY COMMENTS REGARDING MR. WALKER'S RELIANCE ON OTHER FINANCIAL LITERATURE?

A. Yes. While there is technical literature supporting adjustments relating to the size of a company, this literature is not specific to the utility industry, or in this case, municipal utilities.

Q. IS THERE ACADEMIC EVIDENCE THAT SUPPORTS YOUR CONCLUSION THAT THE SIZE ADJUSTMENT FOR RISK IS NOT APPLICABLE TO UTILITY COMPANIES?

A. Yes. An article by Annie Wong, "Utility Stocks and the Size Effect: An Empirical Analysis," from the Journal of Midwest Finance Association in 1993, pp. 95-101, concluded:

> The objective of this study is to examine if the size effect exists in the utility industry. After controlling for equity values, there is some weak evidence that firm size is a missing factor from the CAPM for the industrial but not for utility stocks. This implies that although the size phenomenon has been strongly documented for the industrials, the findings suggest that there is no need to adjust for the firm size in utility rate regulation.

---

[8] Standard & Poor's RatingsDirect, *2008 Corporate Criteria: Analytical Methodology*, pp. 16-17. April 15, 2008.

1   While this article is older, its assertion is still valid. Absent any credible up-to-

2   date article to refute Dr. Wong's findings, Mr. Walker's size adjustment to his

3   CAPM results should be rejected. Additionally, and more importantly, the

4   Commission has recently rejected the application of a size adjustment to the

5   CAPM cost of equity calculation.[9]

6

7   **COVID-19 DEFAULT ADJUSTMENT**

8   **Q.   PLEASE DESCRIBE MR. WALKER'S PROPOSED COVID-19 DEFAULT**

9   **ADJUSTMENT?**

10   A.   Mr. Walker proposed a nine basis point adjustment to his CAPM analysis to

11   reflect the difference in the spread between 30-year treasury bonds and A-rated

12   public utility bonds from pre-COVID-19 yields and recent post COVID-19 yields

13   (Hanover Statement No. 5, p. 51, line 21 through p. 52, line 6 and Hanover Exhibit

14   HW-1, Schedule 17, p. 5).

15

16   **Q.   WHAT IS THE BASIS FOR MR. WALKER'S PROPOSED COVID-19**

17   **DEFAULT ADJUSTMENT?**

18   A.   Mr. Walker claimed that actions taken by the Federal Reserve and investors going

19   to high quality investments has resulted in an artificial and historically low interest

20   rates for 30-year treasury bonds while public utility bonds have not decreased to

---

[9]   *Pa. PUC v. UGI Utilities, Inc. – Electric Division;* Docket No. R-2017-2640058 (Order Entered October 25, 2018).
      See generally Disposition of Capital Asset Pricing Model (CAPM), p. 100.

1		the same degree. Mr. Walker stated that the COVID-19 default adjustment
2		normalizes the spread between 30-year treasury bonds and public utility bonds
3		(Hanover Statement No. 5, p. 51, line 21 through p. 52, line 6).
4		
5	Q.	HOW DID MR. WALKER CALCULATE HIS COVID-19 DEFAULT
6		ADJUSTMENT?
7	A.	Mr. Walker determined the COVID-19 default adjustment by taking the difference
8		in the spread between A-rated public utility bonds and 30-year treasury bonds
9		from what he refers to as pre-COVID-19 yields from January 2019 through
10		February 2020 and recent post COVID-19 yields from December 2020 through
11		February 2021. Mr. Walker calculated the average credit spread for pre-COVID-
12		19 yields to be 1.17%, and 1.08% for recent post COVID-19 yields resulting in a
13		COVID-19 default adjustment of 0.09% (1.17% - 1.08%), or nine basis points
14		(Hanover Exhibit HW-1, Schedule 17, p. 5).
15		
16	Q.	DO YOU AGREE WITH MR. WALKER'S PROPOSED COVID-19
17		DEFAULT ADJUSTMENT?
18	A.	No. The COVID-19 default adjustment is inappropriate for two reasons. First, as
19		discussed above, it is inappropriate to charge a premium to the Water Fund's
20		ratepayers in the form of a higher equity cost as municipal owned
21		water/wastewater utilities differ from investor-owned utilities in that they have no
22		equity investors and they do not have the burden of compensating investors with a

1		competitive, market-based return on equity. Second, while investors typically
2		view utilities as safe investments due to the regulation which all but guarantees
3		covering the cost of doing business and the steady and secure revenues due to
4		having a captive customer base, high profits are not and should not be guaranteed,
5		especially in a volatile economic environment. It is important to recognize that
6		any investment comes with some level of risk. Therefore, I believe it is
7		unreasonable for investors to be entirely insulated from the impacts of COVID-19
8		while putting the entire burden on ratepayers where many ratepayers are feeling
9		financial pressure from the pandemic. Due to these reasons, the proposed
10		COVID-19 default adjustment should be rejected.
11		
12		**RISK COMPARISON**
13	**Q.**	**DO YOU AGREE WITH THE COMPARISON OF THE COMPARABLE**
14		**GROUP TO THE WATER FUND AND THE CONCLUSION THAT THE**
15		**WATER FUND IS OVERALL RISKIER THAN THE COMPARABLE**
16		**GROUP?**
17	A.	No. While it is true that for outside customers, the Water Fund must obtain the
18		approval of the Commission before changing rates, for inside customers the Water
19		Fund does not need the approval of the Commission and may change inside rates
20		at the discretion of municipal officials. Therefore, the Water Fund has more
21		flexibility in its determination of total system revenue than the Comparable Group.

1   **TAXES**

2   **Q.   WHAT IS MR. WALKER'S CLAIM REGARDING DEFERRED TAXES**

3   **AND RISK?**

4   A.   Mr. Walker claimed that the Water Fund does not benefit from income taxes the

5   way that an investor-owned utility does. He claimed that the ability of an

6   investor-owned utility to defer taxes can provide a margin or cushion against a

7   decrease in sales or an increase in operating expenses (Hanover Statement No. 5,

8   p. 23, lines 6-14).

9

10 **Q.   DO YOU AGREE WITH MR. WALKER'S CLAIM REGARDING**

11   **DEFERRED TAXES?**

12 A.   No. Mr. Walker testified that the Water Fund was riskier because it lacks the

13   income tax benefits, which Mr. Walker described as the ability of the utility to

14   claim deferred taxes. What Mr. Walker ignored is that the Water Fund is not

15   subject to income taxes. It has no need to defer taxes because it does not have any

16   income taxes to defer. The proxy group companies may benefit from their ability

17   to defer taxes, but the Water Fund is in a far better position by not being subject to

18   income taxes in the first place.

1   **BOND RATING**

2   **Q.   HOW DID MR. WALKER USE BOND RATINGS TO DETERMINE THE**

3   **WATER FUND'S RISK COMPARED TO THE COMPARABLE GROUP?**

4   A.   Mr. Walker compared the bond ratings of the Comparable Group to his own

5   hypothetical bond rating of the Water Fund to determine its level of risk (Hanover

6   Statement No. 5, p. 24, line 6 through p. 27, line 5).

7   Mr. Walker stated that, "Based on Water Fund's small size, it is highly

8   likely that Water Fund's credit profile is below A (e.g., BBB, etc.)" (Hanover

9   Statement No. 5, p. 26, lines 4-5).

10

11   **Q.   DO YOU AGREE WITH MR. WALKER'S STATEMENT THAT THE**

12   **WATER FUND'S SIZE ALONE SUPPORTS A BOND RATING BELOW**

13   **BBB?**

14   A.   No. Size is only one factor upon which a corporation is rated. For example, in its

15   discussion of corporate credit analysis categories, S&P states, "Note that we do

16   not have any predetermined weights for these categories. The significance of

17   specific factors varies from situation to situation."[10] Accordingly, relying upon

18   one select criterion absent all others is inappropriate and produces trivial results.

19   Mr. Walker also speculated that his assumed bond rating below A would

20   indicate that the Water Fund's equity is riskier and demands a higher return. He

---

[10]   *General: Corporate Ratings Criteria 2008: Overview, p. 20,* S&P Global Ratings, April 15, 2008.

1		used the Comparable Group's bond ratings to indicate that size (indicating risk)
2		would affect the rate of return required in the equity market. However, Hanover
3		Exhibit HW-1, Schedule 6 demonstrates that size is not the only criteria a rating
4		depends upon. For example, his data illustrates that Evergy, Inc. is more than 11
5		times smaller ($144,011,592 ÷ $12,171,057) than NextEra Energy Inc. based on
6		Recent Market Value and has a higher beta which indicates more systematic risk
7		and volatility. Both companies, however, have the same A- credit rating from
8		S&P (Hanover Exhibit HW-1, Schedule 6, p. 1).
9		Finally, Moody's states, "If municipalities were rated on the corporate
10		scale, Moody's would likely assign Aaa ratings (highest quality with the lowest
11		risk) to the vast majority of general obligation debt issued by fiscally sound, large
12		municipal issuers." Moody's further states, "Moody's expects that nearly all
13		performing municipal general obligation and essential service revenue bonds
14		would be rated Aa3 or higher if rated on the corporate rating scale."[11]
15		
16	Q.	DO YOU HAVE ANY OTHER COMMENTS REGARDING BOND
17		RATINGS?
18	A.	Yes. Mr. Walker's discussion of S&P's corporate credit ratings criteria ignores
19		the differences between municipal utilities and investor owned utilities.

---

[11] *Special Comment*, Moody's US Municipal Bond Rating Scale, p. 11, November 2002.

1		Specifically, municipal utilities have the ability to raise rates, at least for their
2		internal, non-jurisdictional customers to account of any shortfalls in revenue.
3		
4	**Q.**	**HOW DO THE MUNICIPAL UTILITIES DIFFER FROM INVESTOR-**
5		**OWNED UTILITIES?**
6	A.	Municipalities report to their customers and the taxpayers within their jurisdiction
7		while IOUs report to both customers and to investors or owners. An investor-
8		owned utility is expected to earn a return for its investors; however, a municipality
9		has no investors to earn a return for. Therefore, the comparison of an investor-
10		owned utility's financials to those of a municipal utility is not equal.
11		
12	**Q.**	**DO YOU HAVE ANY FINAL COMMENTS REGARDING MR.**
13		**WALKER'S BOND RATINGS ANALYSIS?**
14	A.	Yes. Mr. Walker points out that the Water Fund obtains its debt financing from
15		the Borough of Hanover, which has an Aa3 credit rating from Moody's Investors
16		Service (Moody's) or an AA- credit rating from S&P (Hanover Statement No. 5,
17		p. 24, lines 9-11 and Hanover Exhibit HW-1, Schedule 10, p. 1). The Aa3 credit
18		rating from Moody's or AA- credit rating from S&P represents a "high grade"
19		investment grade rating. This is contrary to the non-investment grade or
20		speculative rating that Mr. Walker hypothesizes the Water Fund would receive if
21		its bonds were rated.

DEBT SERVICE COVERAGE RATIO (DSCR)

1

2 **Q. PLEASE DEFINE DEBT SERVICE.**

3 A. Debt service is the annual amount of principal and interest due on outstanding

4 loans.

5

6 **Q. PLEASE DEFINE DEBT SERVICE COVERAGE.**

7 A. Debt service coverage is a ratio of annual funds available to cover annual debt

8 service divided by the annual debt service requirement (principal and interest).

9

10 **Q. HOW DID MR. WALKER USE THE DSCR TO DETERMINE THE**

11 **WATER FUND'S RISK COMPARED TO THE PROXY GROUP?**

12 A. Mr. Walker discussed debt service ratios, compared the Water Fund's debt service

13 to the Comparable Group's debt service, and concluded that the Water Fund

14 needed a higher DSCR to maintain similar credit quality. Additionally, Mr.

15 Walker described reports from Moody's regarding debt service coverage levels for

16 the typical municipal water and sewer utility to support his claim for a higher

17 return on equity (Hanover Statement No. 5, p. 27, line 6 through p. 29, line 11).

18

19 **Q. DO YOU AGREE WITH MR. WALKER'S ASSESSMENT OF DEBT**

20 **SERVICE COVERAGE RATIOS?**

21 A. No. I believe Mr. Walker's assessment of DSCRs is without merit. There are

22 many financial differences between municipal providers and corporations. A

1	corporation operates on a for-profit basis while a municipality does not. There are
2	separate ratings criteria and separate types of bonds for a corporation, a public
3	utility, and a municipality, which demonstrates that the concerns and risks of each
4	entity differ.
5	
6	**Q.** **WHAT COMMENTS DO YOU HAVE REGARDING THE MOODY'S**
7	**RATINGS REPORTS DISCUSSED BY MR. WALKER?**
8	A. While the minimum DSCR may be the minimum found by the reports, Mr. Walker
9	has not identified whether the Water Fund has a required minimum DSCR,
10	therefore, a minimum ratio of 1.0 times debt service is implied.
11	
12	**Q.** **WHAT IS AN APPROPRIATE MEASURE OF DEBT SERVICE**
13	**COVERAGE?**
14	A. A combination of things can be used to determine an appropriate DSCR.
15	Covenants can require a minimum level of DSCR that must be maintained.
16	Additionally, rating agencies have guidelines as to what is considered appropriate
17	for water/sewer municipal utilities' DSCRs.
18	
19	**Q.** **DOES THE WATER FUND HAVE A COVENANT FOR DEBT SERVICE**
20	**COVERAGE?**
21	A. Neither Mr. Walker nor the original filing have identified specific terms for a debt

1		service requirement. However, clearly, the Water Fund must meet all bond
2		payments due, therefore, the implied coverage requirement is 1.0 times.
3		
4	**Q.**	**WHAT ARE THE CREDIT RATING AGENCY GUIDELINES FOR DEBT**
5		**SERVICE COVERAGE FOR A WATER/SEWER MUNICIPAL UTILITY?**
6	A.	The S&P article <u>Key Water and Sewer Utility Credit Ratio Ranges</u> states that less
7		than 1.0 times is insufficient, 1.0 to 1.25 times is adequate, 1.26 to 1.50 times is
8		good, and greater than 1.50 times is strong (I&E Exhibit No. 2, Schedule 12, p. 4).
9		Although Mr. Walker has not provided debt service coverage calculations for 2020
10		or the FTY, he does illustrate that the Water Fund has achieved ratios that fall into
11		the "great" range for 2018 and 2019 (Hanover Exhibit HW-1, Schedule 10, p. 2).
12		
13	**Q.**	**ARE YOU MAKING ANY RECOMMENDATIONS REGARDING A DSCR**
14		**FOR THE WATER FUND?**
15	A.	No. Due to Commission precedent to use the rate base rate of return method, debt
16		service coverage is only reviewed as a check. To my understanding, the Water
17		Fund has no debt service coverage requirements in the form of bond covenants,
18		aside from an implied 1.0x ratio to ensure debt payments may be made. Since
19		both principal and interest are included as recoverable expenses, this ratio has
20		been met.

1		**INVESTMENT RISK ADJUSTMENT CALCULATION**

1   **INVESTMENT RISK ADJUSTMENT CALCULATION**

2   **Q.**   **HOW HAS MR. WALKER CALCULATED HIS INVESTMENT RISK**

3   **ADJUSTMENT?**

4   A.   Mr. Walker determined the 25 basis point adjustment by using the difference in

5   long-term debt cost rates of the yield spread between A and BBB rated public

6   utility debt (Hanover Statement No. 5, p. 58, lines 17-20).

7

8   **Q.**   **DO YOU AGREE WITH MR. WALKER'S CALCULATION OF AN**

9   **INVESTMENT RISK ADJUSTMENT?**

10   A.   No. For all the reasons explained in the issues above, and the fact that the Water

11   Fund's bond rating is pure speculation, Mr. Walker's investment risk adjustment is

12   unnecessary.

13

14   **OVERALL RATE OF RETURN RECOMMENDATION**

15   **Q.**   **WHAT IS THE WATER FUND'S PROPOSED OVERALL RATE OF**

16   **RETURN?**

17   A.   The Water Fund's proposed overall rate of return is 6.86%, or alternatively, 6.27%

18   if the Commission deems it appropriate to implement a tax adjustment to the cost

19   of equity (Hanover Exhibit HW-1, Schedule 21).

1 **Q. WHAT IS I&E'S RECOMMENDED OVERALL RATE OF RETURN?**

2 A.   I recommend an overall rate of return for the Water Fund of 4.48%, which

3   includes a tax adjustment to the cost of equity (I&E Exhibit No. 2, Schedule 1).

4

5 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

6 A.   Yes.

Professional and Educational Experience
Christopher Keller

Professional Experience

January 2014 to Present
Fixed Utility Financial Analyst
Pennsylvania Public Utility Commission, Harrisburg, Pennsylvania
Bureau of Investigation & Enforcement

September 2008 to January 2014
Insurance Company Financial Analyst
Pennsylvania Insurance Department, Harrisburg, Pennsylvania
Bureau of Licensing & Financial Analysis

Education and Training

FAI Utility Finance and Accounting for Financial Professionals, Boston, MA
May 21-23, 2014

York College of Pennsylvania, York, Pennsylvania
Master of Business Administration, Finance Concentration, 2008
Bachelor of Science, Accounting, 2006

Testimony Submitted

I have testified and/or submitted testimony in the following proceedings:
- Docket No. R-2021-3025206 – Community Utilities of Pennsylvania – Water Division (ROR)
- Docket No. R-2021-3025207 – Community Utilities of Pennsylvania – Wastewater Division (ROR)
- Docket No. R-2021-3025652 – UGI Utilities, Inc. – Gas Division (1307(f))
- Docket No. R-2021-3024750 – Duquesne Light Company (O&M and ROR)
- Docket No. R-2021-3024296 – Columbia Gas of Pennsylvania, Inc. (ROR)
- Docket No. R-2020-3018929 – PECO Energy Company – Gas Division (ROR)
- Docket No. P-2020-3020914 – Twin Lakes Utilities, Inc. (529 Proceeding)
- Docket No. R-2020-3018835 – Columbia Gas of Pennsylvania, Inc. (ROR)
- Docket No. R-2020-3019680 – UGI Utilities, Inc. (1307(f))
- Docket No. P-2020-3019356 – PPL Electric Utilities Corporation (DSP)
- Docket No. R-2019-3015162 – UGI Utilities, Inc. – Gas Division (ROR)
- Docket No. R-2019-3010955 – City of Lancaster – Sewer Fund (O&M)
- Docket No. R-2019-3009647 – UGI Utilities, Inc. – Gas Division (1307(f))
- Docket No. R-2018-3006818 – Peoples Natural Gas Company LLC (O&M)
- Docket No. R-2018-3000124 – Duquesne Light Company (O&M)

Professional and Educational Experience
Christopher Keller

Testimony Submitted (Continued)

I have testified and/or submitted testimony in the following proceedings:
- Docket No. R-2018-3001631 – UGI Central Penn Gas, Inc. (1307(f))
- Docket No. R-2018-3001632 – UGI Penn Natural Gas, Inc. (1307(f))
- Docket No. R-2018-3001633 – UGI Utilities, Inc. (1307(f))
- Docket No. R-2018-2645938 – Philadelphia Gas Works (1307(f))
- Docket No. P-2017-2637855 – Metropolitan Edison Company (DSP)
- Docket No. P-2017-2637857 – Pennsylvania Electric Company (DSP)
- Docket No. P-2017-2637858 – Pennsylvania Power Company (DSP)
- Docket No. P-2017-2637866 – West Penn Power Company (DSP)
- Docket No. R-2017-2602627 – UGI Central Penn Gas, Inc. (1307(f))
- Docket No. R-2017-2602638 – UGI Utilities, Inc. (1307(f))
- Docket No. R-2017-2586783 – Philadelphia Gas Works (O&M)
- Docket No. R-2017-2587526 – Philadelphia Gas Works (1307(f))
- Docket No. I-2016-2526085 – Delaware Sewer Company (529 Proceeding)
- Docket No. R-2016-2531550 – Citizens' Electric Company (O&M)
- Docket No. R-2016-2531551 – Wellsboro Electric Company (O&M)
- Docket No. R-2016-2537349 – Metropolitan Edison Company (CWC and CAP)
- Docket No. R-2016-2537352 – Pennsylvania Electric Company (CWC and CAP)
- Docket No. R-2016-2537355 – Pennsylvania Power Company (CWC and CAP)
- Docket No. R-2016-2537359 – West Penn Power Company (CWC and CAP)
- Docket No. R-2016-2543311 – UGI Central Penn Gas, Inc. (1307(f))
- Docket No. R-2015-2518438 – UGI Utilities, Inc. – Gas Division (CWC and USP)
- Docket No. P-2015-2511333 – Metropolitan Edison Company (DSP)
- Docket No. P-2015-2511351 – Pennsylvania Electric Company (DSP)
- Docket No. P-2015-2511355 – Pennsylvania Power Company (DSP)
- Docket No. P-2015-2511356 – West Penn Power Company (DSP)
- Docket No. R-2015-2468056 – Columbia Gas of Pennsylvania, Inc. (O&M)
- Docket No. P-2014-2404341 – Delaware Sewer Company (529 Investigation)
- Docket No. R-2014-2452705 – Delaware Sewer Company (O&M)
- Docket No. R-2014-2428304 – Borough of Hanover – Water (O&M)
- Docket No. R-2014-2419774 – Wellsboro Electric Company (Customer Choice Support Charge)
- Docket No. R-2014-2420279 – UGI Central Penn Gas, Inc. (1307(f))

Assisted with the Following Cases

- Docket No. R-2017-2631441 – Reynolds Water Company (ROR)

Professional and Educational Experience
Christopher Keller

Assisted with the Following Cases (Continued)

- Docket No. R-2016-2580030 – UGI Penn Natural Gas, Inc. (ROR)
- Docket No. R-2014-2462723 – United Water Pennsylvania (CWC)
- Docket No. R-2014-2428742 – West Penn Power Company (CWC)
- Docket No. R-2014-2428743 – Pennsylvania Electric Company (CWC)
- Docket No. R-2014-2428744 – Pennsylvania Power Company (CWC)
- Docket No. R-2014-2428745 – Metropolitan Edison Company (CWC)
- Docket No. R-2013-2397353 – Pike County Light & Power Company (Gas) (O&M)
- Docket No. R-2013-2397237 – Pike County Light & Power Company (Electric) (O&M)

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

BOROUGH OF HANOVER – HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Exhibit to Accompany

the

Direct Testimony

of

Christopher Keller

Bureau of Investigation and Enforcement

Concerning:

Rate of Return

I&E
Summary of Cost of Capital

Type of Capital	Ratio	Cost Rate	Weighted Cost
Borough of Hanover - Hanover Municipal Water Works			
Long-Term Debt	56.00%	2.98%	1.67%
Common Equity	44.00%	8.91%	3.92%
Total	100.00%		5.59%

I&E (With Tax Adjustment)
Summary of Cost of Capital

Type of Capital	Ratio	Cost Rate	Weighted Cost
Borough of Hanover - Hanover Municipal Water Works			
Long-Term Debt	56.00%	2.98%	1.67%
Common Equity	44.00%	6.39%	2.81%
Total	100.00%		4.48%

	8.91	
Tax Adjustment	(2.52)	8.91 X 28.31%
	6.39	

Proxy Group Capital Structure

	2020		2019		2018		2017		2016		Average
American Water Works											
Long-term Debt	$ 9,414.000	59.33%	$ 8,733.000	58.79%	$ 7,576.000	56.37%	$ 6,498.000	54.68%	$ 5,759.000	52.46%	56.33%
Preferred Stock	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	0.00%
Common Equity	6,454.000	40.67%	6,121.000	41.21%	5,864.000	43.63%	5,385.000	45.32%	5,218.000	47.54%	43.67%
	15,868.000	100.00%	14,854.000	100.00%	13,440.000	100.00%	11,883.000	100.00%	10,977.000	100.00%	100.00%
American States Water Co											
Long-term Debt	584.184	47.66%	492.735	45.03%	376.587	40.28%	321.039	37.73%	320.981	39.37%	42.01%
Preferred Stock	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	0.00%
Common Equity	641.673	52.34%	601.530	54.97%	558.223	59.72%	529.945	62.27%	494.297	60.63%	57.99%
	1,225.857	100.00%	1,094.265	100.00%	934.810	100.00%	850.984	100.00%	815.278	100.00%	100.00%
California Water Service Group											
Long-term Debt	794.968	46.32%	799.682	50.63%	710.027	49.30%	515.793	42.65%	531.745	44.64%	46.71%
Preferred Stock	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	0.00%
Common Equity	921.344	53.68%	779.906	49.37%	730.157	50.70%	693.462	57.35%	659.471	55.36%	53.29%
	1,716.312	100.00%	1,579.588	100.00%	1,440.184	100.00%	1,209.255	100.00%	1,191.216	100.00%	100.00%
Middlesex Water Co											
Long-term Debt	278.286	44.41%	236.509	42.05%	152.851	37.83%	139.045	37.51%	134.538	37.85%	39.93%
Preferred Stock	2.084	0.33%	2.084	0.37%	2.433	0.60%	2.433	0.66%	2.436	0.69%	0.53%
Common Equity	346.208	55.25%	323.792	57.57%	248.787	61.57%	229.175	61.83%	218.437	61.46%	59.54%
	626.578	100.00%	562.385	100.00%	404.071	100.00%	370.653	100.00%	355.411	100.00%	100.00%
SJW Group											
Long-term Debt	1,287.580	58.40%	1,283.597	59.05%	431.424	32.67%	431.092	48.20%	433.335	50.68%	49.80%
Preferred Stock	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	0.00%
Common Equity	917.160	41.60%	889.984	40.95%	889.312	67.33%	463.209	51.80%	421.646	49.32%	50.20%
	2,204.740	100.00%	2,173.581	100.00%	1,320.736	100.00%	894.301	100.00%	854.981	100.00%	100.00%
Essential Utilties											
Long-term Debt	5,563.386	54.29%	2,954.972	43.23%	2,398.464	54.41%	2,007.753	50.63%	1,737.605	48.43%	50.20%
Preferred Stock	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	0.00%
Common Equity	4,683.877	45.71%	3,880.860	56.77%	2,009.364	45.59%	1,957.621	49.37%	1,850.068	51.57%	49.80%
	10,247.263	100.00%	6,835.832	100.00%	4,407.828	100.00%	3,965.374	100.00%	3,587.673	100.00%	100.00%
York Water Company											
Long-term Debt	123.573	46.31%	94.535	41.33%	93.328	42.51%	90.098	43.01%	84.609	42.59%	43.15%
Preferred Stock	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	0.00%
Common Equity	143.252	53.69%	134.185	58.67%	126.195	57.49%	119.405	56.99%	114.061	57.41%	56.85%
	266.825	100.00%	228.720	100.00%	219.523	100.00%	209.503	100.00%	198.670	100.00%	100.00%

Five-Year Average Capital Structure						
Long-term Debt	46.88%		**Maximum**	56.33%	**Minimum**	39.93%
Preferred Stock	0.08%					
Common Equity	53.05%		**Minimum**	43.67%	**Maximum**	59.54%
	100.00%					

Source: Compustat (data in millions)
April 2021

Accessed on September 10, 2021

	2020		
	Interest Charges	**Long-Term Debt**	**Debt Cost**
American Water Works	$ 408.00	$ 9,414.00	4.33%
American States Water Co	22.53	584.18	3.86%
California Water Service Group	45.05	794.97	5.67%
Middlesex Water Co	7.49	278.29	2.69%
SJW Group	58.39	1,287.58	4.53%
Essential Utilties	188.44	5,563.39	3.39%
York Water Company	4.71	123.57	3.81%

Range:	**Low**	**2.69%**
	High	**5.67%**
	Average	**4.04%**

Source: Compustat
April 2021

Accessed on September 10, 2021

Dividend Yields of the Proxy Group

Company	American Water Works	American States Water Co	California Water Service Group	Middlesex Water Co	SJW Group	Essential Utilties	York Water Company
Symbol	AWK	AWR	CWT	MSEX	SJW	WTRG	YORW
Div	2.57	1.52	0.98	1.15	1.44	1.12	0.83
52-wk low	131.01	69.25	41.19	59.61	58.01	38.28	40.57
52-wk high	189.35	94.96	65.99	116.40	71.69	51.42	53.77
Spot Price	187.54	93.04	63.93	114.14	69.48	50.12	51.55
Spot Div Yield	1.37%	1.63%	1.53%	1.01%	2.07%	2.23%	1.61%
52-wk Div Yield	1.60%	1.85%	1.83%	1.31%	2.22%	2.50%	1.76%
Average	**1.49%**	**1.74%**	**1.68%**	**1.16%**	**2.15%**	**2.37%**	**1.68%**

	Average
Spot Div Yield	1.64%
52-wk Div Yield	1.87%
Average	1.76%

Source: Barrons — July 9, 2021 and Sept 10, 2021
Value Line — July 9, 2021

Five-Year Growth Estimate Forecast for Seven Company Proxy Group

Company	Symbol	Yahoo	Zacks	Morningstar	Value Line	Average
				Source		
American Water Works	AWK	8.60%	8.10%	8.70%	8.50%	8.48%
American States Water Co	AWR	6.30%	NA	5.20%	6.50%	6.00%
California Water Service Group	CWT	11.70%	NA	11.50%	6.50%	9.90%
Middlesex Water Co	MSEX	2.70%	NA	NA	4.50%	3.60%
SJW Group	SJW	7.00%	NA	6.60%	13.00%	8.87%
Essential Utilties	WTRG	6.40%	6.20%	7.50%	10.00%	7.53%
York Water Company	YORW	4.90%	NA	NA	6.50%	5.70%

Average   **7.15%**

Sources date:
(From Internet)
July 9, 2021 and September 10, 2021

Expected Market Cost Rate of Equity
Using Data for the Proxy Group of Seven Water Companies
5-Year Forecasted Growth Rates

Time Period		Adjusted Dividend Yield	Growth Rate	Expected Return on Equity
		(1)	(2)	(3=1+2)
(1)	**52-Week Average**	1.87%	7.15%	9.02%
	Ending: September 10, 2021			
(2)	**Spot Price**	1.64%	7.15%	8.79%
	Ending: September 10, 2021			
(3)	**Average:**	**1.76%**	**7.15%**	**8.91%**

Sources: Value Line July 9, 2021
Barrons September 10, 2021

Company	Beta
American Water Works	0.85
American States Water Co	0.65
California Water Service Group	0.65
Middlesex Water Co	0.70
SJW Group	0.80
Essential Utilties	0.95
York Water Company	0.85
Average beta for CAPM	**0.78**

Source:
Value Line
July 9, 2021

Risk-Free Rate

Treasury note 10-yr Note	Yield
4Q 2021	1.60
1Q 2022	1.70
2Q 2022	1.80
3Q 2022	1.90
4Q 2022	2.00
2023-2027	2.90
Average	**1.98**

Source:
Blue Chip
June 1, 2021 and September 1, 2021

Required Rate of Return on Market as a Whole Forecasted

	Dividend Yield	+	Growth Rate	=	Expected Market Return
Value Line Estimate	1.80%		7.79% (a)		9.59%
S&P 500	1.38% (b)		13.30%		14.68%
Average Expected Market Return				=	12.13%

(a) ((1+35%)^.25) -1) Value Line forecast for the 3 to 5 year index appreciation is 35%
(b) S&P 500 dividend yield multiplied by half the S&P 500 growth rate

S&P 500 Dividend Yield: 1.29%

Sources:
Value Line   9/10/2021
S&P 500 Dividend Yield (Barrons)   9/8/2021
S&P 500 Growth Rate (Morningstar)   9/10/2021

CAPM with Forecasted Return

Re		Required return on individual equity security
Rf		Risk-free rate
Rm		Required return on the market as a whole
Be		Beta on individual equity security

$$\mathbf{Re} = Rf+Be(Rm-Rf)$$

Rf	**=**	1.98
Rm	**=**	12.13
Be	**=**	0.78
Re	**=**	**9.89**

Sources: Value Line July 9, 2021
               Blue Chip   June 1, 2021 and September 1, 2021

Borough of Hanover - Hanover Municipal Water Works
Municipal Tax Adjustment
Moody's A-Rated Bonds

Mergent Bond Record	Average Municipal Bond Yields	Average Public Utility Bond Yields	Implied Tax Rate
	(M)	(P)	1-[(M)/(P)]
Sep-20	2.24%	2.84%	21.13%
Oct-20	2.34%	2.95%	20.68%
Nov-20	2.35%	2.85%	17.54%
Dec-20	2.01%	2.77%	27.44%
Jan-21	2.08%	2.91%	28.52%
Feb-21	1.93%	3.09%	37.54%
Mar-21	2.24%	3.44%	34.88%
Apr-21	2.18%	3.30%	33.94%
May-21	2.20%	3.33%	33.93%
Jun-21	2.14%	3.16%	32.28%
Jul-21	2.16%	2.95%	26.78%
Aug-21	2.21%	2.95%	25.08%
Average:	**2.17%**	**3.05%**	**28.31%**
	1.93%	**2.77%**	**30.32%**
Range:	to	to	to
	2.35%	**3.44%**	**31.69%**

Source: Mergent Bond Record (September 2021)

STANDARD &POOR'S

Global Credit Portal
RatingsDirect®

September 15, 2008

Criteria | Governments | U.S. Public Finance:

Key Water And Sewer Utility Credit Ratio Ranges

Primary Credit Analysts:
Theodore Chapman, Dallas (1) 214-871-1401; theodore_chapman@standardandpoors.com
James Wiemken, Chicago (1) 312-233-7005; james_wiemken@standardandpoors.com

Table Of Contents

Criteria | Governments | U.S. Public Finance:

Key Water And Sewer Utility Credit Ratio Ranges

Municipally-owned utilities continue to demonstrate rating stability and solid-investment-grade financial metrics despite concern about current economic conditions and the impact on local governments (see the article, "U.S. Public Finance Report Card: Water Supply Pressures Could Test The Stability Of Providers," dated Feb. 4, 2008, on RatingsDirect).

The representative ranges of ratios for water and/or sewer utility revenue bond issuers below provides an indication, through the use of descriptors, of what constitutes a high to low ratio from an analytical credit perspective. The selected ratios represent key factors Standard & Poor's Ratings Services uses in the credit rating process.

Municipalities may also own and/or operate other enterprises such as electric utilities, solid waste or other systems. While many of the metric addressed below also are part of the analysis for these other enterprises, Standard & Poor's will address key ratios specifically for those enterprises at a later date.

The ratios complement Standard & Poor's periodic updates of historical median ratios for rated utilities. (These medians represent measures of economic, financial, and system indebtedness characteristics.) The statistics will drift up and down during economic cycles because Standard & Poor's analysis is forward looking. In recent years, the medians have tended to outperform analytical guidelines.

However, it is not the case that an issuer must attain certain financial metrics in order to guarantee a certain rating or rating level. Financial condition -- historical, current, and likely future -- is only one of the criteria points for a water and sewer utility revenue bond rating.

Reading Behind The Numbers

Means, particularly for lesser-weighted ratios, may give a false impression in certain cases that deviations from the means may imply the need for a rating change, when in fact we may believe there is analytical comfort in a broad band of numbers for a particular ratio.

Examples of this phenomenon are evident when comparing key ratio ranges to the means for similar ratios. While a credit with a liquidity of six months' cash on hand would be technically "below average," relative to the rated universe of issuers, regardless of system size, we would nevertheless likely view it as having strong cash reserves.

Similarly, an issuer with total debt service coverage of all obligations of 1.4x, meaning pledged revenues are 40% greater than the revenue requirements, would likely be characterized as "good," all other things being equal.

Key Rating Factors

The relative weight of each factor is discussed in detail in Standard & Poor's Criteria section on RatingsDirect (the most recent article was published June 25, 2007). When evaluating water and sewer systems, Standard & Poor's examines six main factors:

- Economic considerations;
- Financial data/capital improvement plan;
- Rate criteria;
- Operational characteristics;
- Management; and
- Legal provisions.

Variation in the relative strengths or weaknesses of any of these factors can influence our opinion of creditworthiness and, accordingly, our ratings. Additionally, there is no dependent relationship between a general obligation (GO) rating and the revenue rating of the same entity. Due to the significance of the service area and economic base in our analysis and the frequent overlap of senior staff at the government and utility levels, the ratings of GO bonds and revenue bonds tend to be close, but there is also significant room for divergence, as seen in the case of Jefferson County, Ala.

A Note of Caution

Ratios do not tell the whole story -- they are only a portion of what Standard & Poor's uses in its analysis. Economic, administrative, structural, and other qualitative factors may outweigh any of these ratios when a rating is assigned. Numbers alone cannot determine an entity's willingness to meet its financial obligations, nor can they reveal a history of reactive or nonexistent rate adjustments or the operating restraints presented by the state/local framework.

The key ratios below do not represent a complete set of the ratios Standard & Poor's uses in its analysis. We also incorporate information from many internal and external databases. Depending on various credit conditions, certain ratios can take on more significance than others. In addition, a municipal entity's trends in any of these ratios may be more important to us than the historical ratios. A rating, after all, is prospective in nature.

Key Ratios

Income Levels – Household/Per Capita Effective Buying Income As A Percentage Of U.S. Level

As is the case with GO debt ratings, wealth and income levels are an important credit factor in our analysis, as they provide insight regarding the economic resources of a utility's service area. It does not necessarily imply the rate base's ability to pay a utility bill or a utility's willingness to make rate adjustments, but we believe it is still one of many important factors. One way to evaluate wealth and income levels is to look at the household/per capita effective buying income of the locality relative to the average U.S. level.

Below 65% Low

65% - 90% Adequate

90% - 110% Good

110% - 130% Strong

Above 130% Very Strong

Debt Service Coverage

Given that there usually are legal covenants that require an issuer to provide some transparent level of security to the bondholders, Standard & Poor's views the minimum level of operating revenues (excluding impact fees and other nonrecurring revenues) available for debt service as generally sufficient, i.e. 1.0x, for all liens. A ratio of less than 1.0x may indicate a mismatch between revenues and revenue requirements, and, possibly, a technical default by the bondholder that may compel further action such as a review of the appropriateness of the current rate schedule and structure.

Wholesale or regional systems, or joint action agencies, which typically provide water or sewer services on a cost-of-service-based rate schedule, will typically have lower coverage, although the criteria for wholesale utilities -- which typically includes an analysis of the system's participants' general creditworthiness -- allows less emphasis to be paid to the wholesaler's financial metrics.

<1.0x Insufficient

1.0x to 1.25x Adequate

1.26x to 1.50x Good

>1.50x Strong

Liquidity

A typical water utility earns most of its revenues -- often more than half -- from May through August. While sanitary sewer systems typically have more constant revenue flows, it is increasingly common for sewer billings to be either tied to water demand, or even be a flat, fixed rate. Because there is usually some fluctuation in cash flows due to seasonal demands, the amount of precipitation, or other economic or customer base trends, we look to whether a utility has some reasonable level of unrestricted cash or equivalents for working capital. In our analysis, Standard & Poor's also gives credit to cash and investments that may be designated, but ultimately available for any lawful purpose such as a renewal and replacement fund or a rate stabilization fund. Generally speaking, a system that simply distributes a third party's treated water to its retail customers, or collects and conveys its sewer flows to a regional sewer treatment facility operated by another entity, has less operating and financial risk, in our view, and may therefore require less working capital.

<30 days Low

30 to 60 days Adequate

60 to 120 days Good

>120 days Strong

Total Debt To Net Property, Plant And Equipment

Simply referred to as "debt to plant," this ratio is an approximation that can be used as a proxy for total system indebtedness. A ratio of 0% means the system has no debt outstanding and 100% means there is as much debt outstanding as net depreciable value of the system's assets, although it is certainly possible for the number to be greater than 100%. Total debt per retail customer account is another useful measure in our view, but when the issuer is a regional or wholesale system, the number of ultimate water meters is not always discernable. System indebtedness is useful for a number of reasons: it can give insight into, for example, whether the system is in the middle of a large growth- or rehabilitation-driven capital program (in which case the debt to plant number is high). It can also be closely tied to the system's rates and capacity for additional debt.

<40% Low

40% to 60% Moderate

60% to 80% Moderately high

>80% High

Top 10 Customers As A Percentage Of Total Operating Revenues

A system's high dependence on one or more of its principal customers for revenue need not constrain its rating. However, the fact a system's business could be affected by the changing fortunes of one of its principal customers should not be overlooked either. Therefore, Standard & Poor's looks at the relative diversity or concentration of operating revenues derived from sales to customers to gain insight into this potential vulnerability.

Examples might include a water-intensive food processor shuttering operations, the expiration of the contract of a large wholesale customer, or a major local employer relocating a facility to somewhere outside the service area. Conversely, if revenue distribution among the principal customers is relatively evenly dispersed, concentration concerns are more likely to be mitigated even if in totality the top customers comprise a large portion of total revenues.

<15% Very diverse

15% to 25% Diverse

26% to 40% Moderately concentrated

>40% Concentrated

Fixed-Charge Coverage

Similar to debt service, fixed-charge coverage is Standard & Poor's internally adjusted coverage calculation that factors into account that some utility systems are distribution-only and/or collection-only, with capital-intensive treatment plants built, owned and operated by another entity. Obligations to those third parties are typically off-balance sheet and often treated as operating expenses, not debt. These may also include raw-water purchases or

other contractual obligations or participation in a joint action agency.

We believe fixed-charge coverage allows a more realistic comparison between "pipes-only" systems and those that also include treatment plants. Standard & Poor's treats any recurring long-term obligation as fixed, especially capacity payments or other minimum demand costs that the system must pay regardless of whether the service is delivered. The adjusted debt service coverage calculation, therefore, removes these fixed charges from operating expenses and instead treats them as if they were debt, allowing for a more meaningful quantitative comparison between these systems and those with actual on-balance sheet debt.

<1.0x Insufficient

1.0x to 1.20x Adequate

1.21x to 1.40x Good

>1.40x Strong

The McGraw-Hill Companies

671259 | 300105925

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

BOROUGH OF HANOVER – HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Direct Testimony

of

Esyan A. Sakaya

Bureau of Investigation and Enforcement

Concerning:
Test Year
Rate Base
Plant Additions
Reporting Requirements
Cost of Service
Proposed Revenue
Other Operating – Late Payment Revenue
Rate Structure
Scale Back of Rates

TABLE OF CONTENTS

INTRODUCTION

1 **INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Esyan A. Sakaya. My business address is Pennsylvania Public Utility

4 Commission, Commonwealth Keystone Building, 400 North Street, Harrisburg,

5 Pennsylvania 17120.

6

7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am employed by the Pennsylvania Public Utility Commission ("Commission") in

9 the Bureau of Investigation and Enforcement ("I&E") as a Fixed Utility Valuation

10 Engineer.

11

12 **Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT EXPERIENCE?**

13 A. Appendix A, which is attached to my testimony, describes my educational

14 background and professional experience.

15

16 **Q. PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

17 A. I&E is responsible for protecting the public interest in proceedings before the

18 Commission. The I&E analysis in the proceeding is based on its responsibility to

19 represent the public interest. This responsibility requires balancing the interests of

20 the ratepayers, the company and the regulated community.

1 Q. **WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

2 A. The purpose of my testimony is to address issues related to rate base and rate

3   design. Specifically, I will address the proposed rate base reporting requirements,

4   rate design, a correction to the proof of revenue, late payment charges, and the

5   scale-back of rates for the Borough of Hanover – Hanover Municipal Water

6   Works ("Hanover" or "Water Fund") requested a $1,563,100 general base rate

7   increase for customers located outside the Borough (Hanover Exhibit GRH-1, Sch.

8   1, p. 1).

9

10 Q. **DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**

11 A. Yes. I&E Exhibit No. 3 contains a schedule related to my testimony.

12

13 **TEST YEAR**

14 Q. **WHAT IS A TEST YEAR AND HOW IS IT USED BY A COMPANY IN A**

15   **RATE PROCEEDING?**

16 A. A test year is the twelve-month period over which a utility's costs and revenues

17   are measured as the basis for setting prospective base rates. In order to meet its

18   burden of proof, a utility has the option of selecting to use a historic test year

19   ("HTY"), a future test year ("FTY"), or a Fully Projected Future Test Year

20   ("FPFTY"). An HTY is a twelve-month period selected by a company that

21   represents a recent full year of actual data. An FTY begins the day after the HTY

22   ends and is determined using a combination of actual data and a projection of

2

1   annualized and normalized estimates of future revenues and expenses and a

2   corresponding measure of value at the end of that period. The FPFTY is defined

3   as the twelve-month period that begins with the first month that the new rates will

4   be placed into effect, after the application of the full suspension period permitted

5   under Section 1308(d). The FPFTY is a shift from the fundamental ratemaking

6   principle that a public utility should only be permitted to include projects in rate

7   base and earn a reasonable return on its investments after they become "used and

8   useful" for the utility's public service.

9

10   **Q.   WHAT TEST YEARS HAS THE COMPANY USED IN THIS**

11   **PROCEEDING?**

12   A.   The Company used the twelve-month period ending December 31, 2020 as the

13   HTY, the twelve-month period ending December 31, 2021 as the FTY, and the

14   twelve-month period ending December 31, 2022 as the FPFTY (Hanover St. No.

15   2, p. 2).

16

17   **Q.   WHAT TEST YEAR HAS THE COMPANY BASED ITS REVENUE**

18   **REQUIREMENT ON IN THIS PROCEEDING?**

19   A.   Hanover based its proposed revenue requirement on the FPFTY ending December

20   31, 2022 (Hanover St. No. 3, p. 3).

1	**RATE BASE**	
2	**Q.**	**WHAT IS RATE BASE?**
3	A.	Rate base is the depreciated original cost of a company's investment in utility
4		plant determined to be used and useful in the public service at the end of the test
5		year. It also includes other additions and deductions that the Commission
6		determines to be necessary plant in order to keep the utility operating and
7		providing safe and reliable service to its customers.
8		
9	**Q.**	**WHAT RATE BASE DID THE COMPANY CLAIM IN THE ORIGINAL**
10		**FILING?**
11	A.	The total rate base claimed by the Company for test year ending December
12		31,2022 is $53,560,839 (Hanover Ex. GRH-1, Sch. 4). Additionally, the rate base
13		claim for outside-Borough customers for test year ending December 31, 2022 is
14		$36,029,944 (Hanover Ex. CEH-1, Sch. B).
15		
16	**PLANT ADDITIONS**	
17	**Q.**	**DOES HANOVER'S $53,560,839 RATE BASE CLAIM FOR THE FPFTY**
18		**INCLUDE FORECASTED ADDITIONS AND RETIREMENTS TO PLANT**
19		**IN SERVICE?**
20	A.	Yes, Hanover's rate base includes the net plant additions for both the FTY and
21		FPFTY.

1 Q. **HOW MUCH NET PLANT IS HANOVER PREDICTING IT WILL ADD IN**

2   **THE FUTURE TEST YEAR ENDING DECEMBER 31, 2021?**

3 A. The net utility plant additions projected by Hanover for the year ending December

4   31, 2021 are $6,508,841. The $6,508,841 is the result of subtracting the $248,029

5   of retirements shown on Hanover Ex. JJS-2, page V-6 from the $6,756,870 of

6   original cost plant additions. The $6,756,870 was calculated by beginning with

7   the original cost of plant in service for the year ending December 31, 2021

8   ($67,201,519) shown on Hanover Ex. JJS-2, page V-5 and subtracting the original

9   cost of utility plant in service for the year ended December 31, 2020 ($60,692,678

10   shown on Hanover Ex. JJS-1, page I-4).

11

12 Q. **HOW MUCH NET PLANT IS HANOVER PREDICTING IT WILL ADD IN**

13   **THE FULLY PROJECTED FUTURE TEST YEAR ENDING DECEMBER**

14   **31, 2022?**

15 A. The net utility plant additions projected by Hanover for the year ending December

16   31, 2022 are $6,510,000. The $6,510,000 is the result of subtracting the $220,450

17   of retirements shown on Hanover Ex. JJS-3, page I-5 from the $6,730,450 of

18   original cost plant additions. The $6,730,450 was calculated by beginning with

19   the original cost of plant in service for the year ending December 31, 2022

20   ($73,711,519 shown on Hanover Ex. JJS-3, page I-4) and subtracting the original

21   cost of utility plant in service for the year ended December 31, 2021 ($67,201,519

22   shown on Hanover Ex. JJS-2, page V-5).

1 **REPORTING REQUIREMENTS**

2 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING PLANT**

3 **ADDITIONS THAT THE COMPANY PROJECTS TO BE IN SERVICE**

4 **DURING THE FTY AND THE FPFTY?**

5 A. Yes. I recommend that the Company provide the Commission's Bureaus of

6 Technical Utility Services and Investigation and Enforcement with a schedule

7 comparing the projected plant additions and retirements for the FTY with actual

8 plant additions and retirements for the FTY, no later than April 1, 2022. I also

9 recommend that the Company provide a similar comparison for the FPFTY no

10 later than April 1, 2023.

11

12 **Q. WHY DO YOU RECOMMEND HANOVER PROVIDING THESE**

13 **COMPARISONS?**

14 A. I&E believes that there is value in determining how closely Hanover's projected

15 investments in future facility compare with the actual investments that are made

16 by the end of the FTY and FPFTY. Determining the correlation between

17 Hanover's projected and actual results will help inform the Commission and the

18 parties in Hanover's future rate cases.

19 The updates are important because, as previously explained, through the

20 use of the FPFTY, Hanover is essentially requiring ratepayers to pre-pay a return

21 on its projected investment in future facilities that are not in place and providing

22 service at the time the new rates take effect, but also are not subject to any

1 guarantee of being completed and placed into service. While the FPFTY provides

2 for such projections, there should be verification of the projections. Therefore,

3 requiring the Company to provide updates demonstrating that actual investments

4 comport with projections used in setting rates using the FPFTY provides the

5 Commission with actual data to gauge the accuracy of Hanover's projections.

6

7 **COST OF SERVICE**

8 **Q.   WHAT IS A COST OF SERVICE STUDY?**

9 A.   A cost of service study is a formalized analysis of costs that attempts to assign to

10   each customer or rate class its proportionate share of the company's total cost of

11   service (i.e., the company's total revenue requirement). The results of such a

12   study can be utilized to determine the relative cost of service for each class and

13   help determine the individual class revenue requirements and, to the extent a

14   particular class is above or below the system average rate of return, show the

15   additional revenues each class receives or conversely the additional revenues that

16   each class contributes to the company's overall revenues. In addition to the

17   relative provision of revenues, a relative rate of return is also provided, which

18   shows how the rate of return for each class compares to the system average rate of

19   return.

1   **Q.**   **DID THE HANOVER PERFORM A FULLY ALLOCATED COST OF**

2   **SERVICE STUDY IN THIS PROCEEDING?**

3   **A.**   Yes. The results of the cost of service study along with a study narrative are set

4   forth in Hanover Exhibit No. CEH-1, Part I, pp. 2-4. This cost of service study

5   included in the filing utilizes the Base-Extra Capacity Method. This methodology

6   identifies costs and allocates them to the functional cost categories of base cost,

7   extra capacity cost, customer cost and fire hydrant cost.

8

9   **Q.**   **WHAT PERCENTAGE INCREASE DOES HANOVER PROPOSE FOR THE**

10   **USAGE RATES FOR EACH CUSTOMER CLASS?**

11   **A.**   Hanover's proposed rate increase is shown on Hanover Exhibit No. CEH-1, Part II,

12   Schedule H, page 1. This schedule shows a 45.7% increase to the residential usage

13   charge, a 39.3% increase to the Commercial/Public usage charge, a 28.0% increase

14   to the Industrial usage charge, a 38.0% increase to the Large Industrial usage charge,

15   and a 40.0% increase to each of the Private Fire Quarterly Charges.

16

17   **PROPOSED REVENUE**

18   **Q.**   **DID YOU DISCOVER AN ERROR IN THE DETERMINATION OF**

19   **PROPOSED REVENUE?**

20   **A.**   Yes. During my review of proposed revenue I determined that the annualization

21   adjustment labeled R-9 for customers outside the Borough was understated.

| 1 | Q. | **DID THE COMPANY AGREE WITH YOU THAT IT MISTAKENLY** |

1 Q. **DID THE COMPANY AGREE WITH YOU THAT IT MISTAKENLY**

2   **CALCULATED THE REVENUE ANNUALIZATION?**

3 A. Yes. The Company's response to I&E-RS-11 states the annualization labeled R-9

4   should be $24,688 rather than $12,344 (I&E Ex. No. 3, Sch. 1). Therefore, I

5   recommend that this correction be reflected by the Company in its rebuttal

6   testimony.

7

8 **OTHER OPERATING – LATE PAYMENT REVENUE**

9 Q. **HOW MUCH LATE PAYMENT REVENUE DOES THE COMPANY**

10   **PROJECT RECEIVING UNDER PRESENT AND PROPOSED RATES**

11   **FOR THE FPFTY?**

12 A. In this filing, the Company reflected approximately $14,809 of "Penalties" also

13   known as - late payment revenue under both present and proposed rates for the

14   FPFTY ending December 31, 2022 for customers outside the Borough (Hanover

15   Ex. GRH-1, Sch. 2, page 2).

16

17 Q. **WHAT DO YOU RECOMMEND CONCERNING THE $14,809 IN LATE**

18   **PAYMENT REVENUE UNDER PROPOSED RATES?**

19 A. I recommended that the revenue from "Penalties" be increased by $4,280 from

20     $14,809 to $19,089 under proposed rates for the FPFTY.

1	Q.	**HOW DID YOU DETERMINE THE $4,280 INCREASE IN LATE**
2		**PAYMENT REVENUE UNDER PROPOSED RATES?**
3	A.	The Company is requesting an increase in tariff rates of 28.9.% ($1,563,100 /
4		$5,406,462). The $4,280 ($14,809 X 0.289) equates to 28.9% increase in present
5		rate late payment revenue.
6		
7	Q.	**WHY DO YOU RECOMMEND THE REVENUE FROM LATE**
8		**PAYMENTS BE INCREASED?**
9	A.	I believe it is reasonable to expect that late payment revenue will increase when a
10		utility's base rates are increased as a result of a base rate proceeding. Since late
11		payment revenue is generally a percentage of a customer's bill, increasing water
12		service revenue through a rate increase will cause revenues from late payments to
13		increase over time.
14		
15		**RATE STRUCTURE**
16	Q.	**WHAT ASPECTS OF RATE STRUCTURE DOES THE COMMISSION**
17		**CONSIDER WHEN ESTABLISHING RATES?**
18	A.	One of the considerations in establishing rates is the resulting rate of return by
19		customer class and the corresponding relative rate of return by class (how the rate of
20		return for each class compares to the system average rate of return). The optimum
21		goal should be to establish rates so that the revenue received from a particular class is
22		equal to the corresponding costs of providing service to that class. A relative rate of

1		return above 1.00 for a class indicates that the cost of providing service is less than
2		the revenue received from that class. A relative rate of return below 1.00 for a class
3		indicates that the cost of providing service is more than the revenue received from
4		that class. The relative rate of return under present and proposed rates for each class,
5		are shown by class on Hanover Exhibit No. CEH-1, Sch. B and C.
6		
7	**Q.**	**DOES HANOVER'S PROPOSED OUTSIDE USAGE RATES MOVE THE**
8		**RELATIVE RATE OF RETURN TOWARDS THE GOAL OF 1.00?**
9	A.	Yes, as shown on Hanover Exhibit No. CEH-1, Sch. B and C, line 8, the increases
10		in the proposed usage rates move the relative rate of return towards the goal of
11		1.00.
12		
13	**SCALE BACK OF RATES**	
14	**Q.**	**WHAT OVERALL PERCENTAGE INCREASES HAS HANOVER**
15		**PROPOSED FOR EACH OUTSIDE-BOROUGH CUSTOMER CLASS?**
16	A.	As shown on Hanover Exhibit No. CEH-1, Schedule A, the Water Fund is proposing
17		the following increases for each class:

- 18   •   Residential   26.8%,
- 19   •   Commercial/Public   25.7%,
- 20   •   Industrial   23.7%,
- 21   •   Large Industrial   37.7%,
- 22   •   Private Fire   40.1%,
- 23   •   Public Fire   0.0%.

| 1 | Q. | IS HANOVER PROPOSING AN INCREASE TO THE CUSTOMER |

1   **Q.**   **IS HANOVER PROPOSING AN INCREASE TO THE CUSTOMER**

2   **CHARGE OF ANY OF ITS RATE CLASSES?**

3   A.   No.

4

5   **Q.**   **WHAT SCALE BACK DO YOU RECOMMEND IF THE COMMISSION**

6   **GRANTS LESS THAN THE FULL INCREASE?**

7   A.   I recommend that the increase in each class be reduced proportional to the

8   percentage increases described above.

9

10   **Q.**   **WHY DO YOU RECOMMEND A PROPORTIONAL SCALE BACK IF**

11   **THE COMMISSION GRANTS LESS THAN THE FULL INCREASE?**

12   A.   A proportional scale back is appropriate because the cost of service study and the

13   relative rates of return under proposed rates reflect that Hanover's rate structure is

14   appropriately moving all classes towards a relative rate of return of 1.00 (Hanover

15   Exhibit No. CEH-1, Sch C, line 8). A proportional scale back will still satisfy the

16   goal of preserving the movement proposed by Hanover it its rate structure

17   proposal.

18

19   **Q.**   **DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

20   A.   Yes.

Esyan A. Sakaya

THE PENNSYLVANIA PUBLIC UTILITY COMMISSION
400 North Street
HARRISBURG, PA 17120

Education:

National Association of Regulatory Utility Commissioners, Clearwater, FL
Utility Rate School; Utility Rate Making Basics, October 2019

Society of Depreciation Professionals, Philadelphia, PA
Introduction to Depreciation; Depreciation Fundamentals, September 2019

Temple University, Philadelphia, PA
Bachelor of Science; Major in Engineering Technology, 2015

Community College of Philadelphia, Philadelphia, PA
Associate of Applied Science; Major in Construction Management Technology, 2011

Island School of Building Arts, Gabriola Island, BC-Canada
Certificate Graduate: Heavy Timber Construction Aug 2002-Nov 2002

Solar Energy International, Carbondale, CO
Certificate Graduate: Basic and Advanced Photovoltaic Design, April 2002-May 2002

Experience:

12/2018-Present

Pennsylvania Public Utility Commission-Harrisburg, PA

Fixed Utility Valuation Engineer- Assist in engineering related studies related to valuation, depreciation, cost of service, quality of service as they apply to regulated utilities. Contribute in evaluating, contrasting and conducting performance analyses in distinctive sections of valuation engineering and rate structure involving valuation concepts, original cost, rate base, fixed capital costs, inventory processing, excess capacity, cost of service, and rate design. Provide expert testimony in rate related utility cases.

4/2018-12/2018
Pennsylvania Department of Transportation-Harrisburg, PA

Photogrammetry Technician I- Created three-dimensional mapping layouts of natural and man-made features from stereoscopic images on a computer workstation. Assisted in the field placement of ground based surveyed control-points prior to aerial photography acquisition. Provided field support in the use of laser scans for comprehensive digital surveying data. Operated global positioning satellite surveying equipment to obtain accurate geodetic coordinates of pre-established benchmarks.

8/2017-4/2018
Pennoni and Associates. Consulting Engineers-King of Prussia, PA

Construction Inspector-Provided quality assurance in the onsite material testing of concrete, soils, and asphalt. Read and interpreted construction drawings and specifications of materials and components. Completed daily reports regarding project progress to engineers, project managers/superintendents, contractors and clients.

TESTIMONY SUBMITTED:

I have assisted and/or submitted testimony in the following proceedings:

NO.	Case
1.	UGI Gas Utilities - Gas Division, Docket Number: R-2018-3006814
2.	Newtown Artesian Water Company, Docket Number: R-2018-3006904
3.	Pittsburgh Wastewater, Docket Number: M-2018-2640803
4.	PAWC Purchase of Steelton, Docket Number: A-2019-3006814
5.	Philadelphia Gas Works, Docket Number: R-2019-3009016 - 3007636
6.	Community Utilities Water, Docket Number: R-2019-3008947
7.	Aqua Purchase of Cheltenham, Docket Number: A-2019-3008491
8.	UGI NORTH, Docket Number: R-2019-3009647
9.	UGI CENTRAL, Docket Number: R-2019-3009647
10.	UGI SOUTH, Docket Number: R-2019-3009647
11.	Twin Lakes Utilities, Docket Number: R-2019-3010958
12.	Penn Power Company, Docket: P-2019-3012628
13.	UGI Gas Utilities, Docket Number: R-2019-3015162
14.	National Fuel and Gas Distribution, Docket Number: R-2020-3015251

15. Columbia Gas of Pennsylvania, Docket: R-2020-3018993 -3018835
16. Duquesne Light Company, Docket Number: P-2020-3019522
17. PA American Water Company, Docket R-2020-3019369 – 310937
18. Bethlehem Water Company, Docket R-2020-3020256
19. Audubon Water Company, Docket: R-2020-3020919
20. Twin Lakes Utilities, Docket: P-2020-3020914
21. Pike County Light and Power-Gas, Docket: R-2020-3022134
22. Pike County Light and Power-Electric, Docket: R-2020-3022135
23. Duquesne Light Company, Docket Number: R-2021-3024750
24. Community Utilities Water, Docket Number: R-2021-3025206
25. Community Utilities Wastewater, Docket Number: R-2021-3025206

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

BOROUGH OF HANOVER – HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Exhibit to Accompany

the

Direct Testimony

of

Esyan A. Sakaya

Bureau of Investigation and Enforcement

Concerning:
Test Year
Rate Base
Plant Additions
Reporting Requirements
Cost of Service
Proposed Revenue
Other Operating – Late Payment Revenue
Rate Structure
Scale Back of Rates

BUREAU OF INVESTIGATION AND ENFORCEMENT INTERROGATORIES

BOROUGH OF HANOVER - WATER

Docket No. R-2021-3026116

Witness: G. Herbert

I&E-RS-11 Reference Schedule 7, Revenue adjustment R-9, Historic Annualization for Outside Revenue. Should the amounts under column 7 be twice as much as shown?

RESPONSE:

Yes, the total adjustment of R-9 should be $24,688 and not $12,344.

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

BOROUGH OF HANOVER
HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Surrebuttal Testimony

of

Zachari Walker

Bureau of Investigation & Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES

CASH WORKING CAPITAL

REVENUE ANNUALIZATION

TABLE OF CONTENTS

i

INTRODUCTION

Q. **PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A.   My name is Zachari Walker, and my business address is Pennsylvania Public

Utility Commission, 400 North Street, Harrisburg, PA 17120.

Q. **BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

A.   I am employed by the Pennsylvania Public Utility Commission (Commission or

PUC) in the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility

Financial Analyst.

Q. **ARE YOU THE SAME ZACHARI WALKER WHO SUBMITTED**

I&E STATEMENT NO. 1 AND I&E EXHIBIT NO. 1?

A.   Yes.

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

A.   The purpose of my surrebuttal testimony is to respond to the rebuttal testimony of

The Borough of Hanover – Hanover Municipal Water Works (Hanover or

Borough) witnesses Gregory R. Herbert (Hanover Statement No. 2-R) and

Michael J. Mehaffey (Hanover Statement No. 1-R).

1   Q.   DOES YOUR SURREBUTTAL TESTIMONY INCLUDE AN

2   ACCOMPANYING EXHIBIT?

3   A.   Yes. I&E Exhibit No. 1-SR accompanies this surrebuttal testimony. Additionally,

4   I refer to my direct testimony and its accompanying exhibit in this surrebuttal

5   testimony (I&E Statement No. 1 and I&E Exhibit No. 1).

6

7   **OPERATING AND MAINTENANCE EXPENSE ADJUSTMENTS**

8   Q.   PLEASE SUMMARIZE THE BOROUGH'S REQUESTED REVENUE

9   INCREASE.

10   A.   The Borough's requested gross operating revenue increase remains $1,563,100[1]

11   for the Fully Projected Future Test Year (FPFTY) ending December 31, 2022, in

12   rebuttal testimony.

13

14   Q.   WAS THERE AN ISSUE WHEN ATTEMPTING TO REPLICATE THE

15   BOROUGH'S REVENUE REQUIREMENT CALCULATION AS STATED

16   IN ITS REBUTTAL TESTIMONY?

17   A.   Yes. When entering the only operating and maintenance (O&M) expense changes

18   accepted by Hanover witness Gregory Herbert of $3,773 and $1,674 for

19   professional services-engineering services and bank fees,[2] along with a

20   corresponding updated jurisdictional claim of $435,320[3] for cash working capital,

---

[1]   Hanover Exhibit GRH-1-R.
[2]   Hanover Exhibit GRH-1-R.
[3]   Hanover Statement No. 2-R, p. 9.

1   I arrive at an updated revenue requirement that reflects present rate revenues of

2     $5,659,214 for Hanover's rebuttal position. Further, I calculate proposed revenues

3   of $7,215,810 ($5,659,214 + $1,556,596) for Hanover's rebuttal position, or an

4   increase to present rate revenues of $1,556,596. This is $6,504 ($1,563,100 -

5     $1,556,596) less than Mr. Herbert suggests in Hanover Exhibit GRH-1-R.

6   Therefore, I am using my calculation as the Company corrected rebuttal testimony

7   position prior to entering any I&E adjustments to arrive at an I&E-recommended

8   revenue requirement.

9

10 **Q.**   **PLEASE SUMMARIZE YOUR ADJUSTMENTS AS CONTAINED IN**

11   **THIS SURREBUTTAL TESTIMONY.**

12 A.   The following table summarizes my recommended adjustments to Hanover's

13   rebuttal position:

14

	Borough Claim	I&E Recommended Allowance	I&E Adjustment
O&M Expenses:			
Rate Case Expense	$141,033	$108,026	($33,007)
Sewer Bill	$222,022	$146,925	($75,097)
Total O&M Adjustments			**($108,104)**
Rate Base:			
Cash Working Capital	$435,320	$407,923	($27,397)
Total Rate Base Adjustments			**($27,397)**

1   **SUMMARY OF I&E OVERALL UPDATED POSITION**

2   **Q.   WHAT IS I&E'S TOTAL UPDATED RECOMMENDED REVENUE**

3   **REQUIREMENT?**

4   A.   I&E's updated total recommended revenue requirement is $6,461,555. This

5   recommended revenue requirement represents an increase of $802,341 to

6   Hanover's claimed present rate revenues of $5,659,214. This total recommended

7   allowance incorporates my adjustments made in this testimony to O&M expenses

8   and cash working capital, and those recommended adjustments made in the

9   testimony of I&E witness Christopher Keller (I&E Statement No. 2).

10   An updated calculation of the I&E recommended revenue requirement is

11   shown below:

Borough of Hanover		TABLE I			
R-2021-3026116		INCOME	SUMMARY		
	12/31/22		INVESTIGATION & ENFORCEMENT		
	Proforma	[--]			
	Present Rates	Adjustments	Present Rates	Allowances	Proposed
	$	$	$	$	$
Operating Revenue	5,659,214	0	5,659,214	802,341	6,461,555
Deductions:					
O&M Expenses	3,458,713	-108,104	3,350,609	0	3,350,609
Depreciation	1,386,991	0	1,386,991		1,386,991
Taxes, Other	111,071	0	111,071	0	111,071
Income Taxes:					
Current State	0	0	0	0	0
Current Federal	0	0	0	0	0
Deferred Taxes	0	0	0		0
ITC	0	0	0		0
Total Deductions	4,956,775	-108,104	4,848,671	0	4,848,671
Income Available	702,439	108,104	810,543	802,341	1,612,884
Rate Base	36,029,263	-27,397	36,001,866	0	36,001,866
Rate of Return	1.95%		2.25%		4.48%

12

4

1   **RATE CASE EXPENSE**

2   **Q.   SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**

3   **FOR RATE CASE EXPENSE.**

4   A.   I recommended Hanover's rate case expense be normalized over a period of 47

5   months, in line with Hanover's historic rate case filing frequency producing an

6   annualized amount of $108,026 [($423,100 ÷ 47 months) x 12] per year. This

7   results in a reduction of $33,007 ($141,033 - $108,026) to Hanover's annual rate

8   case expense claim. This recommendation was based on previous Commission

9   decisions that supported a rate case filing interval based on historic filing

10   frequency.[4]

11

12   **Q.   DID ANY WITNESS RESPOND TO YOUR RECOMMENDATION?**

13   A.   Yes. Hanover witness Gregory Herbert disagrees with my recommendation.

14

15   **Q.   PLEASE SUMMARIZE MR. HERBERT'S RESPONSE.**

16   A.   Mr. Herbert states the Borough filed rate cases in 2009, 2012, and 2014 yielding a

17   historical filing frequency of two and a half years between 2009 and 2014.

18   According to Mr. Herbert, the three-year normalization period is appropriate due

19   to historical filing frequency between 2009 and 2014 because it does not penalize

20   the Borough for the delayed filing of a rate case due to costs, requirements from

---

[4]   I&E Statement No. 1, pp. 7-8.

1		the previous case, and limited resources while allowing the Borough to spread the
2		rate case expense over a period of years.
3		
4	**Q.**	**WHAT IS YOUR RESPONSE TO MR. HERBERT'S ASSERTION?**
5	A.	The Borough's normalization period fails to account for the 84-month gap
6		between the instant proceeding and the most recent rate case in 2014. Excluding
7		this period in the calculation of historic filing frequency for normalization
8		purposes results in an unreasonable increase to jurisdictional rates.
9		
10	**Q.**	**DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
11		**RATE CASE EXPENSE?**
12	A.	No. I continue to recommend normalizing rate case expense over 47 months
13		which yields an annual allowance of $108,026. This is a reduction of $33,007
14		($141,033 – $108,026) to the Borough's annual rate case expense claim.
15		
16	**SEWER BILL**	
17	**Q.**	**SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
18		**FOR THE SEWER BILL.**
19	A.	I recommended an allowance of $146,925 or a reduction of $75,097 ($222,022 -
20		$146,925) to the Borough's jurisdictional claim. This recommendation was based

1		on the historic three-year average expense adjusted for inflation and forecasted to
2		the FPFTY.[5]
3		
4	**Q.**	**DID ANY WITNESS RESPOND TO YOUR RECOMMENDATION?**
5	A.	Yes. Hanover witness Gregory Herbert disagrees with my recommended sewer
6		bill adjustment,[6] and Michael Mehaffey provides information pertaining to
7		BOD/SS concentration.[7]
8		
9	**Q.**	**SUMMARIZE MR. HERBERT'S RESPONSE.**
10	A.	Mr. Herbert states the Borough has experienced higher solids concentrations since
11		the second quarter of 2019. Additionally, the Borough projects the sewer bill will
12		stay level or increase relative to the 2020 expense amount due to the application of
13		surcharges.
14		
15	**Q.**	**WHAT IS YOUR RESPONSE TO MR. HERBERT'S REBUTTAL**
16		**TESTIMONY?**
17	A.	After reviewing the response to I&E-RE-27[8] and Mr. Herbert's rebuttal testimony,
18		I recognize the source of increased expense in the historic test year; however, the
19		Borough still has not fully supported the basis of the increased expense projected

---

[5]   I&E Statement No. 1, pp. 9-11.
[6]   Hanover Statement No. 2-R, pp. 7-8.
[7]   Hanover Statement No. 1-R, pp. 3-4.
[8]   I&E Exhibit No. 1-SR, Schedule 1.

1		to continue into the FPFTY nor explained the surcharge situation that he
2		referenced.
3		
4	**Q.**	**SUMMARIZE MR. MEHAFFEY'S RESPONSE.**
5	A.	Mr. Mehaffey states the higher BOD/SS concentrations are the result of system
6		improvements allowing Hanover to decant water from the waste basin. According
7		to Mr. Mehaffey, the residual slurry has less volume, but a higher BOD/SS
8		concentration which is expected to continue for the foreseeable future.
9		
10	**Q.**	**WHAT IS YOUR RESPONSE TO MR. MEHAFFEY'S REBUTTAL**
11		**TESTIMONY?**
12	A.	It is logical to reason that an improvement to a system which decreases the overall
13		volume of slurry would correspond to a decreased overall cost as reduced volumes
14		would be delivered to the wastewater treatment plant to yield the same volume of
15		sludge. Since wastewater charges are volumetrically based, a process where the
16		solids content increases but slurry volumes decrease contradicts the increase in
17		sewer bill expense continuing into the FPFTY.
18		
19	**Q.**	**DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
20		**THE SEWER BILL?**
21	A.	No. I continue to recommend an allowance of $146,925 or a reduction of $75,097

1	($222,022 - $146,925) for the sewer bill due to Hanover's lack of support for this
2	increase continuing into the FPFTY.
3	
4	**CASH WORKING CAPITAL**
5	**Q.**	**SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
6		**FOR CASH WORKING CAPITAL (CWC).**
7	A.	I recommended an allowance of $409,091, or a reduction of $26,910 ($436,001 -
8		$409,091) to Hanover's CWC claim. My recommendation excluded taxes other
9		than income in the calculation of my recommended allowance and contained two
10		additional adjustments. After eliminating of taxes other than income from the total
11		system O&M expenses and calculating the CWC for the total system, the COSS
12		allocation factor was applied to the adjusted total system CWC. This adjustment
13		resulted in a decrease of $13,397 ($436,001 - $422,604) to the Borough's
14		jurisdictional CWC claim. The final adjustment recognized the expense
15		adjustments recommended in my direct testimony for those expenses included in
16		the CWC computation, producing a reduction of $13,513 ($108,104 ÷ 8) to the
17		Borough's CWC claim. When the two adjustments are added together, my
18		recommended adjustment was a total reduction $26,910 ($13,397 + $13,513) to
19		the Borough's jurisdictional CWC claim, or stated another way, a jurisdictional
20		CWC allowance of $409,091 ($436,001 - $26,910).[9]

---

[9]   I&E Statement No. 1, pp. 14-15.

1   **Q. DID ANY WITNESS RESPOND TO YOUR RECOMMENDATION?**

2   A.   Yes. Hanover witness Gregory Herbert disagrees with my CWC recommendation

3   based on Hanover's disagreement with my recommended adjustments to

4   individual O&M expenses as well as with the exclusion of taxes other than income

5   from the CWC calculation.

6

7   **Q. WHAT IS THE HERBERT'S UPDATED CWC CLAIM?**

8   A.   Mr. Herbert states the Borough's updated CWC claim is $435,320 to include all

9   O&M expense adjustments accepted in the Borough's rebuttal testimony.[10]

10

11   **Q. DO YOU AGREE WITH THE BOROUGH'S CLAIM?**

12   A.   No.

13

14   **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**

15   **CWC?**

16   A.   Yes. I am updating my CWC recommendation to reflect the Borough's updated

17   CWC claim in Mr. Herbert's rebuttal testimony.[11] My resulting recommended

18   jurisdictional CWC allowance is $407,923[12] or a reduction of $27,397 ($435,320 -

19         $407,923) to the Borough's updated jurisdictional CWC claim. Additionally, the

20   removal of taxes other than income, for the reasons stated in my direct

---

[10]   Hanover Statement No. 2-R, p. 9.
[11]   Hanover Statement No. 2-R, p. 9.
[12]   I&E Exhibit 1-SR, Schedule 2.

1		testimony,[13] results in a reduction of $13,884 ($111,071 ÷ 8) and the above
2		adjustments to the Borough's O&M expenses, a reduction of $13,513 ($108,104 ÷
3		8) to the Borough's CWC claim. The removal of taxes other than income is done
4		this way as to capture the correct amount included in the Borough's updated CWC
5		claim since money to cover taxes is generally deemed as received by a utility prior
6		to paying the taxes due. This is based on Mr. Herbert disagreeing with my
7		removal of these taxes in rebuttal testimony[14] and the Borough's utilization of the
8		1/8th Method to calculate the CWC claim. My updated recommended allowance
9		for CWC is $407,923 ($435,320 - $13,884 - $13,513) or a reduction of $27,397
10		($435,320 - $407,923) to the Borough's updated jurisdictional CWC claim.
11		
12	**Q.**	**DO YOU HAVE ANY OTHER REMARKS CONCERNING CWC?**
13	A.	Yes. In the instant proceeding, I recommend the Commission should require
14		Hanover to request permission for a waiver of the requirement to use a lead/lag
15		study in future base rate case filings that request an increase in jurisdictional rates
16		over $1 million, if Hanover anticipates not complying with the requirements set
17		forth in 52 Pa. Code § 53.53. Hanover used the rule-of-thumb, or 1/8th, method to
18		determine the Borough's jurisdictional CWC claim. While there are certain
19		instances where this method is allowable, Commission regulations require that
20		general rate increase requests exceeding $1 million in additional revenues must

---

[13]   I&E Statement No. 1, pp. 14-15.
[14]   Hanover Statement No. 2, p. 9.

1   support the CWC claim using a lead/lag study.[15] The Borough's use of the 1/8th

2   method is not appropriate without the Commission granting a formal waiver of the

3   requirement to use a lead/lag study in advance of filing a base rate case. Mr.

4   Herbert states the Borough's deviation from the requirement to perform a lead/lag

5   study is in line with prior Borough filings.[16] However, in Hanover's most recent

6   filing in 2014, I&E raised the issue of the Borough's missing lead/lag study and

7   Hanover still did not seek a waiver from the Commission prior to the instant

8   proceeding.[17] Considering the presented facts, it is apparent the Borough is

9   disregarding this regulation requirement.

10

11 **Q.   WHAT IS YOUR RECOMMENDATION FOR FUTURE PROCEEDINGS?**

12 A.   Without the Commission granting a formal waiver for the Borough, its use of the

13   1/8th Method is not proper. However, the I&E recommended revenue increase in

14   this proceeding is below $1 million. Therefore, while I understand that a lead/lag

15   study can be expensive, and since I&E's recommended increase in revenues falls

16   below $1 million, I accept Hanover's use of the 1/8th Method in this proceeding.

17   However, in future proceedings, when filing for a requested increase over $1

18   million, the Commission should require Hanover to request permission for a

19   waiver of this requirement to use a lead/lag study or to file a lead/lag study as

---

[15]   52 Pa. Code § 53.53.
[16]   Hanover Statement No. 2-R, p. 9.
[17]   I&E Statement No. 2, pp. 17-18 at Docket No. R-2014-2428304.

1   required by the regulations. This should be done in advance of filing a base rate

2   case by Hanover, or the Commission should reject the filing in its entirety.

3

4 **Q. SUMMARIZE WHERE EACH OF THE I&E RECOMMENDED O&M**

5   **EXPENSE ADJUSTMENTS ARE REFLECTED IN THE CWC**

6   **COMPUTATION.**

7 A. The applicable O&M adjustments are as follows:

8

O&M Expenses	Adjustment
Rate Case Expense	($33,007)
Sewer Bill	($75,097)
Total	**($108,104)**

9   The removal of taxes other than income from the CWC calculation and the sum of

10   all O&M adjustments reduce the Borough's CWC amount by $27,397 calculated

11   as follows: $13,884 ($111,071 ÷ 8) + $13,513 ($108,104 ÷ 8).

12

13 **Q. SUMMARIZE YOUR UPDATED RECOMMENDED ALLOWANCE FOR**

14   **CWC.**

15 A. I recommend an updated CWC allowance of $407,923 ($435,320 - $27,397) or a

16   reduction of $27,397 ($435,320 - $407,923) to the Borough's jurisdictional CWC

17   claim. This change recognizes the CWC claim adjustment found in the Borough's

18   rebuttal testimony.[18]

---

[18]   Hanover Statement No. 2-R, p. 9.

13

1 **Q. DOES YOUR RECOMMENDED CWC ALLOWANCE REPRESENT A**

2 **FINAL RECOMMENDED ALLOWANCE?**

3 A. No. All adjustments to the Borough's claims for revenues, expenses, taxes, and

4 rate base must be consistently brought together in the Administrative Law Judge's

5 Recommended Decision and again in the Commission's Final Order. This

6 process, which is known as iteration, effectively prevents the determination of a

7 precise calculation until all adjustments have been made to the Borough's claim.

8

9 **REVENUE ANNUALIZATION - PROPOSED REVENUE**

10 **Q. WHAT IS A REVENUE ANNUALIZATION ADJUSTMENT AND WHY IS**

11 **IT IMPORTANT?**

12 A. An annualization adjustment is applied to billed revenue to reflect the gain or loss

13 of customers throughout the test year and to project that gain or loss into the

14 FPFTY. It is important because bill data obtained in the historic test year is not

15 reflective of the number of customers or water sales anticipated in the FPFTY.

16 Therefore, the Borough applied revenue annualizations to historic billing data to

17 project revenue in the FPFTY.[19]

---

[19] Hanover Exhibit GRH-1, Schedule 5, pp. 1-2, R-1 through R-7.

1   **Q.   DID I&E RECOMMEND A CORRECTION TO THE ANNUALIZATION**

2   **FACTOR R-9 IN DIRECT TESTIMONY?**

3   A.   Yes. I&E witness Esyan Sakaya recommended that the revenue annualization

4   labeled R-9 which annualizes bill data under proposed rates be increased by

5        $12,344.[20]

6

7   **Q.   DID THE BOROUGH ADDRESS I&E'S RECOMMENDATION TO**

8   **CORRECT REVENUE ANNUALIZATION R-9?**

9   A.   Yes. The Borough agreed that proposed revenue annualization R-9 should be

10   increased by $12,344.[21]

11

12 **Q.   DID THE BOROUGH REFLECT ADDITIONAL PROPOSED REVENUE**

13 **ITS REVISED INCOME STATEMENT?**

14 A.   Yes. The Borough increased proposed revenue by $12,344.[22]

---

[20]   I&E Statement No. 3, pp. 8-9.
[21]   Hanover Statement No. 2-R, pp. 9-10.
[22]   Hanover Exhibit GRH-1-R.

15

1   **Q.**   **WHAT DO YOU RECOMMEND CONCERNING THE $12,344**

2   **ADJUSTMENTS REFLECTED IN THE BOROUGH'S REVENUE**

3   **REQUIREMENT CALCULATION?**

4   **A.**   The $12,344 should be removed, and not be reflected on the Borough's revenue

5   requirement computation.[23]

6

7   **Q.**   **WHY DO YOU RECOMMEND THE $12,344 ADJUSTMENTS BE**

8   **REMOVED FROM THE BOROUGH'S REVENUE REQUIREMENT**

9   **CALCULATION?**

10 **A.**   This is not the correct method for reflecting adjustments to billing data under

11   proposed rates. The correct method for reflecting annualizations is to incorporate

12   the annualization into the determination of proposed rates so that proposed rates

13   recover the revenue the Borough is granted the opportunity to recover. Therefore,

14   the adjustment for the $12,344 proposed revenue annualization should be removed

15   from the Borough's revenue requirement calculation.

16

17 **OTHER OPERATING – LATE PAYMENT REVENUE**

18 **Q.**   **DID I&E RECOMMEND THAT LATE PAYMENT REVENUE INCREASE**

19   **UNDER PROPOSED RATES?**

20 **A.**   Yes. I&E witness Esyan Sakaya recommended that revenue from "Penalties" or

---

[23]   Hanover Exhibit GRH-1-R.

1		Late Payment Revenue be increased by $4,280 from $14,809 to $19,089 under
2		proposed rates for the FPFTY.[24]
3		
4	**Q.**	**DOES THE BOROUGH ADDRESS I&E'S RECOMMENDATION TO**
5		**INCREASE LATE PAYMENT REVENUE UNDER PROPOSED RATES?**
6	A.	Yes. The Borough agreed that Late Payment Revenue should be increased under
7		proposed rates.[25]
8		
9	**Q.**	**DID THE BOROUGH REFLECT ADDITIONAL LATE PAYMENT**
10		**REVENUE IN ITS REVISED REVENUE REQUIREMENT**
11		**CALCULATION?**
12	A.	Yes. The Borough reflected $4,280 of Late Payment Revenue under proposed
13		rates.[26]
14		
15	**Q.**	**WHAT DO YOU RECOMMEND CONCERNING THE $4,280**
16		**ADJUSTMENT REFLECTED IN THE BOROUGH'S REVENUE**
17		**REQUIREMENT CALCULATION?**
18	A.	The $4,280 should not be reflected in the Borough's revenue requirement
19		calculation.

---

[24] I&E Statement No. 3, pp 9-10.
[25] Hanover Statement No. 2-R, p. 9.
[26] Hanover Exhibit GRH-1-R.

1	Q.	**WHY DO YOU RECOMMEND THAT THE $4,280 ADJUSTMENTS BE**
2		**REMOVED FROM THE BOROUGH'S REVENUE REQUIREMENT**
3		**CALCULATION?**
4	A.	This is not the correct method for reflecting additional Late Payment Revenue
5		under proposed rates. The correct method for reflecting the increase in Late
6		Payment Revenue under proposed rates is to determine the revenue increase, then
7		multiply the percent increase times the level of Late Payment Revenue under
8		present rates. This results in an increase in Late Payment Revenue under proposed
9		rates. This additional Late Payment Revenue is subtracted from the approved
10		increase leaving the amount of revenue that should be recovered from rates.
11		Therefore, Late Payment Revenue and any adjustments to Late Payment Revenue
12		should not be reflected in the revenue requirement calculation.
13		
14	Q.	**DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**
15	A.	Yes.

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

BOROUGH OF HANOVER
HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Exhibit to Accompany

the

Surrebuttal Testimony

of

Zachari Walker

Bureau of Investigation & Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES

CASH WORKING CAPITAL

REVENUE ANNUALIZATION

BUREAU OF INVESTIGATION AND ENFORCEMENT INTERROGATORIES

BOROUGH OF HANOVER – HANOVER MUNICIPAL WATER WORKS

<u>Docket No. R-2021-3026116</u>

Witness: Mike Mehaffey

I&E-RE-27   Reference Hanover Exhibit D I-1 Attachment, p. 2 concerning 355 Sewer Bill and the Reason for Variance between 2019 and 2020. Provide the following:

A. Expansion of the acronyms BOD and SS.

B. A detailed explanation with supporting documentation for why a higher concentration of BOD/SS existed in 2020.

C. A detailed explanation with supporting documentation for why a higher concentration of BOD/SS causes an increase in surcharges.

RESPONSE:

A. BOD is biochemical oxygen demand, and SS is suspended solids.

B. The total solids (TS) concentration of the Water Treatment Plant residuals will typically fluctuate from month to month and year to year for a number of reasons. Generally, the concentration increases as the building of solids increases in the WTP sedimentation basin (due to washout). Once the basin is cleaned out, the concentration will typically decrease. Additionally, the Borough addressed inflow/infiltration (I/I) sources in the drain line to the WTP Pumping Station in 2018. The excessive I/I (from groundwater infiltration) was resulting in increased flows and a dilution of the total solids. Therefore, TS concentration increased in the following years since dilution was not as much of a factor. The Borough has identified a general increasing trend in TS concentrations beginning in the Second Quarter of 2019 which cannot be explained at this time.

C. The high strength wastewater surcharge is intended to provide an equitable means to charge dischargers of higher strength wastewater an addition surcharge that will cover the additional costs necessary to treat their higher-than-normal loadings (additional aeration, additional chemicals, additional disposal costs, etc). Therefore, the surcharge costs will increase as the discharger's concentrations increase.

Borough of Hanover
I&E Calculated Recommendation for Cash Working Capital Adjustment
For the Twelve Months Ending December 31,2022

Borough Claim

	Outside Borough
Cash Working Capital[1]	$ **435,320**

I&E Analysis

Cash Working Capital[2]	$	435,320
Adjustment for Taxes ($111,071 ÷ 8)	$	(13,884)
O&M Expense Adjustments [($75,097 + $33,007) ÷ 8]	$	(13,513)
I&E CWC Recommendation	**$**	**407,923**
I&E CWC Adjustment	**$**	**(27,397)**

[1] Hanover Statement No. 2-R, Exhibit GRH-1-R

[2] Hanover Statement No. 2-R, Exhibit GRH-1-R

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

BOROUGH OF HANOVER – HANOVER MUNICIPAL WATER WORKS

Docket No. R-2021-3026116

Surrebuttal Testimony

of

Christopher Keller

Bureau of Investigation & Enforcement

Concerning:

Rate of Return

TABLE OF CONTENTS

1 **<u>INTRODUCTION OF WITNESS</u>**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Christopher Keller. My business address is Pennsylvania Public

4   Utility Commission, Commonwealth Keystone Building, 400 North Street,

5   Harrisburg, PA 17120.

6

7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in

9   the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial

10   Analyst.

11

12 **Q. ARE YOU THE SAME CHRISTOPHER KELLER WHO SUBMITTED**

13   **THE DIRECT TESTIMONY CONTAINED IN I&E STATEMENT NO. 2**

14   **AND I&E EXHIBIT NO. 2?**

15 A. Yes.

16

17 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

18 A. The purpose of my surrebuttal testimony is to address statements made by the

19   Borough of Hanover – Hanover Municipal Water Works (Hanover or Water Fund)

20   witness Harold Walker III of Gannett Fleming Valuation and Rate Consultants,

21   LLC (Hanover Statement No. 5-R) in his rebuttal testimony regarding rate of

1	return topics including the cost of common equity and the overall fair rate of
2	return, which will be applied to the Water Fund's rate base.
3	

4	**SUMMARY OF MR. WALKER'S REBUTTAL TESTIMONY**
5	**Q.**	**SUMMARIZE MR. WALKER'S RESPONSE IN REBUTTAL TESTIMONY**
6		**TO YOUR RECOMMENDATIONS MADE IN DIRECT TESTIMONY.**
7	A.	Mr. Walker disputes my recommendations regarding an overall fair rate of return.
8		Specifically, he disagrees with the capital structure I implemented, my tax
9		adjustment, my suggested rejection of his leverage and size adjustments, risk
10		analysis, and various aspects of my Discounted Cash Flow (DCF) and Capital
11		Asset Pricing Model (CAPM) analyses such as the risk-free rate and market risk
12		premium.
13	

14	**FAIR RATE OF RETURN**
15	**Q.**	**PLEASE SUMMARIZE MR. WALKER'S REBUTTAL TESTIMONY**
16		**REGARDING A FAIR RATE OF RETURN.**
17	A.	Mr. Walker claims that the I&E recommended return on equity of 8.91% before
18		taxes and an overall rate of return of 4.48% after taxes, does not give the Water
19		Fund a fair rate of return (Hanover Statement No. 5-R, p. 3, line 14 through p. 5,
20		line 5).
21		Mr. Walker cites the Bluefield case and suggests that the concepts of
22		comparable earnings, financial integrity, and capital attraction are violated with

1   the I&E recommendation. Mr. Walker argues, "The Water Fund is entitled to a

2   return that will enable it to attract <u>additional capital</u>, not only the subsidized,

3   below-market cost GO Bond capital raised, and then assigned, by the Borough of

4   Hanover" (Hanover Statement No. 5-R, p. 4, lines 17-19). Additionally, Mr.

5   Walker claims, "A fair rate of return for the Water Fund is the credit that should

6   enable the Water Fund to attract capital regardless of the Borough's ability to levy

7   taxes" (Hanover Statement No. 5-R, p. 4, lines 20-22). Finally, Mr. Walker states

8   that he does "not recall the Commission ever suggesting that a multi-state

9   investor-owned utility should be afforded something less than a fair rate of return

10   because they are owned by large holding company or that their rates in

11   Pennsylvania should be subsidized by non-jurisdictional rate payers" (Hanover

12   Statement No. 5-R, p. 4, lines 8-12).

13

14 **Q.**   **DOES I&E'S RECOMMENDATION VIOLATE THE PRINCIPLES OF**

15   **BLUEFIELD?**

16 A.   No. As discussed in my direct testimony, the Bluefield case (and the Hope case)

17   established comparable earnings, financial integrity, capital attraction, and a

18   changing level of returns as the standards for a fair return (I&E Statement No. 2, p.

19   4, lines 3-11).

20   As I also discuss in greater detail my direct testimony, the Water Fund does

21   not have any debt service coverage requirements in the form of bond covenants

22   aside from an implied 1.0x ratio to ensure debt payments can be made (I&E

1   Statement No. 2, p. 51, line 1 through p. 53, line 20). Commission precedent to

2   use the rate base rate of return method in lieu of debt service coverage includes

3   principal and interest recovery via depreciation expense and the debt cost in the

4   rate of return computation, therefore, the I&E recommendation supports the

5   financial integrity principle.

6   The comparable earnings standard is supported by the use of a proxy group.

7   The criteria used in my selection of a proxy group were formulated to select a

8   proxy group that resembles the water utility industry. However, it is important to

9   keep in mind that municipal owned water and wastewater utilities encounter

10   different levels of financial risk, which will be discussed later in this testimony.

11   The capital attraction standard is supported by allowing the Water Fund an

12   opportunity to earn a sufficient return to raise necessary capital. The capital that

13   the Water Fund utilizes is in the form of General Obligation Bonds issued by the

14   Borough of Hanover. Mr. Walker has noted that the General Obligation Bonds are

15   guaranteed by the full faith and credit and taxing authority of the Borough of

16   Hanover (Hanover Statement No. 2, p. 14, lines 9-12). The Water Fund does not

17   issue stock; therefore, it does not need a return to attract capital costs it does not

18   incur.

19   Mr. Walker did not address the principle that a fair return can change

20   (increase or decrease) along with economic conditions and capital markets.

1　**Q.　SHOULD THE WATER FUND RECEIVE A RATE OF RETURN WHICH**

2　**SUPPORTS CREDIT QUALITY THAT WOULD ENABLE THE WATER**

3　**FUND TO ATTRACT "ADDITIONAL" CAPITAL REGARDLESS OF THE**

4　**BOROUGH OF HANOVER'S ABILITY TO LEVY TAXES, AS**

5　**MR. WALKER ASSERTS?**

6　A.　No. The Water Fund does not raise its own capital, and the cost of debt included

7　in both Mr. Walker's and my recommended capital structures reflect the Water

8　Fund's reliance on the Borough of Hanover. To treat the Water Fund as if its

9　capital did not rely on the resources of the Borough of Hanover would ignore the

10　obvious and observable relationship between the Water Fund and the Borough of

11　Hanover and would be contrary to the public interest. Again, the Water Fund

12　receives its capital from the Borough of Hanover via General Obligation Bonds

13　which are guaranteed by the full faith and credit and taxing authority of the

14　Borough of Hanover. It is the Borough of Hanover's ability to levy taxes which

15　allows the Water Fund to obtain its low capital costs. If the Water Fund issued its

16　own debt, the rate of return would reflect the credit of the Water Fund alone.

17　However, that is not the case for this utility, and therefore, should not be reflected

18　in a rate of return allowance.

1 **Q. DO YOU AGREE WITH MR. WALKER'S STATEMENT THAT I&E**

2 **WOULD NOT SUGGEST THAT A MULTI-STATE INVESTOR OWNED**

3 **UTILITY SHOULD BE AFFORDED SOMETHING LESS THAN A FAIR**

4 **RATE OF RETURN BECAUSE THAT UTILITY IS OWNED BY A LARGE**

5 **HOLDING COMPANY OR THAT ITS RATES IN PENNSYLVANIA**

6 **SHOULD BE SUBSIDIZED BY NON-JURISDICTIONAL RATEPAYERS?**

7 A. No. Mr. Walker and I do not disagree on whether the Water Fund should receive a

8 fair rate of return; we only disagree on what we consider fair. While a utility may

9 be owned by a large holding company, the ability to issue debt at the subsidiary

10 level still exists. In that case, the parent company's capital structure and credit

11 profile have a much smaller impact on the capitalization of the utility as compared

12 to a municipality that provides capital to its utility service. Alternatively, when a

13 parent company actually maintains its own capital funding for its subsidiaries, it is

14 the revenues and performance of all companies held that contribute to the

15 creditworthiness of the parent, and therefore, it is unnecessary to recommend

16 inclusion of the non-jurisdictional companies as they are inherently part of the

17 established capital cost. The Water Fund does not issue debt on its own behalf and

18 must rely on the Borough of Hanover's credit worthiness and ability to tax for its

19 debt issuances.

20 As stated above, it must be acknowledged that municipalities that own

21 utilities do in fact have the ability to raise taxes when faced with financial

22 difficulties while non-municipal-owned utilities do not have that same option.

1		Ideally, and to my knowledge, through the use of an allocated cost of service
2		study, non-jurisdictional ratepayers do not subsidize the Water Fund's
3		jurisdictional ratepayers. It is important to note that the Borough of Hanover and
4		the Water Fund can choose to cover the non-jurisdictional customers' costs either
5		by raising taxes or by raising rates but these decisions bear no relationship to the
6		jurisdictional customer rates, which are based on the revenue requirement
7		established through the cost of service study. Rates established that provide
8		revenues necessary to cover the cost of service do not result in subsidization of
9		jurisdictional ratepayers by non-jurisdictional ratepayers. The issue of potential
10		subsidization as costs increase in the future can easily be remedied through a base
11		rate case such as this.
12		
13		**CAPITAL STRUCTURE**
14	**Q.**	**PLEASE SUMMARIZE MR. WALKER'S CAPITAL STRUCTURE**
15		**RECOMMENDATION.**
16	A.	Mr. Walker continues to claim it is appropriate to use a hypothetical capital
17		structure of 48% debt and 52% equity which is imputed based on his Comparable
18		Group's actual capital structure range and is representative of the water utility
19		industry (Hanover Statement No. 5-R, p. 5, line 7 through p. 8, line 8).

1	Q.	**PLEASE SUMMARIZE MR. WALKER'S CRITIQUE OF YOUR CAPITAL**
2		**STRUCTURE RECOMMENDATION OF 56% DEBT AND 44% EQUITY.**

3   A.   Mr. Walker claims that my recommendation fails to comply with Title 66, Section

4   1301(b). Additionally, he argues that my recommendation relied upon the low end

5   of my proxy group capital structure range as opposed to the five-year average, and

6   therefore, should be rejected by the Commission (Hanover Statement No. 5-R,

7   p. 5, line 7 through p. 8, line 8).

8

9   Q.   **DO YOU AGREE WITH MR. WALKER'S CRITIQUE OF YOUR**

10   **CAPITAL STRUCTURE DETERMINATION?**

11   A.   No. As explained in greater detail in my direct testimony, a capital structure

12   between 80% debt and 20% equity and 70% debt and 30% equity would be much

13   more appropriate for the Water Fund (I&E Statement No. 2, p. 11, line 5 through

14   p. 13, line 14). Municipalities are able to secure lower cost rates of debt and can

15   tolerate higher amounts of debt in the capital structure, again, due to the taxing

16   authority. Therefore, it is inappropriate and unnecessary to pass larger proportions

17   of more expensive equity costs on to ratepayers. However, in order to comply

18   with Title 66, Section 1301(b) which became effective December 21, 2017, I

19   recommend a capital structure of 56% debt and 44% equity for the Water Fund.

20   This represents the low end of my range of equity ratios of the average capital

21   structures in my proxy group (I&E Exhibit No. 2, Schedule 2).

| 1 | Q. | **WHY DID YOU APPLY THE LOW END OF YOUR PROXY GROUP** |
| | | **CAPITAL STRUCTURE RANGE TO THE WATER FUND?** |

1   Q.   **WHY DID YOU APPLY THE LOW END OF YOUR PROXY GROUP**

2   **CAPITAL STRUCTURE RANGE TO THE WATER FUND?**

3   A.   The Water Fund does not face the same level of financial risk as the companies in

4   my proxy group, nor does it have any investor expectations to satisfy; therefore, it

5   is not appropriate or necessary for the Water Fund to benefit from a higher equity

6   ratio in its capital structure.

7

8   Q.   **DOES YOUR RECOMMENDED CAPITAL STRUCTURE FOR THE**

9   **WATER FUND COMPLY WITH TITLE 66, SECTION 1301(b)?**

10   A.   Yes. Title 66, Section 1301(b) states the following:

11   In determining a just and reasonable rate furnished or rendered
12   by a municipal corporation or by the operating agencies of a
13   municipal corporation providing public utility water or
14   wastewater service beyond its corporate limits, the commission
15   shall employ an imputed capital structure of comparable public
16   utilities providing water or wastewater service.

17   On advice of counsel, the statute does not define what makes the public utilities

18   providing water or wastewater service comparable to the municipal utility, nor

19   does it dictate where the "imputed capital structure" must fall within the range of

20   comparable utilities. This issue will be further discussed by I&E counsel in

21   briefing.

1 **COST OF COMMON EQUITY**

2   **DISCOUNTED CASH FLOW (DCF)**

3 **Q. SUMMARIZE MR. WALKER'S REBUTTAL TESTIMONY REGARDING**

4   **YOUR DCF ANALYSIS.**

5 A. Mr. Walker opines that I should have removed my market value DCF result for

6   Middlesex Water Company (Middlesex) of 4.76% as it is below the zone of

7   reasonableness, and had I based my recommendation for the cost of equity on

8   multiple methods, the DCF results for Middlesex would not be significant. Mr.

9   Walker states that the market value DCF result for Middlesex is 47% less than my

10   overall DCF recommendation and had I removed Middlesex from my overall DCF

11   calculation, my results would be more than twice than my recommendation had

12   Middlesex been included in my DCF calculation. Mr. Walker then refers to two

13   proceedings in which I adjusted the results of my DCF to remove a company's

14   growth rate to reduce my overall growth rate for my DCF analysis (Hanover

15   Statement No. 5-R, p. 18, line 23 through p. 20, line 13).

16   Additionally, regarding my dividend yield calculation, Mr. Walker states,

17   "I agree with Mr. Keller's rationale and I believe it is consistent with past

18   Commission practice" (Hanover Statement No. 5-R, p. 21, lines 11-12). It should

19   also be noted that Mr. Walker did not take issue with the growth rate I employed

20   as my forecast of 7.15% was higher than his 7.1%.

1	**Q.**	**WERE ANY METHODS OTHER THAN THE DCF EMPLOYED IN YOUR**
2		**ANALYSIS?**

3   A.   Yes. Although my recommendation was based primarily on the results of my

4   DCF analysis, I also employed the CAPM as a comparison. The result of my DCF

5   analysis is 8.91% while the result of my CAPM analysis is 9.89%, both of which

6   are significantly less than the 10.45% recommended by Mr. Walker. For the

7   reasons detailed in my direct testimony, the DCF method is the most reliable (I&E

8   Statement No. 2, p. 14, ln. 14 through p. 20, ln. 18). I have considered the fact

9   that no method can perfectly predict the return on equity, which is why I also use

10   the CAPM as a comparison to the DCF. Although no one method can capture

11   every factor that influences an investor, including the results of methods less

12   reliable than the DCF does not make the end result more reliable or more accurate.

13   Further, as pointed out in my direct testimony, my recommendation is

14   consistent with the methodology historically used by the Commission in base rate

15   proceedings, even as recently as 2017, 2018, 2020, and 2021.[1]

---

[1]   *Pa. PUC v. City of DuBois – Bureau of Water*; Docket No. R-2016-2554150 (Order Entered March 28, 2017). *See generally* Disposition of Cost Rate Models, pp. 96-97; *Pa. PUC v. UGI Utilities, Inc. – Electric Division;* Docket No. R-2017-2640058 (Order Entered October 25, 2018). *See generally* Disposition of Cost of Common Equity, p. 119; *Pa. PUC v. Wellsboro Electric Company;* Docket No. R-2019-3008208 (Order Entered April 29, 2020). *See generally* Disposition of Primary Methodology to Determine ROE, pp. 80-81; *Pa. PUC v. Citizens Electric Company of Lewisburg, PA;* Docket No. R-2019-3008212 (Order Entered April 29, 2020). *See generally* Disposition of Cost of Common Equity, pp. 91-92. *Pa. PUC v. Columbia Gas of Pennsylvania, Inc.;* Docket No. R-2020-3018835 (Order Entered February 19, 2021). *See generally* Disposition of Cost of Common Equity, p. 131; *Pa. PUC v. PECO Energy Company – Gas Division*; Docket No. R-2020-3018929 (Order Entered June 22, 2021). *See generally* Disposition of Return of Rate on Common Equity, p. 171.

1	Q.	**PLEASE EXPLAIN WHY YOU ELIMINATED SJW GROUP'S**
2		**MORNINGSTAR PROJECTED GROWTH RATE IN THE**
3		**PROCEEDINGS REFERENCED BY MR. WALKER.**

4   A.   As stated in my direct testimony in those proceedings, while the use of a proxy

5   group largely smooths out various anomalies, Morningstar's growth projection for

6   SJW Group was extremely inconsistent and would have had an unreasonable and

7   unwarranted impact on my DCF analysis. This would have adversely affected my

8   recommendation for the Company's cost of common equity because it was

9   harmful to ratepayers by creating an unjustified increase in return on equity and

10   consequently pressures rates upward, which is not in the public interest.

11   Morningstar's estimate of 47.10% was more than five times higher and greater

12   than four standard deviations over the originally calculated 9.09% overall average.

13   Furthermore, the estimate was more than six times higher than the average of the

14   remaining estimates. Additionally, I was unable to find any explanation or

15   justification of why this estimate was so high.[2]

---

[2] *Pa. PUC v. Community Utilities of Pennsylvania – Water Division*, Docket No. R-2021-3025206, I&E Statement No. 2, p. 25, line 14 through p. 26, line 5. *Pa. PUC v. Community Utilities of Pennsylvania – Wastewater Division*, Docket No. R-2021-3025207, I&E Statement No. 2, p. 21, line 4 through p. 22, line 1.

1	Q.	**PLEASE EXPLAIN WHY YOU DID NOT REMOVE MIDDLESEX FROM**
2		**YOUR DCF ANALYSIS?**
3	A.	Generally, to remove individual companies or data points based solely on the
4		results creates a bias and can be described as tampering with market-based results.
5		I chose criteria for my proxy group with the intention of creating a group that is
6		comparable to the Water Fund, and then calculated a DCF from the companies that
7		fit my criteria.
8		
9		**CAPITAL ASSET PRICING MODEL**
10	Q.	**SUMMARIZE MR. WALKER'S REBUTTAL TESTIMONY REGARDING**
11		**YOUR CAPM ANALYSIS.**
12	A.	Mr. Walker disagrees with my use of a 10-year risk-free rate claiming that "the
13		risk-free rate should be based on the life of the asset, not the horizon of the
14		investor." (Hanover Statement No. 5-R, p. 30, lines 9-10). He states that the life
15		of Water Fund's assets is much longer than 10 years. Mr. Walker also opines that
16		I have incorrectly given weight to the yield on the 10-year Treasury Note for the
17		fourth quarter of 2021 and the first, second, third, and fourth quarters of 2022 as I
18		do for the entire five-year period encompassing 2023 to 2027. Then, Mr. Walker
19		incorrectly recalculates the risk-free rate by averaging the 10-year treasury yield
20		forecasts by quarter for the fourth quarter of 2021 and the first, second, third, and
21		fourth quarters of 2022 and by quarter for the years 2023 through 2027 for a total
22		of 25 quarters to inflate my calculated risk-free rate of 1.98% to 2.68%. Finally,

1		Mr. Walker disagrees with my recommendation to reject a size premium to the
2		CAPM result, which is discussed later in this testimony (Hanover Statement No.
3		5-R, p. 30, line 6 through p. 32, line 11).
4		
5	Q.	**DO YOU AGREE WITH MR. WALKER'S REBUTTAL TESTIMONY**
6		**REGARDING YOUR RISK-FREE RATE?**
7	A.	No. First, while rate base assets are long-lived, utility company debt may have the
8		opportunity to be refinanced at any point to capture favorable interest rates, which
9		would reduce the financial risk associated with the corresponding assets. Second,
10		I believe it is more appropriate to utilize a risk-free rate that will be in effect
11		during the investment period being considered, which in this case, is the fully
12		projected future test year or possibly the normalization period between base rate
13		cases. Although short-term Treasury Bills may align closer with the investment
14		timeframe, they are very volatile. Third, it is important to acknowledge that the
15		Commission has recently agreed with I&E and recognized the 10-year Treasury
16		Note as the superior measure of the risk-free rate of return.[3] Finally, Mr. Walker's
17		new calculation of my risk-free rate proposes to give equal weight to each separate
18		quarter for the fourth quarter of 2021, the first, second, third, and fourth quarters
19		of 2022 and for each quarter for the years 2023 through 2027 for a total of 25
20		quarters. The flaw with this approach is that the further out into the future one

---

[3] *Pa. PUC v. UGI Utilities, Inc. – Electric Division;* Docket No. R-2017-2640058 (Order Entered October 25, 2018). *See generally* Disposition of Capital Asset Pricing Model (CAPM), p. 99.

1	forecasts, the less reliable and more speculative the estimates become; therefore,
2	to give the less reliable estimates equal weight would not be prudent. It is more
3	appropriate to weight the quarters and years as I have done in my direct testimony
4	(I&E Exhibit No. 2, Schedule No. 8). My calculation provides a more accurate
5	estimation of the risk-free rate during the fully projected future test year, as the
6	further out one forecasts, the less reliable the information becomes.
7	
8	**TAX ADJUSTMENT**
9	**Q.** **PLEASE SUMMARIZE MR. WALKER'S CRITIQUE OF YOUR TAX**
10	**ADJUSTMENT RECOMMENDATION.**
11	A. Mr. Walker states that our tax adjustment analyses are different in that he
12	compared the monthly Moody's A and Baa Rated Municipal Bond Yields to
13	Moody's A and Baa Rated Public Utility Bonds while I compared the monthly
14	Moody's A-Rated Municipal Bond Yields to Moody's A-Rated Public Utility
15	Bonds. He also notes that our tax adjustment analyses are different because I use a
16	12-month period from September 2020 to August 2021, while he uses a 12-month
17	period from March 2020 to February 2021. Mr. Walker states, "I&E has
18	traditionally used a multi-year period for this measure in other municipal cases."
19	Finally, he argues that the 12-month period I used is much more volatile as it
20	captures the impact of COVID-19 than the 12-month period he uses (Hanover
21	Statement No. 5-R, p. 37, line 10 through p. 40, line 16).

1	Q.	PLEASE RESPOND TO MR. WALKER'S CLAIMS REGARDING YOUR
2		TAX ADJUSTMENT.
3	A.	I agree with Mr. Walker's assessment regarding the similarities and differences in
4		our tax adjustment calculations. As described above, the variance in the time
5		period observed and bond ratings used accounts for the difference between Mr.
6		Walker's 11.00% tax adjustment recommendation and my 28.31%
7		recommendation. Further, Mr. Walker made a data entry error in his own
8		calculation for the Baa Rated Municipal Bond Yields for the months August 2020
9		through December 2020 which have resulted in an increase in his tax adjustment
10		factor from 11% to 12%.
11		
12	Q.	PLEASE EXPLAIN WHY YOU HAVE CHOSEN THE TIME PERIOD
13		USED IN YOUR TAX ADJUSTMENT CALCULATION.
14	A.	While I do not dispute Mr. Walker's time period used, it is important to note that I
15		utilized the most recent information accessible to me at the time of my analysis.
16		
17	Q.	PLEASE EXPLAIN WHY YOU HAVE ONLY EMPLOYED A-RATED
18		BONDS IN YOUR IMPLIED TAX ADJUSTMENT?
19	A.	As explained in my direct testimony, I have only employed the A-Rated Bonds
20		because Moody's only offers three different ratings categories (Aa, A, and Baa)
21		for Public Utility Bonds. I believe it is appropriate and logical to use the middle
22		rating to avoid any bias. Further, the more important comparison is between

1	municipal bonds and public utility bonds and not the specific bond rating being
2	used (I&E Statement No. 2, p. 30, lines 1-7).
3	
4	**Q.** **EXPLAIN WHY YOU HAVE CHOSEN THE NUMBER OF MONTHS AND**
5	**TIME PERIOD USED IN YOUR TAX ADJUSTMENT CALCULATION.**
6	A. Including more than one year of historical data incorporates stale and irrelevant
7	information which likely does not represent current economic conditions.
8	
9	**Q.** **DID I&E USE A MULTI-YEAR PERIOD FOR THIS MEASURE IN THE**
10	**TWO MUNICIPAL CASES AS MR. WALKER ASSERTS?**
11	A. Yes. However, I&E has routinely used a 12-month period going as far back as the
12	*Pennsylvania Public Utility Commission, et al v. City of Lancaster – Bureau of*
13	*Water*, at Docket No. R-2014-2418872 proceeding and despite Walker's
14	contention has not altered our approach for this proceeding. Additionally, while
15	the Commission agreed with the methodology in determining a tax adjustment
16	I&E employed in the cases Mr. Walker refers to,[4] the Commission did not specify
17	or explicitly state it favored a multi-year period as that specific issue was not in
18	dispute.

---

[4] Hanover Statement No. 5-R, p. 38, Footnote 32.

| 1 | Q. | DO YOU AGREE WITH MR. WALKER'S COMMENTS REGARDING |

1 Q. **DO YOU AGREE WITH MR. WALKER'S COMMENTS REGARDING**

2 **THE VOLATILITY OF THE TIME PERIOD USED TO CALCULATE**

3 **YOUR TAX ADJUSTMENT RECOMMENDATION?**

4 A. Somewhat. Similar to what I mentioned above, Mr. Walker incorporates stale data

5 that does not represent current economic conditions. Considering the economic

6 uncertainty caused by COVID-19, as Mr. Walker also recognizes, along with the

7 current and near-term political climate, a certain degree of bond yield volatility is

8 to be expected (Hanover Statement No. 5-R, p. 38, lines 18-20). I believe the most

9 recent 12-month period is more representative of what is to come in the fully

10 projected future test year.

11

12 Q. **DO YOU CONTINUE TO SUPPORT YOUR RECOMMENDED TAX**

13 **ADJUSTMENT OF 28.31%?**

14 A. Yes.

15

16 **LEVERAGE ADJUSTMENT**

17 Q. **SUMMARIZE MR. WALKER'S REBUTTAL TESTIMONY REGARDING**

18 **THE USE OF A LEVERAGE ADJUSTMENT.**

19 A. Mr. Walker claims that, "a leverage adjustment is required when a cost of

20 common equity model is based on market value and if its results are then applied

21 to book value in order to be consistent with financial theory" (Hanover Statement

22 No. 5-R, p. 41, line 22 through p. 42, line 1). However, Mr. Walker concedes that

1   I correctly point out that the Commission rejected a leverage adjustment in the

2   2008 Aqua Pennsylvania, Inc. (Aqua) decision and the 2018 UGI Utilities, Inc. –

3   Electric Division (UGI Electric) decision but states the Commission did not use

4   the leverage adjustment in these cases as the Commission derived its return on

5   equity without the leverage adjustment. Mr. Walker then references a 2005 City

6   of Lancaster – Sewer Fund (Lancaster Sewer) proceeding and a 2020 City of

7   Bethlehem – Bureau of Water (Bethlehem) proceeding to support his leverage

8   adjustment. Finally, Mr. Walker compares my recommended return on equity in

9   this proceeding of 8.91% to the five cases I cited in my direct testimony and states

10   his leverage adjustment should be included based on the precedent of the 2008

11   Aqua proceeding. Finally, Mr. Walker states that I miscalculated the impact of his

12   110 additional basis points for his proposed leverage adjustment to account for my

13   recommended implied tax rate adjustment of 28.31% (Hanover Statement No. 5-

14   R, p. 41, line 17 through p. 44, line 5).

15

16 **Q.**   **WHAT IS YOUR RESPONSE TO MR. WALKER'S REBUTTAL**

17   **TESTIMONY REGARDING THE REFERENCED PRIOR COMMISSION**

18   **ORDERS IN YOUR DIRECT TESTIMONY?**

19 A.   In this proceeding, Mr. Walker is recommending a 110-basis point "leverage

20   adjustment." To be clear, the Commission did in fact refuse to accept the leverage

21   adjustment in the Aqua case by stating "…we reject the ALJ's recommendation to

1		allow a 65 basis point leverage adjustment."[5] The management performance
2		points awarded to Aqua were case-specific and in no way related to the proposed
3		leverage adjustment. Regarding the UGI Electric case, the Commission concluded
4		that, "…an artificial adjustment in this proceeding is unnecessary and contrary to
5		the public interest. Accordingly, we decline to include a leverage adjustment in
6		our calculation of the DCF cost of equity."[6] Regarding the 2020 Bethlehem
7		proceeding, Mr. Walker is correct that the Commission agreed with Bethlehem's
8		application of traditional return on equity models, however, a leverage adjustment
9		such as the one that Mr. Walker is proposing is not a variable in any of the
10		traditional cost of equity models including the DCF.
11		
12	**Q.**	**WHAT IS YOUR RESPONSE TO MR. WALKER'S REBUTTAL**
13		**TESTIMONY REGARDING HIS COMPARISON OF YOUR RETURN ON**
14		**EQUITY RECOMMENDATION IN THIS PROCEEDING TO OTHER**
15		**PROCEEDINGS THAT YOUR REFERENCED IN YOUR DIRECT**
16		**TESTIMONY AND THAT A LEVERAGE ADJUSTMENT SHOULD BE**
17		**INCLUDED BASED ON THE RESULTS OF THE 2008 AQUA**
18		**PROCEEDING?**
19	A.	As I stated earlier in my testimony, the Commission did in fact refuse to accept a
20		leverage adjustment in the Aqua case so the referenced proceeding does not

---

[5] *Pa. PUC v. Aqua Pennsylvania, Inc.*; Docket No. R-00072711, pp. 38-39 (Order entered July 31, 2008).
[6] *Pa. PUC v. UGI Utilities, Inc. – Electric Division;* Docket No. R-2017-2640058, pp. 93-94 (Order entered October 25, 2018).

1		support his argument of a leverage adjustment. Additionally, three of the cases
2		Mr. Walker references to support his leverage adjustment are not water utilities
3		(UGI Utilities – Electric, Columbia Gas, and PECO Gas) and the Water Fund's
4		return on equity should not be compared to those proceedings. Finally, the 2008
5		Aqua and 2011 City of Lancaster – Bureau of Water proceedings are from more
6		than ten years ago and the return on equity from those cases should not be used to
7		compared to the Water Fund as they do not reflect current market conditions.

8

9   **Q.**   **BASED ON THE WATER FUND'S FILED OUTSIDE CUSTOMER RATE**

10   **BASE AND CLAIMED CAPITAL STRUCTURE, WHAT IS THE VALUE**

11   **OF AN ADDITIONAL 110 BASIS POINTS TO THE COST OF EQUITY**

12   **FOR OUTSIDE CUSTOMERS IF YOUR IMPLIED TAX RATE**

13   **RECOMMENDATION OF 28.31% WAS INCLUDED?**

14   A.   In my direct testimony, I calculated that an additional 110 basis points added to

15   the cost of equity would force outside customers to fund an unwarranted additional

16   amount of $174,385 prior to the inclusion of my implied tax adjustment of 28.31%

17   (I&E Statement No. 2, p. 33, line 15). If I were to apply my implied tax rate of

18   28.31%, the total impact of outside customers would be $125,017 ($174,385 x (1 –

19   0.2831)) or a decrease of $49,368 ($174,385 - $125,017).

1	Q.	DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION AS A
2		RESULT OF MR. WALKER'S REBUTTAL TESTIMONY AS IT
3		RELATES TO A LEVERAGE ADJUSTMENT?
4	A.	No. I continue to find an adjustment to account for the difference between market
5		and book value to be inappropriate.
6		

RISK FACTORS

8	Q.	WHAT IS MR. WALKER'S REBUTTAL TESTIMONY REGARDING THE
9		WATER FUND'S RISK FACTORS?

10 A. Mr. Walker asserts I have not presented evidence regarding the risk of the Water

11 Fund compared to the proxy group since I did not make an investment risk

12 adjustment and that I did not conduct a risk analysis of the Water Fund and my

13 group (Hanover Statement No. 5-R, p. 36, line 9 through p. 37, line 8). Mr.

14 Walker also asserts that I did not consider the effects of federal tax law changes

15 and failed to consider the small size of the Water Fund in comparison to my proxy

16 group companies (Hanover Statement No. 5-R, p. 11, line 12 through p. 14, ln.

17 26). Each of these assertions are addressed in the sections that follow.

18

INVESTMENT RISK ADJUSTMENT

20	Q.	SUMMARIZE MR. WALKER'S REBUTTAL TESTIMONY REGARDING
21		HIS INVESTMENT RISK ADJUSTMENT.

22 A. Mr. Walker states that I have not presented evidence regarding the risk of the

1		Water Fund compared to the proxy group since I did not make an investment risk
2		adjustment and that I did not conduct a risk analysis of the Water Fund and my
3		group. Mr. Walker then references his direct testimony where he discusses his
4		financial analysis and risk analysis where he concluded that the Water Fund has a
5		higher investment risk compared to his proxy group. Mr. Walker states that based
6		on his analysis that the Water Fund has a credit profile of BBB+ to A- while his
7		proxy group has an A credit profile. Finally, Mr. Walker states that his investment
8		risk adjustment is based on the yield spread between A and BBB rated public
9		utility debt as the Water Fund's rating is between BBB+ and A- which is between
10		the A and BBB ratings (Hanover Statement No. 5-R, p. 36, line 9 through p. 37,
11		line 8).
12		
13	**Q.**	**WHAT IS YOUR RESPONSE TO MR. WALKER'S REBUTTAL**
14		**TESTIMONY REGARDING HIS INVESTMENT RISK ADJUSTMENT?**
15	A.	Mr. Walker, in his direct testimony, concedes that the Borough of Hanover has an
16		Aa3 bond rating from Moody's (Hanover Statement No. 5, p. 24, lines 9-11). Mr.
17		Walker also concedes the bonds used to finance the Water Fund's rate base are
18		backed by the full faith and credit and taxing authority of the Borough of Hanover
19		(Hanover Statement No. 5, p. 14, lines 9-12). Therefore, there is no reason to
20		conduct a separate risk analysis for the Water Fund as the general obligation bonds
21		are financed by the Borough of Hanover and not the Water Fund which has less
22		risk. Additionally, Mr. Walker states that "… based solely upon Water Fund's

1		size, it is my opinion that Water Fund's credit profile is lower than the
2		Comparable Groups'." (Hanover Statement No. 5, p. 26, lines 3-5). Mr. Walker
3		does not provide any support for his opinion, and as I stated above, there is no
4		basis for this type of adjustment as the Borough of Hanover provides the financing
5		for the Water Fund where the Borough of Hanover is rated Aa3 by Moody's.
6		
7	**Q.**	**WHAT IS YOUR RECOMMENDATION REGARDING MR.**
8		**WALKER'S INVESTMENT RISK ADJUSTMENT?**
9	A.	I continue to recommend that the investment risk adjustment be disallowed.
10		
11		**TAXES**
12	**Q.**	**SUMMARIZE MR. WALKER'S REBUTTAL TESTIMONY REGARDING**
13		**TAXES.**
14	A.	Mr. Walker cites to two articles by Moody's and Standard & Poor's which discuss
15		the impacts that federal tax law has on utility credit ratings. The most evident
16		point is the negative effect on cash flows due to reduced revenues because of the
17		corporate tax rate reduction from 35% to 21% (Hanover Statement No. 5-R, p. 11,
18		line 12 through p. 12, line 18). Mr. Walker also states that I combine income taxes
19		and deferred taxes. Mr. Walker continues by explaining that income taxes are an
20		income statement item which are included as part of the revenue requirement
21		which add a layer of protection for investors as they provide a margin and reduces
22		earnings variability. Mr. Walker states that deferred taxes are a cash flow

1   statement item which increases cash flow which enhances a company to internally

2   finance construction and assists in the cash coverage of debt, interest, dividends,

3   etc. (Hanover Statement No. 5-R, p. 49, line 9 though p. 50, line 8).

4

5   **Q.   WHAT IS YOUR RESPONSE TO MR. WALKER'S REBUTTAL**

6   **TESTIMONY REGARDING THE IMPACT OF FEDERAL TAX LAWS**

7   **AND ITS IMPACT ON UTILITY CREDIT RATINGS?**

8   A.   The articles that Mr. Walker mention specifically refer to investor-owned utilities,

9   and not municipal-owned utilities. Further, the Water Fund is not subject to

10   paying federal income tax and therefore its cash flow would be unaffected by

11   changes to the federal tax rate. In other words, the Water Fund cannot be

12   negatively impacted by changes federal tax laws that it has never had to comply

13   with. If anything, this proves that the Water Fund faces less financial risk than the

14   proxy group companies.

15

16   **Q.   WHAT IS YOUR RESPONSE TO MR. WALKER'S REBUTTAL**

17   **TESTIMONY REGARDING THE WATER FUND'S INCREASED RISK**

18   **DUE TO THE LACK OF BENEFITS FROM INCOME TAXES AND**

19   **DEFERRED TAXES?**

20   A.   As I discussed in my direct testimony regarding deferred taxes, Mr. Walker

21   ignores the fact that the Water Fund is not subject to income taxes. It has no need

22   to defer taxes because it does not have any income taxes to defer. The proxy

1		group companies may benefit from their ability to defer taxes, but the Water Fund
2		is in a far better position by not being subject to income taxes in the first place
3		(I&E Statement No. 2, p. 47, lines 10-18).
4		
5		**SIZE**
6	**Q.**	**WHAT IS MR. WALKER'S RESPONSE IN REBUTTAL TESTIMONY**
7		**REGARDING THE CLAIMED RISK ASSOCIATED WITH THE WATER**
8		**FUND'S SMALL SIZE?**
9	A.	Mr. Walker continues to opine that a premium should be added to the results of the
10		CAPM to account for perceived additional risk due to the Water Fund's small size
11		(Hanover Statement No. 5-R, p. 30, lines 21-22). He cites a few articles including
12		a 2002 article by Dr. Thomas Zepp, "Utility Stocks and the Size Effect: Revisited"
13		which is intended to refute the Dr. Annie Wong article entitled "Utility Stocks and
14		the Size Effect" as referred to in my direct testimony. Next, he references a
15		Standard & Poor's article that implies there is a correlation between a company's
16		size and its credit rating. Finally, Mr. Walker asserts that additional support can
17		be found in an article by M. Annin, "Equity and the Small Stock Effect" (Hanover
18		Statement No. 5-R, p. 13, line 25 through p. 14, line 26).
19		
20	**Q.**	**WHAT IS YOUR RESPONSE REGARDING THE REFERENCED**
21		**ARTICLES?**
22	A.	The article Mr. Walker references from Dr. Zepp does not recreate Dr. Wong's

1   study, as it simply speculates about other possible reasons for her results and

2   references the results of two other studies. The first study, completed by the

3   California Public Utilities Commission Staff in 1991, is not included in the article,

4   and therefore Dr. Zepp's opinions cannot be properly evaluated. Dr. Zepp also

5   draws conclusions about an entire industry based on the second study, which

6   examines the effects of size on only four water utility companies. Such a small

7   sample size cannot accurately reflect the entirety of the market. Accordingly, this

8   article does not contain enough credible evidence to refute Dr. Wong's findings.

9   The section of Standard and Poor's article Mr. Walker provides specifically

10   states, "we have no minimum size criterion for any given rating level…."

11   (Hanover Statement No. 5-R, p. 14, line 14). Further, this article is not specific to

12   the regulated utility industry, especially a municipal-owned utility.

13   Next, the article referenced by Mr. Walker, "Equity and the Small Stock

14   Effect," depends upon the New York Stock Exchange and makes no attempt to

15   differentiate between the public utility industry and the universe of publicly traded

16   companies.

17

18 **Q. DO YOU HAVE ANY FURTHER SUPPORT FOR YOUR**

19   **RECOMMENDATION REGARDING SIZE?**

20 A.   Yes. The difficulty in predicting the effect of size is demonstrated in the variance

21   from year to year of the measurement of difference between the annual returns on

22   the large and small-capitalization stocks of the NYSE/AMEX/NASDAQ in the

| 1 | | Ibbotson *Stocks, Bonds, Bills & Inflation: 2015 Yearbook*. As stated on page 100 |

2   of the SBBI Yearbook,

> 3   While the largest stocks actually declined in 2001, the smallest
> 4   stocks rose more than 30%. A more extreme case occurred in
> 5   the depression-recovery year of 1933, when the difference
> 6   between the first and 10th decile returns was far more
> 7   substantial. The divergence in the performance of small- and
> 8   large- cap stocks is evident. In 30 of the 89 years since 1926,
> 9   the difference between the total returns of the largest stocks
> 10   (decile 1) and the smallest stocks (decile 10) has been greater
> 11   than 25 percentage points.

12   Page 109 states,

> 13   In four of the last 10 years, large-capitalization stocks (deciles
> 14   1-2 of NYSE/AMEX/NASDAQ) have outperformed small-
> 15   capitalization stocks (deciles 9-10). This has led some market
> 16   observers to speculate that there is no size premium. But
> 17   statistical evidence suggests that periods of underperformance
> 18   should be expected.

19   Page 112 states,

> 20   Because investors cannot predict when small-cap returns will
> 21   be higher than large-cap returns, it has been argued that they
> 22   do not expect higher rates of return for small stocks.
23

24 **Q. WHAT IS YOUR RECOMMENDATION REGARDING MR.**

25 **WALKER'S SIZE ADJUSTMENT?**

26 A.   I continue to recommend that any adjustment in consideration of the Water Fund's

27   size be disallowed.

UNSYSTEMATIC RISK AND SYSTEMATIC RISK

Q. SUMMARIZE MR. WALKER'S REBUTTAL TESTIMONY REGARDING UNSYSTEMATIC RISK AND SYSTEMATIC RISK.

A. Mr. Walker states my testimony regarding unsystematic and systematic risk is vague or misleading where he infers that I stated in my direct testimony that systematic risk is the only risk relevant under the DCF. Mr. Walker continues by explaining how company-specific risk is relevant using Enron Corporation as an example (Hanover Statement No. 5-R, p. 17, line 2 through p. 18, line 20).

Q. DID YOU STATE IN YOUR DIRECT TESTIMONY THAT UNSYSTEMATIC RISK WAS IRRELAVENT UNDER THE DCF?

A. No. My direct testimony discussing systematic and unsystematic risk only pertained to the theoretical basis for the CAPM (I&E Statement No. 2, p. 15, lines 7-17). Nowhere in my direct testimony did I state unsystematic risk was irrelevant under the DCF.

OVERALL RATE OF RETURN

Q. HAS YOUR OVERALL RATE OF RETURN RECOMMENDATION CHANGED FROM YOUR DIRECT TESTIMONY?

A. No. I continue to support each recommendation made in I&E Statement No. 2.

1 **Q.** **WHAT IS YOUR OVERALL RATE OF RETURN RECOMMENDATION**

2   **FOR THE WATER FUND?**

3 A. I recommend the following rate of return for the Water Fund which includes a

4   28.31% tax adjustment to the cost of common equity:

5

Type of Capital	Ratio	Cost Rate	Weighted Cost Rate
Long-Term Debt	56.00%	2.98%	1.67%
Common Equity	44.00%	6.39%	2.81%
Total	100.00%		4.48%

6

7 **Q.** **DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

8 A. Yes.

Pennsylvania Public Utility Commission	:	
	:	
v.	:	Docket No: R-2021-3026116
	:	
The Borough of Hanover –	:	
Hanover Municipal Waterworks		

_____

VERIFICATION OF ZACHARI WALKER
_____

I, **Zachari Walker**, on behalf of the Bureau of Investigation and Enforcement, hereby verify that **I&E Statement No. 1, I&E Exhibit No. 1, I&E Statement No. 1-SR, and I&E Exhibit No. 1-SR** were prepared by me or under my direct supervision and control.

Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same if called to the stand at any evidentiary hearing held in this matter.

This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

Signed in Howard, Pennsylvania, this 2nd day of November 2021.

___/s/ _Zachari Walker_____

Zachari Walker
Fixed Utility Financial Analyst
Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement

<div align="center">

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

</div>

Pennsylvania Public Utility Commission	:	
	:	
v.	:	Docket No: R-2021-3026116
	:	
The Borough of Hanover –	:	
Hanover Municipal Waterworks		

<div align="center">

_____

VERIFICATION OF CHRISTOPHER KELLER

_____

</div>

I, **Christopher Keller**, on behalf of the Bureau of Investigation and Enforcement, hereby verify that **I&E Statement No. 2, I&E Exhibit No. 2 and I&E Statement No. 2-SR** were prepared by me or under my direct supervision and control.

Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same if called to the stand at any evidentiary hearing held in this matter.

This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

Signed in New Cumberland, Pennsylvania, this 2nd day of November, 2021.

/s/ Christopher Keller
Christopher Keller

<div align="center">

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

</div>

Pennsylvania Public Utility Commission   :
    :
            v.   :   Docket No: R-2021-3026116
    :
The Borough of Hanover –   :
Hanover Municipal Waterworks

<div align="center">

_____

VERIFICATION OF ESYAN A. SAKAYA

_____

</div>

    I, **Esyan A. Sakaya**, on behalf of the Bureau of Investigation and Enforcement, hereby verify that **I&E Statement No. 3** and **I&E Exhibit No. 3** were prepared by me or under my direct supervision and control.

    Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same if called to the stand at any evidentiary hearing held in this matter.

    This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

    Signed in Harrisburg, Pennsylvania, this 2nd day of November, 2021.

                               /s/ Esyan A. Sakaya
                               Esyan A. Sakaya