Fair Rate of Return
Docket No. R-2012-2336379

THE YORK WATER COMPANY
York, PA

INFORMATION SUBMITTED TO PENNSYLVANIA PUBLIC UTILITY COMMISSION PURSUANT TO:
Title 52 Pennsylvania Code

Exhibit No. FVII

and

Statement No. 107

Supplement No. 111
to
Tariff Water-Pa. P.U.C. No. 14

Exhibit No. FVII
Docket No. R-2012-2336379
Witness: Paul R. Moul

THE YORK WATER COMPANY

EXHIBIT

TO ACCOMPANY

THE DIRECT TESTIMONY

OF
PAUL R. MOUL, MANAGING CONSULTANT
P. MOUL & ASSOCIATES

May 28, 2013

The York Water Company
Summary Cost of Capital
for the Fully Forecast Test Year Ending February 28, 2015

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	43.61%	6.20%	2.71%
Short-Term Debt	4.54%	1.95%	0.09%
Common Equity	51.84%	11.25%	5.83%
Total	100.00%		8.63%

Indicated levels of fixed charge coverage assuming that the Company could actually achieve its overall cost of capital:

Pre-tax coverage of interest expense based upon a 41.4935% composite federal and state income tax rate (12.76% ÷ 2.80%)	4.56 x
Post-tax coverage of interest expense (8.63% ÷ 2.80%)	3.08 x

The York Water Company
Capitalization and Financial Statistics
2008-2012, Inclusive

	2012	2011	2010	2009	2008	Average
			(Millions of Dollars)			
Amount of Capital Employed						
Permanent Capital	$ 184.8	$ 180.3	$ 176.4	$ 164.5	$ 156.1	
Short-Term Debt	$ -	$ -	$ -	$ 5.0	$ 6.0	
Total Capital	$ 184.8	$ 180.3	$ 176.4	$ 169.5	$ 162.1	
Market-Based Financial Ratios						
Price-Earnings Multiple	24 x	24 x	22 x	22 x	20 x	22 x
Market/Book Ratio	232.1%	231.9%	218.5%	212.0%	187.7%	216.4%
Dividend Yield	3.1%	3.1%	3.3%	3.7%	4.3%	3.5%
Dividend Payout Ratio	74.5%	73.8%	72.9%	80.5%	85.9%	77.5%
Capital Structure Ratios						
Based on Permanent Captial:						
Long-Term Debt	46.0%	47.2%	48.3%	47.2%	55.3%	48.8%
Preferred Stock	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Common Equity [1]	54.0%	52.8%	51.7%	52.8%	44.7%	51.2%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Based on Total Capital:						
Total Debt incl. Short Term	46.0%	47.2%	48.3%	48.7%	57.0%	49.4%
Preferred Stock	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Common Equity [1]	54.0%	52.8%	51.7%	51.3%	43.0%	50.6%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Rate of Return on Book Common Equity [1]	9.5%	9.7%	10.0%	9.6%	9.4%	9.6%
Operating Ratio [2]	50.4%	51.1%	49.3%	53.1%	55.1%	51.8%
Coverage incl. AFUDC [3]						
Pre-tax: All Interest Charges	3.84 x	3.67 x	3.96 x	3.42 x	3.11 x	3.60 x
Post-tax: All Interest Charges	2.77 x	2.73 x	2.82 x	2.51 x	2.35 x	2.64 x
Overall Coverage: All Int. & Pfd. Div.	2.77 x	2.73 x	2.82 x	2.51 x	2.35 x	2.64 x
Coverage excl. AFUDC [3]						
Pre-tax: All Interest Charges	3.82 x	3.65 x	3.93 x	3.38 x	2.98 x	3.55 x
Post-tax: All Interest Charges	2.75 x	2.71 x	2.80 x	2.46 x	2.22 x	2.59 x
Overall Coverage: All Int. & Pfd. Div.	2.75 x	2.71 x	2.80 x	2.46 x	2.22 x	2.59 x
Quality of Earnings & Cash Flow						
AFC/Income Avail. for Common Equity	1.1%	1.1%	1.2%	2.8%	10.1%	3.3%
Effective Income Tax Rate	37.6%	35.3%	38.5%	37.9%	36.1%	37.1%
Internal Cash Generation/Construction [4]	87.8%	115.0%	92.5%	68.8%	25.9%	78.0%
Gross Cash Flow/ Avg. Total Debt [5]	20.0%	20.6%	19.3%	16.6%	14.2%	18.1%
Gross Cash Flow Interest Coverage [6]	4.23 x	4.33 x	4.28 x	3.89 x	3.36 x	4.02 x
Common Dividend Coverage [7]	2.48 x	2.63 x	2.51 x	2.48 x	2.16 x	2.45 x

See Page 2 for Notes.

Water Group
Capitalization and Financial Statistics [1]
2008-2012, Inclusive

	2012	2011	2010	2009	2008	Average
			(Millions of Dollars)			
Amount of Capital Employed						
Permanent Capital	$ 1,813.9	$ 1,747.0	$ 1,720.0	$ 1,645.5	$ 1,542.2	
Short-Term Debt	$ 55.1	$ 81.1	$ 53.5	$ 31.2	$ 84.2	
Total Capital	$ 1,869.0	$ 1,828.1	$ 1,773.5	$ 1,676.7	$ 1,626.4	
Market-Based Financial Ratios						
Earnings/Price Ratio	19 x	20 x	20 x	22 x	22 x	20 x
Market/Book Ratio	184.6%	177.1%	175.9%	171.3%	175.3%	176.8%
Dividend Yield	3.3%	3.5%	3.5%	3.7%	3.4%	3.5%
Dividend Payout Ratio	60.4%	69.9%	67.2%	75.3%	73.6%	69.3%
Capital Structure Ratios						
Based on Permanent Capital:						
Long-Term Debt	49.1%	50.7%	51.0%	50.8%	50.1%	50.3%
Preferred Stock	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%
Common Equity [2]	50.8%	49.2%	48.9%	49.0%	49.7%	49.5%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Based on Total Capital:						
Total Debt incl. Short Term	50.8%	52.5%	53.5%	53.4%	53.2%	52.7%
Preferred Stock	0.1%	0.1%	0.1%	0.2%	0.2%	0.1%
Common Equity [2]	49.1%	47.3%	46.3%	46.5%	46.6%	47.2%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Rate of Return on Book Common Equity [2]	9.9%	8.9%	8.9%	8.6%	8.9%	9.0%
Operating Ratio [3]	69.6%	70.4%	71.4%	73.1%	72.4%	71.4%
Coverage incl. AFUDC [4]						
Pre-tax: All Interest Charges	3.66 x	3.41 x	3.39 x	3.28 x	3.31 x	3.41 x
Post-tax: All Interest Charges	2.71 x	2.50 x	2.46 x	2.45 x	2.46 x	2.52 x
Overall Coverage: All Int. & Pfd. Div.	2.70 x	2.49 x	2.45 x	2.43 x	2.44 x	2.50 x
Coverage excl. AFUDC [4]						
Pre-tax: All Interest Charges	3.61 x	3.36 x	3.34 x	3.22 x	3.23 x	3.35 x
Post-tax: All Interest Charges	2.66 x	2.45 x	2.42 x	2.38 x	2.38 x	2.46 x
Overall Coverage: All Int. & Pfd. Div.	2.65 x	2.44 x	2.41 x	2.37 x	2.36 x	2.45 x
Quality of Earnings & Cash Flow						
AFC/Income Avail. for Common Equity	3.3%	3.7%	3.2%	4.2%	5.5%	4.0%
Effective Income Tax Rate	36.2%	38.1%	38.9%	37.3%	37.0%	37.5%
Internal Cash Generation/Construction [5]	83.9%	78.9%	67.6%	65.7%	50.1%	69.2%
Gross Cash Flow/ Avg. Total Debt [6]	21.3%	19.0%	18.6%	17.6%	18.3%	19.0%
Gross Cash Flow Interest Coverage [7]	4.84 x	4.47 x	4.36 x	4.17 x	4.02 x	4.37 x
Common Dividend Coverage [8]	3.94 x	3.82 x	3.74 x	3.50 x	3.19 x	3.64 x

See Page 2 for Notes.

Standard & Poor's Public Utilities
Capitalization and Financial Statistics [1]
2008-2012, Inclusive

	2012	2011	2010	2009	2008	
			(Millions of Dollars)			
Amount of Capital Employed						
Permanent Capital	$ 21,620.0	$ 18,840.8	$ 17,587.3	$ 16,618.6	$ 15,620.1	
Short-Term Debt	$ 648.9	$ 531.4	$ 435.4	$ 415.0	$ 803.5	
Total Capital	$ 22,268.9	$ 19,372.2	$ 18,022.7	$ 17,033.6	$ 16,423.6	
Market-Based Financial Ratios						Average
Price-Earnings Multiple	18 x	15 x	15 x	14 x	14 x	15 x
Market/Book Ratio	164.0%	155.2%	142.8%	137.1%	174.9%	154.8%
Dividend Yield	4.1%	4.4%	4.8%	5.2%	4.3%	4.6%
Dividend Payout Ratio	70.3%	64.7%	72.0%	72.2%	61.9%	68.2%
Capital Structure Ratios						
Based on Permanent Captial:						
Long-Term Debt	52.9%	52.9%	53.4%	54.2%	54.3%	53.5%
Preferred Stock	1.6%	1.3%	1.3%	1.5%	1.7%	1.5%
Common Equity [2]	45.5%	45.8%	45.3%	44.3%	44.0%	45.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Based on Total Capital:						
Total Debt incl. Short Term	54.5%	54.5%	54.7%	55.6%	57.1%	55.3%
Preferred Stock	1.6%	1.3%	1.3%	1.4%	1.6%	1.4%
Common Equity [2]	44.0%	44.3%	44.0%	43.0%	41.3%	43.3%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Rate of Return on Book Common Equity [2]	9.2%	10.5%	10.8%	10.1%	12.2%	10.6%
Operating Ratio [3]	81.3%	81.4%	81.6%	83.0%	84.1%	82.3%
Coverage incl. AFUDC [4]						
Pre-tax: All Interest Charges	2.94 x	3.35 x	3.34 x	3.06 x	3.39 x	3.22 x
Post-tax: All Interest Charges	2.35 x	2.59 x	2.52 x	2.36 x	2.57 x	2.48 x
Overall Coverage: All Int. & Pfd. Div.	2.32 x	2.57 x	2.50 x	2.33 x	2.53 x	2.45 x
Coverage excl. AFUDC [4]						
Pre-tax: All Interest Charges	2.85 x	3.25 x	3.25 x	2.96 x	3.28 x	3.12 x
Post-tax: All Interest Charges	2.25 x	2.49 x	2.43 x	2.26 x	2.46 x	2.38 x
Overall Coverage: All Int. & Pfd. Div.	2.22 x	2.47 x	2.41 x	2.22 x	2.42 x	2.35 x
Quality of Earnings & Cash Flow						
AFC/Income Avail. for Common Equity	7.1%	5.7%	6.6%	7.8%	7.7%	7.0%
Effective Income Tax Rate	26.2%	36.8%	34.3%	31.8%	33.8%	32.6%
Internal Cash Generation/Construction [5]	75.0%	89.4%	108.0%	100.0%	83.1%	91.1%
Gross Cash Flow/ Avg. Total Debt [6]	21.9%	23.2%	23.9%	22.5%	22.6%	22.8%
Gross Cash Flow Interest Coverage [7]	5.37 x	5.12 x	5.09 x	4.85 x	4.75 x	5.04 x
Common Dividend Coverage [8]	4.31 x	4.58 x	4.88 x	4.73 x	4.95 x	4.69 x

See Page 2 for Notes.

Standard & Poor's Public Utilities
Company Identities

	Ticker	Credit Rating [1] Moody's	Credit Rating [1] S&P	Common Stock Traded	S&P Stock Ranking	Value Line Beta
AGL Resources Inc.	GAS	A3	BBB+	NYSE	A	0.75
Ameren Corporation	AEE	Baa2	BBB	NYSE	B	0.80
American Electric Power	AEP	Baa2	BBB	NYSE	B	0.70
CMS Energy	CMS	Baa1	BBB	NYSE	B	0.75
CenterPoint Energy	CNP	Baa2	BBB+	NYSE	B	0.80
Consolidated Edison	ED	A3	A-	NYSE	B+	0.60
DTE Energy Co.	DTE	A3	BBB+	NYSE	B+	0.75
Dominion Resources	D	A3	A-	NYSE	B+	0.65
Duke Energy	DUK	A3	BBB+	NYSE	B	0.60
Edison Int'l	EIX	A3	BBB+	NYSE	B	0.75
Entergy Corp.	ETR	Baa2	BBB	NYSE	A+	0.70
EQT Corp.	EQT	Baa3	BBB	NYSE	B+	1.15
Exelon Corp.	EXC	A3	BBB	NYSE	B+	0.80
FirstEnergy Corp.	FE	Baa2	BBB-	NYSE	A-	0.80
Integrys Energy Group	TEG	A2	A-	NYSE	B	0.90
NextEra Energy Inc.	NEE	A2	A-	NYSE	A	0.75
NiSource Inc.	NI	Baa2	BBB-	NYSE	B	0.85
Northeast Utilities	NU	Baa2	A-	NYSE	B	0.70
NRG Energy Inc.	NRG	Ba3	BB-	NYSE	NR	1.10
ONEOK, Inc.	OKE	Baa2	BBB	NYSE	NR	0.95
PEPCO Holdings, Inc.	POM	Baa2	BBB+	NYSE	B	0.75
PG&E Corp.	PCG	A3	BBB	NYSE	B	0.55
PPL Corp.	PPL	Baa2	BBB	NYSE	B+	0.65
Pinnacle West Capital	PNW	Baa1	BBB+	NYSE	B	0.70
Public Serv. Enterprise Inc.	PEG	A3	BBB	NYSE	B+	0.75
SCANA Corp.	SCG	Baa2	BBB+	NYSE	A-	0.65
Sempra Energy	SRE	A2	A	NYSE	A-	0.80
Southern Co.	SO	A3	A	NYSE	A-	0.55
TECO Energy	TE	A3	BBB+	NYSE	B	0.85
Wisconsin Energy Corp.	WEC	A2	A-	NYSE	A	0.65
Xcel Energy Inc	XEL	A3	A-	NYSE	B+	0.65
Average for S&P Utilities		Baa1	BBB+		A	0.75

Note: [1] Ratings are those of utility subsidiaries

Source of Information:
Moody's Investors Service
Standard & Poor's Corporation
Standard & Poor's Stock Guide
Value Line Investment Survey for Windows

The York Water Company
Calculation of the Embedded Cost of Long-Term Debt
Actual at December 31, 2012

Series	Date of Maturity	Principal Amount Outstanding [1]	Percent to Total	Effective Cost Rate	Weighted Cost Rate [2]
10.17%	02/01/19	$ 6,000,000	7.06%	10.71%	0.76%
9.60%	02/01/19	5,000,000	5.88%	9.60%	0.57%
10.05%	09/30/20	6,500,000	7.65%	10.07%	0.77%
8.43%	12/18/22	7,500,000	8.83%	8.53%	0.75%
1.00%	08/01/19	290,008	0.34%	1.02%	0.00%
4.05%	04/01/16	2,350,000	2.77%	4.67%	0.13%
5.00%	04/01/16	4,950,000	5.83%	4.77%	0.28%
3.49%	10/01/29	12,000,000	14.12%	3.94%	0.56%
4.75%	10/01/36	10,500,000	12.36%	5.11%	0.63%
6.00%	11/01/38	14,885,000	17.52%	6.34%	1.11%
5.00%	10/01/40	15,000,000	17.65%	5.31%	0.94%
Total Long -Term Debt		$ 84,975,008	100.00%		6.49%

Notes: [1] Includes current portion of long-term debt.
[2] As calculated on page 3 of this schedule.

Source of Information: Company provided data

The York Water Company
Calculation of the Effective Cost of Long-Term Debt by Series

Series	Date of Issue	Date of Maturity	Principal Amount Issued	Premium/ Discount and Expense		Net Proceeds	Net Proceeds Ratio	Effective Cost Rate [1]
10.17%	02/01/89	02/01/19	$6,000,000	$286,803		$ 5,713,197	95.22%	10.71%
9.60%	02/01/89	02/01/19	5,000,000	-		5,000,000	100.00%	9.60%
10.05%	09/30/90	09/30/20	6,500,000	15,183		6,484,817	99.77%	10.07%
8.43%	12/15/92	12/18/22	7,500,000	81,274	[2]	7,418,726	98.92%	8.53%
1.00%	08/24/99	08/01/19	800,000	2,700		797,300	99.66%	1.02%
4.05%	04/01/04	04/01/16	2,350,000	133,634	[3]	2,216,366	94.31%	4.67%
5.00%	04/01/04	04/01/16	4,950,000	(101,424)	[4]	5,051,424	102.05%	4.77%
3.49%	05/07/08	10/01/29	12,000,000	781,210	[5]	11,218,790	93.49%	3.94%
4.75%	10/01/06	10/01/36	10,500,000	580,163		9,919,837	94.47%	5.11%
6.00%	10/01/08	11/01/38	15,000,000	686,273		14,313,727	95.42%	6.34%
4.15%	12/02/13	11/01/43	15,000,000	1,271,093	[6]	13,728,907	91.53%	4.68%
5.00%	08/01/10	10/01/40	15,000,000	703,251		14,296,749	95.31%	5.31%

Notes: [1] The effective cost for each issue is the yield to maturity using as inputs the average term of issue, coupon rate, and net proceeds ratio.
[2] Includes the actual issuance expenses of $18,797, $8,424 premiums paid to redeem the 8.625% Debentures, and unamortized debt issuance expense of $2,970 (8.625% Debentures), $2,417 (7% YCIDA Note), $5,504 (7.125% YCIDA Note), and $43,162 (8.0615% Water Facility Loans) which were all redeemed with the proceeds of the 8.43% Senior Note.
[3] Reflects pro rated issuance costs for portion of the bonds issued to retail investors ($415,142 x .3219)
[4] Reflects pro rated issuance costs for portion of the bonds issued to institutional investors ($415,412 x .6781) less $382,932 of premium paid by the institutional investors.
[5] Includes additional issuance expenses of $258,500 associated with the refinancing of variable rate Exempt Facilities Revenue Bonds.
[6] Includes additional issuance expenses of $700,000 and $571,093 remaining amortization associated with the refinancing of 2008 PEDFA B Exempt Facilities Revenue Bonds.

Source of Information: Company provided data

Historical Growth Rates
Earnings Per Share, Dividends Per Share,
Book Value Per Share, and Cash Flow Per Share

Company	Earnings per Share		Dividends per Share		Book Value per Share		Cash Flow per Share	
	Value Line		Value Line		Value Line		Value Line	
	5 Year	10 Year	5 Year	10 Year	5 Year	10 Year	5 Year	10 Year
American States Water	11.50%	6.50%	4.50%	3.00%	5.50%	5.00%	9.00%	6.50%
American Water Works Co., Inc.	-	-	-	-	-0.50%	-	39.50%	-
Aqua America, Inc.	4.50%	6.50%	8.00%	7.50%	7.00%	9.00%	8.00%	8.50%
Artesian Res. Corp.	2.00%	-	4.50%	-	4.50%	-	3.00%	-
California Water Serv. Grp.	5.00%	4.00%	1.00%	1.00%	5.00%	5.00%	6.50%	4.50%
Connecticut Water Services	4.00%	0.50%	1.50%	1.50%	3.00%	4.00%	4.00%	1.50%
Middlesex Water Company	2.50%	3.50%	1.50%	1.50%	4.00%	4.50%	2.00%	3.00%
SJW Corporation	-3.00%	2.00%	5.00%	5.00%	4.50%	5.50%	2.50%	6.00%
York Water Company	4.50%	-	3.00%	-	6.00%	-	6.50%	-
Average	3.88%	3.83%	3.63%	3.25%	4.33%	5.50%	9.00%	5.00%

Source of Information: Value Line Investment Survey, April 19, 2013

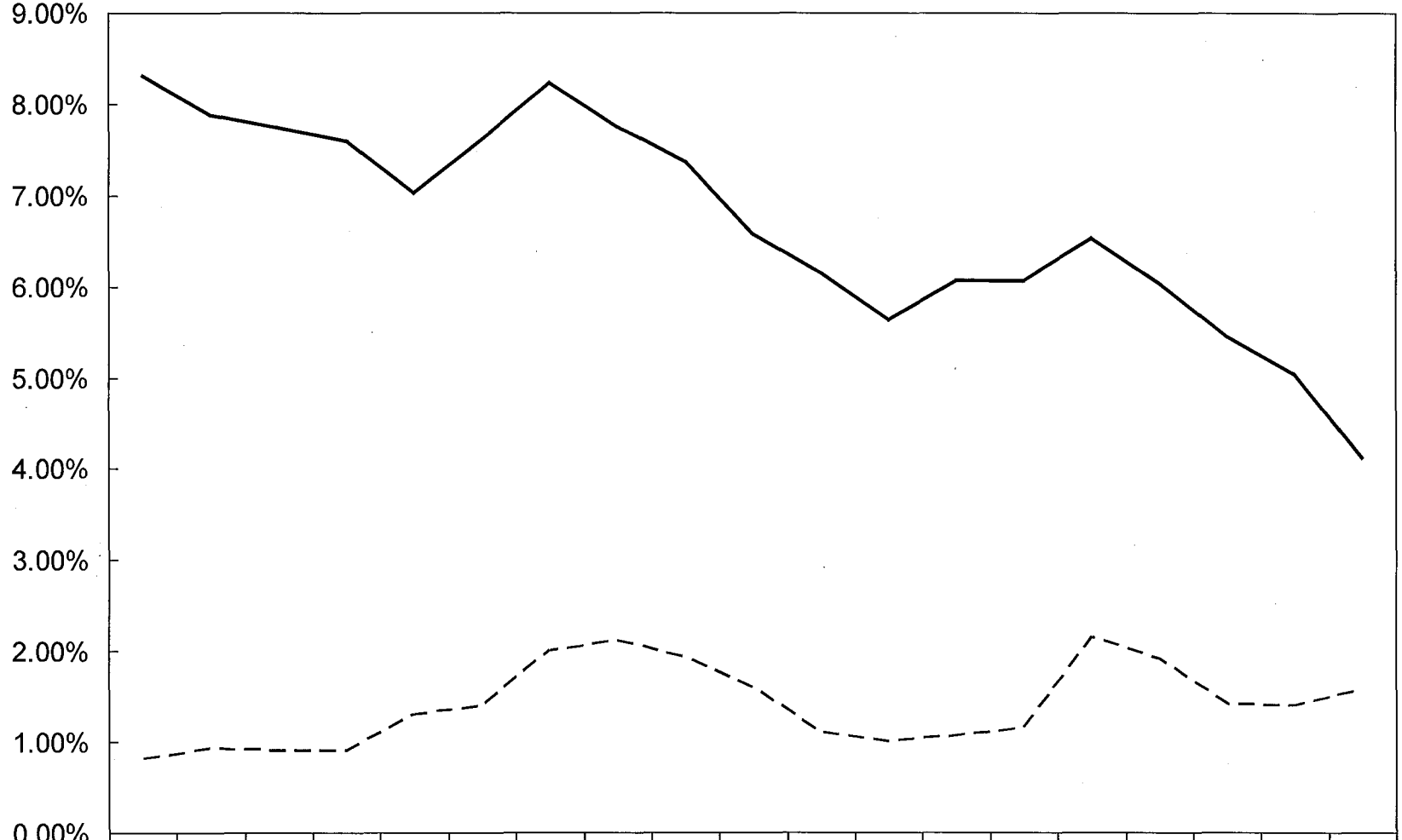
Water Group□
Financial Risk Adjustment

		American States Water Co (NYSE:AWR)	American Water Works Co. (NYSE:AWK)	Aqua America Inc. (NYSE:WTR)	Artesian Resources Corp (NDS:ARTNA)	California Water Service Group (NYSE:CWT)	Connecticut Water Service (NDS:CTWS)	Middlesex Water Co. (NDS:MSEX)	SJW Corp (NYSE:SJW)	The York Water Company (NDS:YORW)	Average
Fiscal Year		12/31/12	12/31/12	12/31/12	12/31/12	12/31/12	12/31/12	12/31/12	12/31/12	12/31/12	
Capitalization at Fair Values											
	Debt(D)	456,792	6,330,895	1,702,997	133,818	613,211	194,900	141,968	455,042	107,000	1,126,291
	Preferred(P)	0	27,263	0	0	0	772	3,353	0	0	3,488
	Equity(E)	923,001	6,571,564	3,563,052	195,365	769,012	325,778	308,950	496,637	226,980	1,486,704
	Total	1,379,793	12,929,722	5,266,049	329,183	1,382,223	521,450	454,271	951,679	333,980	2,616,483
Capital Structure Ratios											
	Debt(D)	33.11%	48.96%	32.34%	40.65%	44.36%	37.38%	31.25%	47.81%	32.04%	38.66%
	Preferred(P)	0.00%	0.21%	0.00%	0.00%	0.00%	0.15%	0.74%	0.00%	0.00%	0.12%
	Equity(E)	66.89%	50.83%	67.66%	59.35%	55.64%	62.48%	68.01%	52.19%	67.96%	61.22%
	Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.01%	100.00%	100.00%	100.00%	100.00%
Common Stock											
	Issued	19,237.212	176,988.000	140,943.621	8,710.000	41,908.000	10,939.486	15,795.000	18,670.566	12,918.633	
	Treasury	0.000	0.000	776.355	0.000	0.000	0.000	0.000	0.000	0.000	
	Outstanding	19,237.212	176,988.000	140,167.266	8,710.000	41,908.000	10,939.486	15,795.000	18,670.566	12,918.633	
	Market Price	$47.98	$37.13	$25.42	$22.43	$18.35	$29.78	$19.56	$26.60	$17.57	
Capitalization at Carrying Amounts											
	Debt(D)	335,791	5,303,729	1,588,992	107,368	481,250	178,475	140,346	340,990	84,975	951,324
	Preferred(P)	0	20,511	0	0	0	772	3,353	0	0	2,737
	Equity(E)	454,579	4,443,268	1,385,704	118,180	473,712	185,349	181,632	274,604	99,825	846,317
	Total	790,370	9,767,508	2,974,696	225,548	954,962	364,596	325,331	615,594	184,800	1,800,378
Capital Structure Ratios											
	Debt(D)	42.49%	54.30%	53.42%	47.60%	50.39%	48.95%	43.14%	55.39%	45.98%	49.07%
	Preferred(P)	0.00%	0.21%	0.00%	0.00%	0.00%	0.21%	1.03%	0.00%	0.00%	0.16%
	Equity(E)	57.51%	45.49%	46.58%	52.40%	49.61%	50.84%	55.83%	44.61%	54.02%	50.77%
	Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Betas	Value Line	0.70	0.65	0.60	0.60	0.65	0.75	0.70	0.85	0.70	0.69

Hamada	Bl	=	Bu	[1+	(1 - t)	D/E	+	P/E	]
	0.69	=	Bu	[1+	(1-0.35)	0.6315	+	0.0020	]
	0.69	=	Bu	[1+	0.65	0.6315	+	0.0020	]
	0.69	=	Bu	1.4125					
	0.49	=	Bu						
Hamada	Bl	=	0.49	[1+	(1 - t)	D/E	+	P/E	]
	Bl	=	0.49	[1+	0.65	0.9667	+	0.0032	]
	Bl	=	0.49	1.6316					
	Bl	=	0.80						

M&M	ku	=	ke	-	(((	ku	-	i	)	1-t	)	D	/	E	) - (	ku	-	d	)	P	/	E
	8.25%	=	9.98%	-	(((	8.25%	-	4.05%	)	0.65	)	38.66%	/	61.22%	) - (	8.25%	-	5.68%	)	0.12%	/	61.22%
	8.25%	=	9.98%	-	(((	4.20%			)	0.65	)	0.6315			) - (	2.57%			)	0.0020		
	8.25%	=	9.98%	-	((	2.73%					)	0.6315			) - (	2.57%			)	0.0020		
	8.25%	=	9.98%	-		1.72%									-	0.01%						
M&M	ke	=	ku	+	(((	ku	-	i	)	1-t	)	D	/	E	) + (	ku	-	d	)	P	/	E
	10.90%	=	8.25%	+	(((	8.25%	-	4.05%	)	0.65	)	49.07%	/	50.77%	) + (	8.25%	-	5.68%	)	0.16%	/	50.77%
	10.90%	=	8.25%	+	(((	4.20%			)	0.65	)	0.9667			) + (	2.57%			)	0.0032		
	10.90%	=	8.25%	+	((	2.73%					)	0.9667			) + (	2.57%			)	0.0032		
	10.90%	=	8.25%	+		2.64%									+	0.01%						

Yields on
A-rated Public Utility Bonds and
Spreads over 20-Year Treasuries



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
A-rated Public Utility	8.31%	7.89%	7.75%	7.60%	7.04%	7.62%	8.24%	7.76%	7.37%	6.58%	6.16%	5.65%	6.07%	6.07%	6.53%	6.04%	5.46%	5.04%	4.13%
Spread vs. 20-year	0.82%	0.94%	0.92%	0.91%	1.32%	1.42%	2.01%	2.13%	1.94%	1.62%	1.12%	1.01%	1.08%	1.16%	2.17%	1.93%	1.43%	1.42%	1.59%

Common Equity Risk Premiums
Years 1926-2012

	Large Common Stocks	Long-Term Corp. Bonds	Equity Risk Premium	Long-Term Govt. Bonds Yields
Low Interest Rates	11.72%	4.72%	7.00%	3.03%
Average Across All Interest Rates	11.82%	6.41%	5.41%	5.16%
High Interest Rates	11.92%	8.15%	3.77%	7.35%

Source of Information: 2013 Stocks, Bonds, Bills, and Inflation (SBBI) Classis Yearbook

Yields for Treasury Constant Maturities
Yearly for 2008-2012
and the Twelve Months Ended March 2013

Years	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	20-Year	30-Year
2008	1.82%	2.00%	2.24%	2.80%	3.17%	3.67%	4.36%	4.28%
2009	0.47%	0.96%	1.43%	2.19%	2.81%	3.26%	4.11%	4.08%
2010	0.32%	0.70%	1.11%	1.93%	2.62%	3.21%	4.03%	4.25%
2011	0.18%	0.45%	0.75%	1.52%	2.16%	2.79%	3.62%	3.91%
2012	0.18%	0.28%	0.38%	0.76%	1.22%	1.80%	2.54%	2.92%
Five-Year Average	0.59%	0.88%	1.18%	1.84%	2.40%	2.95%	3.73%	3.89%
Months								
Apr-12	0.18%	0.29%	0.43%	0.89%	1.43%	2.05%	2.82%	3.18%
May-12	0.19%	0.29%	0.39%	0.76%	1.21%	1.80%	2.53%	2.93%
Jun-12	0.19%	0.29%	0.39%	0.71%	1.08%	1.62%	2.31%	2.70%
Jul-12	0.19%	0.25%	0.33%	0.62%	0.98%	1.53%	2.22%	2.59%
Aug-12	0.18%	0.27%	0.37%	0.71%	1.14%	1.68%	2.40%	2.77%
Sep-12	0.18%	0.26%	0.34%	0.67%	1.12%	1.72%	2.49%	2.88%
Oct-12	0.18%	0.28%	0.37%	0.71%	1.15%	1.75%	2.51%	2.90%
Nov-12	0.18%	0.27%	0.36%	0.67%	1.08%	1.65%	2.39%	2.80%
Dec-12	0.16%	0.26%	0.35%	0.70%	1.13%	1.72%	2.47%	2.88%
Jan-13	0.15%	0.27%	0.39%	0.81%	1.30%	1.91%	2.68%	3.08%
Feb-13	0.16%	0.27%	0.40%	0.85%	1.35%	1.98%	2.78%	3.17%
Mar-13	0.15%	0.26%	0.39%	0.82%	1.32%	1.96%	2.78%	3.16%
Twelve-Month Average	0.17%	0.27%	0.38%	0.74%	1.19%	1.78%	2.53%	2.92%
Six-Month Average	0.16%	0.27%	0.38%	0.76%	1.22%	1.83%	2.60%	3.00%
Three-Month Average	0.15%	0.27%	0.39%	0.83%	1.32%	1.95%	2.75%	3.14%

Source: Federal Reserve statistical release H.15

Table 7-6: Size-Decile Portfolios of the NYSE/AMEX/NASDAQ Long-Term Returns in Excess of CAPM

Decile	Beta*	Arithmetic Mean Return (%)	Actual Return in Excess of Riskless Rate** (%)	CAPM Return in Excess of Riskless Rate† (%)	Size Premium (Return in Excess of CAPM) (%)
Mid-Cap, 3-5	1.12	13.73	8.61	7.50	1.12
Low-Cap, 6-8	1.23	15.19	10.07	8.23	1.85
Micro-Cap, 9-10	1.36	18.03	12.91	9.10	3.81

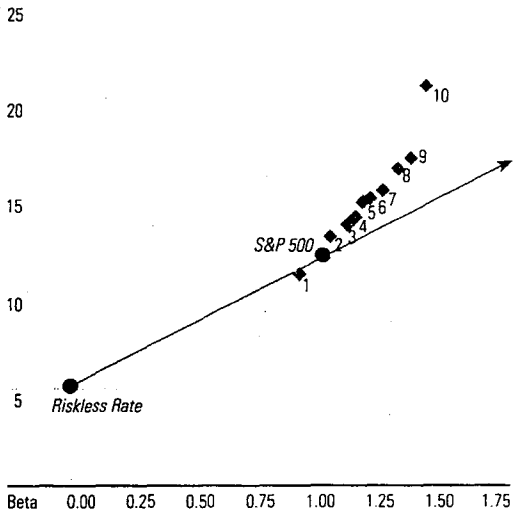
Data from 1926–2012.

*Betas are estimated from monthly returns in excess of the 30-day U.S. Treasury bill total return, January 1926–December 2012.

**Historical riskless rate measured by the 87-year arithmetic mean income return component of 20-year government bonds (5.12 percent).

†Calculated in the context of the CAPM by multiplying the equity risk premium by beta. The equity risk premium is estimated by the arithmetic mean total return of the S&P 500 (11.82 percent) minus the arithmetic mean income return component of 20-year government bonds (5.12 percent) from 1926–2012.

Graph 7-2: Security Market Line Versus Size-Decile Portfolios of the NYSE/AMEX/NASDAQ



Data from 1926–2012.

Serial Correlation in Small Company Stock Returns

The serial correlation, or first-order autocorrelation, of returns on large capitalization stocks is near zero. [See Table 7-1.] If stock returns are serially correlated, then one can gain some information about future performance based on past returns. For the smallest stocks, the serial correlation is near or above 0.1. This observation bears further examination.

Table 7-7: Size-Decile Portfolios of the NYSE/AMEX/NASDAQ Serial Correlations of Annual Returns in Excess of Decile 1 Returns

Decile	Serial Correlations of Annual Returns in Excess of Decile 1 Return
2	0.22
3	0.27
4	0.25
5	0.25
6	0.33
7	0.27
8	0.34
9	0.29
10	0.38

Data from 1926–2012. Source: Morningstar and CRSP. Calculated (or Derived) based on data from CRSP US Stock Database and CRSP US Indices Database ©2013 Center for Research in Security Prices (CRSP®), The University of Chicago Booth School of Business. Used with permission.

To remove the randomizing effect of the market as a whole, the returns for decile 1 are geometrically subtracted from the returns for deciles 2 through 10. The result illustrates that these series differences exhibit greater serial correlation than the decile series themselves. Table 7-7 above presents the serial correlations of the excess returns for deciles 2 through 10. These serial correlations suggest some predictability of smaller company excess returns. However, caution is necessary. The serial correlation of small company excess returns for non-calendar years (February through January, etc.) do not always confirm the results shown here for calendar (January through December) years. The results for the non-calendar years (not shown in this book) suggest that predicting small company excess returns may not be easy.

Comparable Earnings Approach
Five -Year Average Historical Earned Returns
for Years 2008-2012 and
Projected 3-5 Year Returns

Company	2008	2009	2010	2011	2012	Average	Projected 2016-18
Alexion Pharmac.	13.4%	11.6%	11.3%	15.5%	12.9%	12.9%	16.0%
Bemis Co.	12.3%	8.2%	10.5%	11.6%	10.6%	10.6%	15.5%
BMC Software	27.5%	27.1%	24.0%	27.3%	51.0%	31.4%	26.0%
CACI Int'l	9.1%	9.6%	9.1%	11.0%	14.4%	10.6%	13.5%
Capitol Fed. Fin'l	5.8%	7.0%	7.1%	3.3%	4.1%	5.5%	4.5%
CareFusion Corp.	-	5.8%	6.7%	7.3%	6.9%	6.7%	8.5%
Chemed Corp.	19.2%	15.5%	17.7%	20.8%	19.7%	18.6%	16.5%
Clean Harbors	13.9%	6.3%	16.4%	3.2%	6.6%	9.3%	15.0%
Clorox Co.	-	-	726.5%	NMF	NMF	726.5%	NMF
Copart Inc.	19.6%	15.1%	13.9%	30.0%	32.5%	22.2%	22.5%
DaVita Inc.	19.2%	19.8%	22.8%	22.5%	16.0%	20.1%	18.0%
Dollar General	3.8%	10.0%	15.5%	16.4%	18.5%	12.8%	19.0%
Forest Labs.	25.6%	21.8%	23.3%	18.0%	0.5%	17.8%	7.5%
Global Payments	14.1%	17.3%	24.1%	18.8%	20.6%	19.0%	20.5%
Greatbatch Inc.	9.4%	9.2%	8.4%	8.5%	8.7%	8.8%	10.5%
Haemonetics Corp.	11.9%	12.5%	12.2%	10.7%	11.0%	11.7%	12.0%
Hanover Insurance	9.7%	8.0%	6.2%	1.3%	1.9%	5.4%	9.5%
Hasbro Inc.	22.1%	23.5%	24.6%	26.8%	22.5%	23.9%	23.5%
HCC Insurance Hldgs.	12.0%	11.7%	10.3%	7.9%	11.3%	10.6%	9.5%
Healthcare Svcs.	13.2%	14.5%	16.2%	17.5%	19.3%	16.1%	29.5%
Heartland Express	19.4%	15.5%	18.3%	20.5%	20.8%	18.9%	18.5%
Henry (Jack) & Assoc.	17.5%	16.5%	15.7%	15.6%	15.8%	16.2%	15.0%
Hillenbrand Inc.	36.4%	33.7%	24.8%	23.9%	20.7%	27.9%	19.5%
Hospira Inc.	23.0%	19.3%	17.6%	17.4%	10.9%	17.6%	15.5%
IAC/InterActiveCorp	3.1%	0.8%	0.9%	9.1%	9.6%	4.7%	11.0%
ICU Medical	9.6%	10.0%	11.3%	13.9%	10.5%	11.1%	14.5%
IHS Inc.	12.4%	13.3%	12.0%	9.8%	10.0%	11.5%	10.0%
Investors Bancorp	1.9%	NMF	6.9%	8.2%	8.3%	6.3%	11.5%
J&J Snack Foods	8.8%	12.0%	12.7%	11.2%	11.4%	11.2%	10.5%
Knight Transportation	11.6%	9.7%	12.0%	12.6%	13.9%	12.0%	15.5%
Kroger Co.	24.1%	23.2%	21.1%	30.0%	34.5%	26.6%	23.5%
Landauer Inc.	32.9%	33.6%	31.7%	30.2%	31.4%	32.0%	28.5%
Life Technologies	9.4%	13.7%	15.3%	15.0%	15.3%	13.7%	14.0%
Manhattan Assoc.	15.8%	9.0%	15.3%	27.7%	32.1%	20.0%	36.5%
Markel Corp.	9.5%	9.5%	7.7%	3.7%	5.7%	7.2%	7.0%
Mead Johnson Nutrition	-	-	NMF	NMF	NMF	-	48.5%
Mercury General	7.7%	10.0%	6.4%	8.2%	4.0%	7.3%	10.0%
Molson Coors Brewing	8.6%	10.0%	8.6%	8.8%	9.0%	9.0%	9.0%
Northwest Bancshares	7.8%	2.5%	4.4%	5.6%	5.6%	5.2%	7.5%
O'Reilly Automotive	9.0%	11.4%	13.5%	18.4%	19.0%	14.3%	14.5%
Owens & Minor	14.7%	14.3%	14.4%	13.4%	11.1%	13.6%	15.5%
People's United Fin'l	2.7%	2.0%	1.6%	3.8%	4.9%	3.0%	8.0%
Philip Morris Int'l	NMF	NMF	NMF	NMF	NMF	-	NMF
PSS World Medical	16.7%	17.0%	16.8%	19.2%	10.0%	15.9%	11.5%
Quest Diagnostics	17.8%	18.3%	17.9%	19.7%	17.0%	18.1%	14.5%
ResMed Inc.	10.6%	13.1%	14.8%	13.1%	15.9%	13.5%	15.0%
RLI Corp.	15.3%	12.2%	13.9%	14.7%	10.8%	13.4%	8.5%
Rollins Inc.	30.2%	30.2%	30.2%	31.1%	31.4%	30.6%	28.5%
Safeway Inc.	14.2%	14.6%	11.8%	16.7%	17.5%	15.0%	26.0%
SAIC Inc.	21.4%	21.8%	22.8%	21.8%	18.5%	21.3%	14.5%
Schein (Henry)	14.0%	13.3%	13.9%	15.1%	14.8%	14.2%	12.0%
Silgan Holdings	25.1%	23.2%	26.1%	29.4%	20.1%	24.8%	18.5%
St. Jude Medical	24.9%	25.2%	22.8%	24.0%	26.7%	24.7%	21.0%
Stericycle Inc.	22.8%	21.1%	20.4%	20.2%	18.7%	20.6%	14.5%
Teleflex Inc.	12.9%	8.6%	8.9%	6.1%	8.0%	8.9%	11.5%
Verisk Analytics	-	-	-	-	NMF	-	29.0%
Waste Management	18.4%	15.7%	16.2%	16.6%	15.2%	16.4%	20.0%
West Pharmac. Svcs.	16.8%	12.5%	11.6%	12.5%	13.0%	13.3%	14.0%
Wolverine World Wide	22.3%	18.0%	19.8%	21.3%	13.5%	19.0%	20.0%
Average						27.8%	16.5%
Median						14.0%	15.0%
Average (excluding values <8% and >20%)						13.1%	13.6%

Statement No. 107
Docket No. R-2012-2336379
Witness: Paul R. Moul

THE YORK WATER COMPANY

Direct Testimony

Of

Paul R. Moul, Managing Consultant
P. Moul & Associates

Concerning
Fair Rate of Return

May 28, 2013

The York Water Company
Direct Testimony of Paul R. Moul
Table of Contents

Page No.

GLOSSARY OF ACRONYMS AND DEFINED TERMS	
ACRONYM	**DEFINED TERM**
AFUDC	Allowance for Funds Used During Construction
b	Represents the retention rate that consists of the fraction of earnings that are not paid out as dividends
β	Beta
b x r	Represents internal growth
CAPM	Capital Asset Pricing Model
CCR	Corporate Credit Rating
CE	Comparable Earnings
DCF	Discounted Cash Flow
DDBP	Disinfection/Disinfection By-Products
EPA	Environmental Protection Agency
ESWTR	Enhanced Surface Water Treatment Rule
FOMC	Federal Open Market Committee
g	Growth rate
IGF	Internally generated funds
M&M	Modigliani & Miller
MTBE	Methyl Tertiary Butyl Ether
PEDFA	Pennsylvania Economic Development Financing Authority
PUC	Public Utility Commission
r	Represents the expected rate of return on common equity
Rf	Risk-free rate of return
Rm	Market risk premium
RP	Risk Premium
s	Represents the new common shares expected to be issued by a firm
s x v	Represents external growth
S&P	Standard & Poor's
SBBI	Stocks, Bonds, Bills and Inflation

GLOSSARY OF ACRONYMS AND DEFINED TERMS	
ACRONYM	**DEFINED TERM**
SDWA	Safe Drinking Water Act Amendments of 1996
v	Represents the value that accrues to existing shareholders from selling stock at a price different from book value.

INTRODUCTION AND SUMMARY OF RECOMMENDATIONS

Q. Please state your name, occupation and business address.

A. My name is Paul Ronald Moul. My business address is 251 Hopkins Road, Haddonfield, New Jersey 08033-3062. I am Managing Consultant at the firm P. Moul & Associates, an independent financial and regulatory consulting firm. My educational background, business experience and qualifications are provided in Appendix A that follows my direct testimony.

Q. What is the purpose of your testimony?

A. My testimony presents evidence, analysis and recommendation concerning the appropriate cost of common equity and overall rate of return that the Pennsylvania Public Utility Commission ("PUC" or the "Commission") should recognize in the determination of the revenues that The York Water Company ("York" or the "Company") should realize as a result of this proceeding. My analysis and recommendation are supported by the detailed financial data set forth in Exhibit No. FVII, which is a multi-page document that is divided into fourteen (14) schedules. The items covered in these appendices deal with the technical aspects of my testimony.

Q. Based upon your analysis, what is your conclusion concerning the appropriate rate of return for the Company?

A. Based upon my independent analysis, my conclusion is that the Company should be afforded an opportunity to earn a rate of return on common equity of 11.25%. As shown on Schedule 1, I have provided the weighted average cost of capital of 8.63%, which includes the 11.25% rate of return on common equity. The calculation of the weighted average cost of capital requires the selection of appropriate capital structure ratios and a determination of the cost rate for each capital component. In

the case of the capital structure ratios, the components are taken from the fully forecast test year ended February 28, 2015. The resulting overall rate of return, when applied to the Company's rate base, will provide a compensatory level of return for the use of capital and provide the Company with the ability to attract capital on reasonable terms.

Q. What background information concerning the Company have you considered as part of your testimony?

A. York provides water service to 63,546 customers in York County, including the City of York, and in Adams County. The Company's source of supply consists of surface water obtained from the south and east branches of the Codorus Creek and the Susquehanna River. The Company also provides wastewater service to 233 customers.

In 2012, the Company's water sales were represented by approximately 50% to residential, 27% to commercial, 16% to industrial customers, and 7% to other customers including sales for resale. While representing 16% of sales, industrial customers comprise less than one-half of one-percent of the Company's customers (i.e., 304 customers). This means that the water demands of a few customers can have a significant impact on the Company's operations.

York has taken a leadership position in the consolidation of separate water utility systems in York and Adams Counties. Since 1978, the Company has acquired twenty-seven (27) systems. Recent acquisitions include the water assets of the York Starview, LP in York County, Section A Water Corporation in Adams County, and Wastewater assets of Asbury Pointe. During the past five years, the Company has experienced approximately 1.7% annual growth in customers, attributed mostly to acquisitions. Acquisitions often require investment of new

capital to remedy deficiencies in the systems acquired. The benefits of regionalization accrue to all of the Company constituencies -- new customers and local municipalities benefit from the Company management expertise which enhances service reliability and water quality of the acquired systems; existing customers benefit from the economies of scale derived from adding new customers; the Company's employees benefit from a wider scope of responsibilities and opportunities for professional development; and investors benefit from the additional growth of the Company.

Q. In your opinion, what factors should the Commission consider when determining the Company's cost of capital in this proceeding?

A. The Commission's rate of return allowance must be set to cover the Company's interest and dividend payments, provide a reasonable level of earnings retention, produce an adequate level of internally generated funds to meet capital requirements, be commensurate with the risk to which the Company's capital is exposed, assure confidence in the financial integrity of the Company, support reasonable credit quality, and allow the Company to raise capital on reasonable terms. The return that I propose fulfills these established standards of a fair rate of return set forth by the landmark Bluefield and Hope cases.[1] That is to say, my proposed rate of return is commensurate with returns available on investments having corresponding risks.

Q. How have you determined the cost of common equity in this case?

A. The cost of common equity is established using capital market and financial data relied upon by investors to assess the relative risk, and hence the cost of equity, for a water utility, such as York. In this regard, I have relied on four well-recognized

[1] Bluefield Water Works & Improvement Co. v. P.S.C. of West Virginia, 262 U.S. 679 (1923) and F.P.C. v. Hope Natural Gas Co., 320 U.S. 591 (1944).

measures of the cost of equity: the Discounted Cash Flow ("DCF") model, the Risk Premium ("RP") analysis, the Capital Asset Pricing Model ("CAPM"), and the Comparable Earnings ("CE") approach. By considering the results of a variety of approaches, I determined that the cost of equity is 11.25%. I have determined the cost of equity for the Company using data from a group of nine (9) water companies that are identified on page 2 of Schedule 3 of Exhibit No. FVII. I will refer to my group of nine water companies as the "Water Group."

Q. Why have you performed your cost of equity analysis utilizing the market data for the Water Group?

A. The Company is overwhelmingly a water utility, which makes the selection of a water proxy group an obvious choice. I have also used the same proxy group of water utilities for its wastewater operations. I have followed this approach because there are insufficient data for wastewater utilities with traded stock that could be used in an analysis such as this. Moreover, of all utility types, the water utilities are probably most similar to the wastewater utilities. The use of a group average (or portfolio) of utilities will reduce the effect that anomalous results for an individual company may have on the rate of return determination. That is to say, by employing group average data, rather than individual company analyses, I have minimized the effect of extraneous influences on the market data for an individual company.

Q. Please summarize the basis for your cost of equity recommendation in this proceeding.

A. My cost of equity determination was derived from the results of the methods/models identified above. In general, the use of more than one method provides a superior foundation to arrive at the cost of equity. At any point in time, reliance on a single method can provide an incomplete measure of the cost of equity depending upon

extraneous factors that may influence market sentiment. The specific application of these methods/models will be described later in my testimony. The following table provides a summary of the indicated costs of equity as set forth on page 2 of Schedule 1.

	Water Group
DCF	10.90%
Risk Premium	12.25%
CAPM	11.62%
Comparable Earnings	13.35%

Viewing the results of all four measures, there is a range of common equity results from 10.90% to 13.35%. Recognizing the Commission's general approach of giving greater reliance upon the DCF method, I have narrowed that range by viewing the results of the DCF and CAPM measures, producing a range of the cost of equity from 10.90% to 11.62%. As described in the testimony of Mr. Jeffrey R. Hines and Mr. Joseph T. Hand, the Company has undertaken many initiatives that have produced high quality service. In recognition of its outstanding performance, the Company should be granted an opportunity to earn a rate of return at least at the midpoint of that range, or 11.25% (rounded). The rate of return on common equity of 11.25% makes no provision for the prospect that the rate of return may not be achieved due to unforeseen events, such as unexpected spikes in the cost of purchased products and other expenses. To obtain new capital and retain existing capital, the rate of return on common equity must be high enough to satisfy investors' requirements.

WATER UTILITY RISK FACTORS

Q. Please identify some of the risk factors which impact the water utility industry.

A. The business risk of the water utilities has been strongly influenced by water quality concerns. The Safe Drinking Water Act Amendments of 1996 ("SDWA"), which re-authorized the SDWA for the second time since its original passage in 1974, instituted policies and procedures governing water quality. Significant aspects of the 1996 Act provide that the federal Environmental Protection Agency ("EPA"), in conjunction with other interested parties, will develop a list of contaminants for possible regulation and must update that list every 5 years. From that list, EPA must select at least five contaminants and determine whether to regulate them. This process must be repeated every five years. The EPA may bypass this process and adopt interim regulations for contaminants which pose an urgent health threat.

The current priorities of the EPA include regulations directed to: (i) microbials, disinfectants and disinfection byproducts, (ii) radon, (iii) radionuclides, and (iv) arsenic. The regulations which emanate from the EPA concerning certain potentially hazardous substances noted above, together with the Federal Clean Water Act and the Resource Conservation and Recovery Act, bear upon the risk of all water utilities. Most of these regulations affect the entire water industry in contrast with certain regulations issued pursuant to the Clean Air Act, which may impact only selected electric utilities. This business risk factor, together with the important role that water service facilities play within the infrastructure, underscores the public policy concerns which are focused on the water utilities. Moreover, since September 11, 2001, water utilities are operating on heightened alert to protect drinking water supplies. Water utilities have taken additional security safeguards including (i) limiting access to treatment and storage facilities, (ii) conducting

additional testing and monitoring, (iii) reassessing security procedures and systems, and (iv) providing additional training to their personnel.

Q. How do these issues impact the water utility industry?

A. Managers of water utilities have in the past and will in the future focus increased attention on environmental and related regulatory issues. Drinking water quality has also received heightened attention out of concern over the integrity of the source of supply which is often threatened by changing land use and the permissible level of discharged contaminants established by state and federal agencies, and now potential threats from terrorists. Drilling activity in the Marcellus shale formation has also raised concerns over the integrity of the aquifers that supply drinking water and the disposal of wastewater from drilling activities in the Marcellus shale formation. Moreover, water companies have experienced increased water treatment and monitoring requirements and escalating costs in order to comply with the increasingly stringent regulatory requirements noted above. Water utilities may also be required to expend resources to undertake research and employ technological innovations to comply with potential regulatory requirements. These factors are symptomatic of the changing business risk faced by water utilities.

Q. Are there other factors that influence the business risk of water utilities?

A. Yes. Being the sole purveyor of potable water from an established infrastructure does not insulate a water utility's operations from general business conditions, regulatory policy, the influence of weather, and customers' usage habits. For example, the Company has been faced with a sustained decline in the average use per customer. This trend has prevented the Company from realizing the sales levels used to set rates. This phenomenon has caused the Company to under-earn its authorized return historically. In this case, the Company is proposing a projected

usage adjustment in response to this issue. It is also important to recognize that water companies face higher degrees of capital intensity than other utilities, more costly waste disposal requirements, and threats to their sources of supply. The headlines surrounding MTBE contamination and the regulation of arsenic are cases-in-point.

Q. Are there other structural issues which affect the business risk of water utilities?

A. Yes. As noted above, the high fixed costs of water utilities makes earnings vulnerable to significant variations when usage fluctuates with weather, the economy, and customer conservation efforts. Conservation efforts can take the form of low water usage clothes washers, toilets and shower heads, and other reductions due to changes in usage. While the wise use of water is always the objective, the business risk of the water utility industry can be affected by increased customer awareness of conservation. Moreover, current building standards have mandated the use of fixtures which must comply with more stringent water use requirements.

Q. Please identify some of the specific water utility risk factors which impact the Company.

A. The Company must conform its operations to the requirements of the SDWA and the Enhanced Surface Water Treatment Rule ("ESWTR"), which include monitoring and testing, compliance with the lead and copper rule, regulation of Disinfectants/-Disinfection By-Products ("DDBP"), and other contaminants. Moreover, high capital intensity is a characteristic typically found in the water utility business. In this regard, the Company's investment in net plant is 5.10 times its revenue, as

compared to the Water Group's investment in net plant, which is 3.56 times its revenue.

Q. How is the Company's risk profile affected by its construction program?

A. The Company is engaged in a continuing capital expenditure program, excluding acquisitions, necessary to meet the needs of its customers and to comply with various regulations. For the future, the Company expects its total capital expenditures, net of customer advances and excluding potential acquisitions, to be:

Year	Capital Expenditures
2013	$ 14,099,700
2014	13,974,000
2015	11,688,000
2016	12,911,000
2017	12,283,000
Total	$ 64,955,700

The Company's total capital expenditures over the next five years will represent approximately 31% ($64,955,700 ÷ $211,316,363) of the total depreciated utility plant in service (net of contributions) based upon the amount at December 31, 2012. The Company expects that its capital expenditures will be financed with internally generated funds, short-term debt, and common stock sales through its dividend reinvestment, direct stock purchase and employee stock purchase plans.

Q. How should the Commission respond to the evolving business risk facing the Company?

A. The Company is faced with the requirement to invest in new facilities and to maintain and upgrade existing facilities in its service territory. Where a substantial ongoing capital investment is required to meet the high quality of product and service that customers demand, supportive regulation is absolutely essential.

FUNDAMENTAL RISK ANALYSIS

Q. Is it necessary to conduct a fundamental risk analysis to provide a framework for a determination of a utility's cost of equity?

A. Yes. It is necessary to establish a company's relative risk position within its industry through a fundamental analysis of various quantitative and qualitative factors that bear upon investors' assessment of overall risk and are detailed in the testimony of Mr. Hines. The qualitative factors that bear upon the Company's risk have already been discussed. The quantitative risk analysis follows. For this purpose, I compared the Company to the S&P Public Utilities, an industry-wide proxy consisting of various regulated businesses, and the Water Group.

Q. What criteria have you employed to assemble your Water Group?

A. The Water Group companies have the following common characteristics: (i) they are listed in the "Water Utility Industry" section (basic and expanded) of The Value Line Investment Survey, (ii) their stock is publicly traded, and (iii) they are not currently the target of a publicly-announced merger or acquisition. It would be inappropriate to include a company that is a target of a takeover in a water group because the stock price of that company would not reflect its underlying fundamentals. The members of the Water Group are: American States Water, American Water Works Co., Aqua America, Inc., Artesian Resources Corp., California Water Service Group, Connecticut Water Services, Middlesex Water Company, SJW Corporation and The York Water Company

Q. What are the components of the S&P Public Utilities?

A. The S&P Public Utilities is a widely recognized index which is comprised of electric power and natural gas companies. These companies are identified on page 3 of Schedule 4 of Exhibit No. FVII.

Q. Is knowledge of a utility's bond rating an important factor in assessing its risk and cost of capital?

A. Yes. Knowledge of a company's credit quality rating is important because the cost of each type of capital is directly related to the associated risk of the firm. So while a company's credit quality risk is shown directly by the rating and yield on its bonds, these relative risk assessments also bear upon the cost of equity. This is because a firm's cost of equity is represented by its borrowing cost plus compensation to recognize the higher risk of an equity investment compared to debt.

Q. How do the bond ratings compare for York, the Water Group, and the S&P Public Utilities?

A. York has an A- corporate credit rating ("CCR") from Standard & Poor's Corporation ("S&P"). The average ratings for the Water Group are A by S&P and A3 by Moody's. The CCR designation by S&P and LT issuer rating by Moody's focus upon the credit quality of the issuer of the debt, rather than upon the debt obligation itself. For the S&P Public Utilities, the average composite rating is BBB+ by S&P and Baa1 by Moody's. Many of the financial indicators that I will subsequently discuss are considered during the rating process.

Q. How do the financial data compare for York, the Water Group, and the S&P Public Utilities?

A. The broad categories of financial data that I will discuss are shown on Schedules 2, 3, and 4 of Exhibit No. FVII. The data cover the five-year period 2008-2012. The important categories of relative risk may be summarized as follows:

Size. In terms of capitalization, the Company is very much smaller than the average size of the Water Group. The average size of the S&P Public Utilities is much larger than the Water Group and the Company. All other things being equal,

a smaller company is riskier than a larger company because a given change in revenue and expense has a proportionately greater impact on a small firm. As I will demonstrate later, the size of a firm can impact its cost of equity. This is the case for the Company and the Water Group.

Market Ratios. Market-based financial ratios provide a partial indication of the investor-required cost of equity. If all other factors are equal, investors will require a higher rate of return on equity for companies that exhibit greater risk, in order to compensate for that risk. That is to say, a firm that investors perceive to have higher risks will experience a lower price per share in relation to expected earnings and hence; a lower price-earnings ratio.[2]

The five-year average price-earnings multiple was highest for York, followed by the Water Group and the S&P Public Utilities. The five-year average dividend yield was similar for York and the Water Group, while lower as compared to the S&P Public Utilities. The average market-to-book ratio was highest for York, followed by the Water Group and the S&P Public Utilities.

Common Equity Ratio. The level of financial risk is measured by the proportion of long-term debt and other senior capital that is contained in a company's capitalization. Financial risk is also analyzed by comparing common equity ratios (the complement of the ratio of debt and other senior capital). That is to say, a firm with a high common equity ratio has lower financial risk, while a firm with a low common equity ratio has higher financial risk. The five-year average common equity ratios, based on permanent capital, were 51.2% for the Company, 49.5% for the Water Group, and 45.0% for the S&P Public Utilities. The Company is

[2] For example, two otherwise similarly situated firms each reporting $1.00 earnings per share would have different market prices at varying levels of risk, i.e., the firm with a higher level of risk will have a lower share value, while the firm with a lower risk profile will have a higher share value.

proposing a 51.84% common equity ratio for the purpose of calculating its weighted average cost of capital. This common equity ratio contains approximately the same degree of financial risk as historically shown for the Company.

Return on Book Equity. Greater variability (i.e., uncertainty) of a firm's earned returns signifies relatively greater levels of risk, as shown by the coefficient of variation (standard deviation ÷ mean) of the rate of return on book common equity. The higher the coefficients of variation, the greater degree of variability. For the five-year period, the coefficients of variation were 0.021 (0.2% ÷ 9.6%) for the Company, 0.055 (0.5% ÷ 9.0%) for the Water Group, and 0.104 (1.1% ÷ 10.6%) for the S&P Public Utilities. The earnings variability for the Company was lower than the Water Group, indicating that the Company has less risk.

Operating Ratios. I have also compared operating ratios (the percentage of revenues consumed by operating expense, depreciation and taxes other than income taxes).[3] The higher the operating ratio, the lower the operating margin. The five-year average operating ratios were 51.8% for the Company, 71.4% for the Water Group, and 82.3% for the S&P Public Utilities. The Company's lower operating ratio can be traced to its high capital intensity because a larger operating margin (i.e., the complement of the operating ratio) derives from the income taxes and return associated with a larger capital investment per dollar of revenue.

Coverage. The level of fixed charge coverage (i.e., the multiple by which available earnings cover fixed charges, such as interest expense) provides an indication of the earnings protection for creditors. Higher levels of coverage, and hence earnings protection for fixed charges, are usually associated with superior grades of creditworthiness. The five-year average interest coverage (excluding

[3] The complement of the operating ratio is the operating margin which provides a measure of profitability. The higher the operating ratio, the lower the operating margin.

Allowance for Funds Used During Construction ("AFUDC")) was 3.55 times for the Company, 3.35 times for the Water Group, and 3.12 times for the S&P Public Utilities. The interest coverages were fairly similar for York and the Water Group.

Quality of Earnings. Measures of earnings quality usually are revealed by the percentage of AFUDC related to income available for common equity, the effective income tax rate, and other cost deferrals. These measures of earnings quality usually influence a firm's internally generated funds because poor quality of earnings would not generate high levels of cash flow. Quality of earnings has not been a significant concern for the Company, the Water Group, and the S&P Public Utilities.

Internally Generated Funds. Internally generated funds ("IGF") provide an important source of new investment capital for a utility and represent a key measure of credit strength. Historically, the five-year average percentage of IGF to capital expenditures was 78.0% for the Company, 69.2% for the Water Group, and 91.1% for the S&P Public Utilities. The cash flow to construction for the Company was somewhat similar to that of the Water Group.

Betas. The financial data that I have been discussing relate primarily to company-specific risks. Market risk for firms with publicly-traded stock is measured by beta coefficients. Beta coefficients attempt to identify systematic risk, i.e., the risk associated with changes in the overall market for common equities. Value Line publishes such a statistical measure of a stock's relative historical volatility to the rest of the market.[4] A comparison of market risk is shown by the Value Line beta of

[4] Beta is a relative measure of the historical sensitivity of the stock's price to overall fluctuations in the New York Stock Exchange Composite Index. The "Beta coefficient" is derived from a regression analysis of the relationship between weekly percentage changes in the price of a stock and weekly percentage changes in the NYSE Index over a period of five years. The betas are adjusted for their long-term tendency to converge toward 1.00. A common stock that has a beta less than 1.0 is

0.70 for York, .69 as the average for the Water Group (see page 2 of Schedule 3), and .75 as the average for the S&P Public Utilities (see page 3 of Schedule 4). The market risk for York is similar to that of the Water Group.

Q. Please summarize your risk evaluation of the Company and the Water Group.

A. For the future, the risk of the water industry will be strongly influenced by the regulatory requirements associated with the SDWA, the need to maintain adequate supply, the need to rehabilitate infrastructure, high capital intensity, a low rate of capital recovery, and construction expenditures that exceed IGF. The Company's risk is generally equal to that of the Water Group, although York is much smaller size, it lacks of geographic diversity, and it has a much higher degree of capital intensity. Other indications, such as market ratios, common equity ratio, earnings variability, and interest coverage show equivalent or lower risk for York. As such, the Company's cost of equity for the Water Group will provide a reasonable measure of a fair return for the Company.

CAPITAL STRUCTURE RATIOS

Q. Please explain the selection of capital structure ratios for York.

A. The capital structure ratios of York should be employed for rate of return purposes. In the situation where the operating public utility raises its own debt directly in the capital markets, as is the case for the Company, it is proper to employ the capital structure ratios and senior capital cost rates of the regulated public utility for rate of return purposes. Furthermore, consistency requires that the embedded cost rate of the Company's senior securities should also be employed. This procedure is

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considered to have less systematic risk than the market as a whole and would be expected to rise and fall more slowly than the rest of the market. A stock with a beta above 1.0 would have more systematic risk.

consistent with the ratesetting procedures used by the Commission in numerous prior rate cases for York.

Q. Does Schedule 5 provide the capitalization and capital structure ratios you have considered?

A. Yes. Schedule 5 presents the Company's capitalization and related capital structure ratios based upon investor-provided capital. The December 31, 2012 capitalization corresponds with the end of the historic test year in this case. The projected February 28, 2015 capitalization reflects the end of the fully forecast test year. The primary changes in the fully forecast test year capital structure include the issuance of $115,000 of additional PEDFA debt in conjunction with the refinancing of that issue, $88,560 principal payments on PENNVEST loans, and changes in common equity consisting of $4,552,888 proceeds from the Dividend Reinvestment & Direct Stock Purchase Plans and Employee Stock Purchase Plan, $8,350,000 common stock buybacks, and the build-up of retained earnings. Explanatory notes are provided on Schedule 5 noting the changes in the Company's capital structure during the fully forecast test year.

Q. What capital structure ratios do you recommend be adopted for rate of return purposes in this proceeding?

A. Since ratesetting is prospective, the rate of return should, at a minimum, reflect known or reasonably foreseeable changes which will occur during the course of the future test year. As a result, I will adopt the Company's fully forecast test year-end capital structure ratios of 43.61% long-term debt, 4.54% short-term debt and 51.84% common equity. These capital structure ratios are the best approximation of the mix of capital the Company will employ to finance its rate base during the period new rates are in effect.

Q. Why have you included short-term debt in the capital structure ratios that you propose in this case?

A. I have included short-term debt in these ratios because it provides a source of capital to finance the rate base in the fully forecast test year. Unlike circumstances in prior rate cases, the Company is in a unique position where long-term financing has already been obtained to finance its rate base, the Company has received significant cash benefits from bonus depreciation, and the balance of short-term debt in the fully forecast test year is projected to be insufficient to economically warrant the issuance of new long-term debt. That is to say, the Company usually issues long-term debt when magnitude of short-term debt reaches approximately $15 million. With the balance of short-term debt of just $8.9 million at the end of the fully forecast test year, a new issue of long-term debt cannot be economically justified until some later point. So in this case, contrary to normal rate case circumstances where short-term debt has been refinanced with long-term debt and equity, short-term debt in this case is being used to support the Company's rate base.

COST OF SENIOR CAPITAL

Q. What cost rate have you assigned to the long-term debt portion of York's capital structure?

A. The determination of the cost of debt is essentially an arithmetic exercise. This is due to the fact that the Company has contracted for the use of this capital for a specific period of time at a specified cost rate. As shown on page 1 of Schedule 6, the actual embedded cost rate of long-term debt was 6.49% on December 31, 2012. Page 2 of Schedule 6 shows that the embedded debt cost rate is expected to be 6.20% at February 28, 2015. The refinancing of the PEDFA tax-exempt revenue

bonds to a lower estimated 4.15% interest rate represents the primary reason for the lower embedded debt cost rate. The details leading to the development of the individual effective cost rates for each series of long-term debt, using the cost rate to maturity technique, are shown on page 3 of Schedule 6. The cost rate, or yield to maturity, is the rate of discount that equates the present value of all future interest and principal payments with the net proceeds of the bond.

I will adopt the 6.20% prospective embedded cost of long-term debt for rate of return purposes. The 6.20% long-term debt cost rate is related to the amount of long-term debt shown on Schedule 5, which provides the basis for the 43.61% long-term debt ratio.

Q. What cost rate have you assigned to the short-term debt?

A. I have used a cost of short-term debt of 1.95%, which represents the estimate for the fully forecast rate year. The Company obtains its short-term debt from three banks. Based on the most advantageous interest rate option, it pays a rate of interest equal to the one-month LIBOR plus 120 basis points. For this case, a 0.60% LIBOR for the year 2014 and 1.5% for 2015 was weighted 10/12 and 2/12 to arrive at a 0.75% LIBOR that was employed based upon the forecast from the Blue Chip Financial Forecast dated December 1, 2012. Hence, the estimate for short-term debt is comprised of the 0.75% LIBOR plus the spread, i.e., 0.75% + 1.20% = 1.95%.

COST OF EQUITY – GENERAL APPROACH

Q. Please describe the process you employed to determine the cost of equity for the Company.

A. Although my fundamental financial analysis provides the required framework to establish the risk relationships among the Company, the Water Group, and the S&P

Public Utilities, the cost of equity must be measured by standard financial models that I identified above. Differences in risk traits, such as size, business diversification, geographical diversity, regulatory policy, financial leverage, and bond ratings must be considered when analyzing the cost of equity.

It is also important to reiterate that no one method or model of the cost of equity can be applied in an isolated manner. Rather, informed judgment must be used to take into consideration the relative risk traits of the firm. It is for this reason that I have used more than one method to measure the Company's cost of equity. As I describe below, each of the methods used to measure the cost of equity contains certain incomplete and/or overly restrictive assumptions and constraints that are not optimal. Therefore, I favor considering the results from a variety of methods. In this regard, I applied each of the methods with data taken from the Water Group and took into account the exemplary performance of the Company's management to arrive at a cost of equity of 11.25%.

DISCOUNTED CASH FLOW

Q. Please describe your use of the Discounted Cash Flow approach to determine the cost of equity.

A. The DCF model seeks to explain the value of an asset as the present value of future expected cash flows discounted at the appropriate risk-adjusted rate of return. In its simplest form, the DCF return on common stock consists of a current cash (dividend) yield and future price appreciation (growth) of the investment. The dividend discount equation is the familiar DCF valuation model and assumes future dividends are systematically related to one another by a constant growth rate. The DCF formula is derived from the standard valuation model: $P = D/(k-g)$, where P = price, D = dividend, k = the cost of equity, and g = growth in cash flows. By

rearranging the terms, we obtain the familiar DCF equation: k= D/P + g. All of the terms in the DCF equation represent investors' assessment of expected future cash flows that they will receive in relation to the value that they set for a share of stock (P). The DCF equation is sometimes referred to as the "Gordon" model.[5] My DCF results are provided on page 2 of Schedule 1 for the Water Group. The DCF return is 10.90%.

Among other limitations of the model, there is a certain element of circularity in the DCF method when applied in rate cases. This is because investors' expectations for the future depend upon regulatory decisions. In turn, when regulators depend upon the DCF model to set the cost of equity, they rely upon investor expectations that include an assessment of how regulators will decide rate cases. Due to this circularity, the DCF model may not fully reflect the true risk of a utility.

Q. Please explain the dividend yield component of a DCF analysis.

A. The DCF methodology requires the use of an expected dividend yield to establish the investor-required cost of equity. The monthly dividend yields for the twelve months ended March 2013 are shown on Schedule 7 and reflect an adjustment to the month-end prices to capture the buildup of the dividend in the price that has occurred since the last ex-dividend date (i.e., the date by which a shareholder must own the shares to be entitled to the dividend payment – usually about two to three weeks prior to the actual payment).

For the twelve months ended March 2013, the average dividend yield was 3.20% for the Water Group based upon a calculation using annualized dividend

[5] Although the popular application of the DCF model is often attributed to the work of Myron J. Gordon in the mid-1950's, J. B. Williams exposited the DCF model in its present form nearly two decades earlier.

payments and adjusted month-end stock prices. The dividend yields for the more recent six- and three-month periods were 3.12% and 3.04%, respectively. I have used, for the purpose of the DCF model, the six-month average dividend yield of 3.12% for the Water Group. The use of this dividend yield will reflect current capital costs, while avoiding spot yields. For the purpose of a DCF calculation, the average dividend yield must be adjusted to reflect the prospective nature of the dividend payments, i.e., the higher expected dividends for the future. Recall that the DCF is an expectational model that must reflect investor anticipated cash flows for the Water Group. I have adjusted the six-month average dividend yield in three different, but generally accepted, manners and used the average of the three adjusted values as calculated in the lower panel of data presented on Schedule 8. That adjusted dividend yield is 3.23% for the Water Group.

Q. Please explain the underlying factors that influence investors' growth expectations.

A. As noted previously, investors are interested principally in the future growth of their investment (i.e., the price per share of the stock). Future earnings per share growth represent the DCF model's primary focus because under the constant price-earnings multiple assumption of the model, the price per share of stock will grow at the same rate as earnings per share. In conducting a growth rate analysis, a wide variety of variables can be considered when reaching a consensus of prospective growth, including: earnings, dividends, book value, and cash flow stated on a per share basis. Historical values for these variables can be considered, as well as analysts' forecasts that are widely available to investors. A fundamental growth rate analysis is sometimes represented by the internal growth ("b x r"), where "r" represents the expected rate of return on common equity and "b" is the retention

rate that consists of the fraction of earnings that are not paid out as dividends. To be complete, the internal growth rate should be modified to account for sales of new common stock -- this is called external growth ("s x v"), where "s" represents the new common shares expected to be issued by a firm and "v" represents the value that accrues to existing shareholders from selling stock at a price different from book value. Fundamental growth, which combines internal and external growth, provides an explanation of the factors that cause book value per share to grow over time.

Growth also can be expressed in multiple stages. This expression of growth consists of an initial "growth" stage where a firm enjoys rapidly expanding markets, high profit margins, and abnormally high growth in earnings per share. Thereafter, a firm enters a "transition" stage where fewer technological advances and increased product saturation begin to reduce the growth rate and profit margins come under pressure. During the "transition" phase, investment opportunities begin to mature, capital requirements decline, and a firm begins to pay out a larger percentage of earnings to shareholders. Finally, the mature or "steady-state" stage is reached when a firm's earnings growth, payout ratio, and return on equity stabilizes at levels where they remain for the life of a firm. The three stages of growth assume a step-down of high initial growth to lower sustainable growth. Even if these three stages of growth can be envisioned for a firm, the third "steady-state" growth stage, which is assumed to remain fixed in perpetuity, represents an unrealistic expectation because the three stages of growth can be repeated. That is to say, the stages can be repeated where growth for a firm ramps-up and ramps-down in cycles over time.

Q. What investor-expected growth rate is appropriate in a DCF calculation?

A. Investors consider both company-specific variables and overall market sentiment (i.e., level of inflation rates, interest rates, economic conditions, etc.) when balancing

their capital gains expectations with their dividend yield requirements. I follow an approach that is not rigidly formatted because investors are not influenced by a single set of company-specific variables weighted in a formulaic manner. Therefore, in my opinion, all relevant growth rate indicators using a variety of techniques must be evaluated when formulating a judgment of investor-expected growth.

Q. What data for the proxy group did you review in your growth rate analysis?

A. I considered the growth in the financial variables shown on Schedules 8 and 9. The historical growth rates were taken from the Value Line publication that provides these data. As shown on Schedule 8, the historical growth of earnings per share was in the range of 3.83% to 3.88% for the Water Group.

Schedule 9 provides projected earnings per share growth rates taken from analysts' forecasts compiled by IBES/First Call, Zacks, and Value Line. IBES/First Call and Zacks represent reliable authorities of projected growth upon which investors rely. The IBES/First Call and Zacks growth rates are consensus forecasts taken from a survey of analysts that make projections of growth for these companies. The IBES/First Call and Zacks estimates are obtained from the Internet and are widely available to investors. First Call probably is quoted most frequently in the financial press when reporting on earnings forecasts. The Value Line forecasts also are widely available to investors and can be obtained by subscription or free-of-charge at most public and collegiate libraries. The IBES/First Call and Zacks forecasts are limited to earnings per share growth, while Value Line makes projections of other financial variables. The Value Line forecasts of dividends per share, book value per share, and cash flow per share have also been included on Schedule 9 for the Water Group.

Q. What specific evidence have you considered in the DCF growth analysis?

A. As to the five-year forecast growth rates, Schedule 9 indicates that the projected earnings per share growth rates for the Water Group are 6.39% by IBES/First Call 6.48% by Zacks, and 6.93% by Value Line. The Value Line projections indicate that earnings per share for the Water Group will grow prospectively at a more rapid rate (i.e., 6.93%) than the dividends per share (i.e., 5.43%), which translates into a declining dividend payout ratio for the future. As noted earlier, with the constant price-earnings multiple assumption of the DCF model, growth for these companies will occur at the higher earnings per share growth rate, thus producing the capital gains yield expected by investors.

Q. What conclusion have you drawn from these data regarding the applicable growth rate to be used in the DCF model?

A. A variety of factors should be examined to reach a conclusion on the DCF growth rate. However, certain growth rate variables should be emphasized when reaching a conclusion on an appropriate growth rate. First, historical and projected earnings per share, dividends per share, book value per share, cash flow per share, and retention growth represent indicators that could be used to provide an assessment of investor growth expectations for a firm. However, although history cannot be ignored, it cannot receive primary emphasis. This is because an analyst, when developing a forecast of future earnings growth, would first apprise himself/herself of the historical performance of a company. Hence, there is no need to count historical growth rates separately, because historical performance already is reflected in analysts' forecasts. Second, from the various alternative measures of growth identified above, earnings per share should receive greatest emphasis. Earnings per share growth is the primary determinant of investors' expectations regarding their total returns in the stock market. This is because the capital gains yield (i.e.,

price appreciation) will track earnings growth with a constant price earnings multiple (a key assumption of the DCF model). Moreover, earnings per share (derived from net income) are the source of dividend payments, and are the primary driver of retention growth and its surrogate, i.e., book value per share growth. As such, under these circumstances, greater emphasis must be placed upon projected earnings per share growth. In this regard, it is worthwhile to note that Professor Myron Gordon, the foremost proponent of the DCF model in rate cases, concluded that the best measure of growth in the DCF model is a forecast of earnings per share growth.[6] Hence, to follow Professor Gordon's findings, projections of earnings per share growth, such as those published by IBES/First Call, SNL Financial, Zacks, Morningstar, and Value Line, represent a reasonable assessment of investor expectations.

The forecasts of earnings per share growth, as shown on Schedule 10, provide a range of growth rates of 6.39% to 6.93%. Although the DCF growth rates cannot be established solely with a mathematical formulation, it is my opinion that an investor-expected growth rate of 6.75% is within the array of earnings per share growth rates shown by the analysts' forecasts. The growth rate that I determined for the DCF analysis is reflective of growth that is associated with improving business conditions. The stellar performance of the stock market in 2013 points to an improving economy, as it is one of the leading economic indicators compiled by The Conference Board. In fact, the Leading Economic Index, whose financial components include the stock market, has increased in five of the last six months. In addition, "the strengths among the leading indicators have become more

[6] Gordon, Gordon & Gould ,"Choice Among Methods of Estimating Share Yield," The Journal of Portfolio Management (Spring 1989).

widespread in recent months," said The Conference Board.[7] The Value Line forecast of dividend per share growth is inadequate in this regard due to the forecasted decline in the dividend payout ratio.

Q. Are the dividend yield and growth components of the DCF adequate to explain the rate of return on common equity when it is used in the calculation of the weighted average cost of capital?

A. Only if the capital structure ratios are measured with the market value of debt and equity. In the case of the Water Group, those capital structure ratios are 38.66% long-term debt, 0.12% preferred stock, and 61.22% common equity, as shown on Schedule 10. If book values are used to compute the capital structure ratios, as is the customary ratemaking practice in Pennsylvania, then an adjustment is required.

Q. Please explain why.

A. If regulators use the results of the DCF (which are based on the market price of the stock of the companies analyzed) to compute the weighted average cost of capital based on a book value capital structure used for ratesetting purposes, the utility will not, by definition, recover its risk-adjusted capital cost. This is because market valuations of equity are based on market value capital structures, which in general have more equity and less debt and therefore reflect less risk than book value capital structures (see Schedule 10 for the comparison). The utility's risk-adjusted cost of equity will necessarily be lower with the less risky market value capital structure than with the book value capital structure. The difference represents that portion of the utility's cost of equity that it will not recover unless either the market value cost of equity is applied to the utility's market value capital structure or it is

[7] The Conference Board U.S. Business Cycle Indicators -The Conference Board Leading Economic Index (LEI) for the U.S. and Related Composite Economic Indexes for February 2013 [Press Release]. Retrieved from http://www.conference-board.org/data/bci.cfm dated March 21, 2013

adjusted to reflect the higher risk associated with the book value capital structure. By the same token, if the utility's market value capital structure is less than its book value structure, then the utility's market cost of equity should be adjusted downward to reflect the lower risk associated with the book value capital structure, or else the utility will over-recover its total cost of equity.

This shortcoming of the DCF has persuaded the Pennsylvania Public Utility Commission to adjust the DCF determined cost of equity upward to make the return consistent with the book value capital structure. Specific adjustments to recognize this risk difference were made in the following cases:

- January 10, 2002 for Pennsylvania-American Water Company in Docket No. R-00016339 -- 60 basis points adjustment.
- August 1, 2002 for Philadelphia Suburban Water Company in Docket No. R-00016750 -- 80 basis points adjustment.
- January 29, 2004 for Pennsylvania-American Water Company in Docket No. R-00038304 (affirmed by the Commonwealth Court on November 8, 2004) -- 60 basis points adjustment.
- August 5, 2004 for Aqua Pennsylvania, Inc. in Docket No. R-00038805 -- 60 basis points adjustment.
- December 22, 2004 for PPL Electric Utilities Corporation in Docket No. R-00049255 -- 45 basis points adjustment.
- February 8, 2007 for PPL Gas Utilities Corporation in Docket No. R-00061398 -- 70 basis points adjustment.

In order to make the DCF results relevant to the capitalization measured at book value (as is done for rate setting purposes), the market-derived cost rate cannot be used without modification.

Q. Is your leverage adjustment dependent upon the market valuation or book valuation from an investor's perspective?

A. The only perspective that is important to investors is the return that they can realize on the market value of their investment. As I have measured the DCF, the simple yield (D/P) plus growth (g) provides a return applicable strictly to the price (P) that an investor is willing to pay for a share of stock. The need for the leverage

adjustment arises when the results of the DCF model (k) are to be applied to a capital structure that is different than indicated by the market price (P). From the market perspective, the financial risk of the Water Group is accurately measured by the capital structure ratios calculated from the market capitalization of a firm. If the ratesetting process utilized the market capitalization ratios, then no additional analysis or adjustment would be required, and the simple yield (D/P) plus growth (g) components of the DCF would satisfy the financial risk associated with the market value of the equity capitalization. Because the ratesetting process uses a different set of ratios calculated from the book value capitalization, then further analysis is required to synchronize the financial risk of the book capitalization with the required return on the book value of the equity. This adjustment is developed through precise mathematical calculations, using well recognized analytical procedures that are widely accepted in the financial literature. To arrive at that return, the rate of return on common equity is the unleveraged cost of capital (or equity return at 100% equity) plus one or more terms reflecting the increase in financial risk resulting from the use of leverage in the capital structure. The calculations presented in the lower panel of data shown on Schedule 10, under the heading "M&M," provides a return of 8.08% when applicable to a capital structure with 100% common equity.

Q. How is the DCF-determined cost of equity adjusted for the financial risk associated with the book value of the capitalization?

A. In pioneering work, Nobel laureates Modigliani and Miller developed several theories about the role of leverage in a firm's capital structure. As part of that work, Modigliani and Miller established that, as the borrowing of a firm increases, the expected return on stockholders' equity also increases. This principle is incorporated into my leverage adjustment, which recognizes that the expected

return on equity increases to reflect the increased risk associated with the higher financial leverage shown by the book value capital structure, as compared to the market value capital structure that contains lower financial risk. Modigliani and Miller proposed several approaches to quantify the equity return associated with various degrees of debt leverage in a firm's capital structure. These formulas point toward an increase in the equity return associated with the higher financial risk of the book value capital structure. Simply stated, the leverage adjustment contains no factor for a particular market-to-book ratio. It merely expresses the cost of equity as the unleveraged return plus compensation for the additional risk of introducing debt and/or preferred stock into the capital structure. There can be no dispute that a firm's financial risk varies with the relative amount of leverage contained in its capital structure.

Q. Is the leverage adjustment that you propose designed to transform the market return into one that is designed to produce a particular market-to-book ratio?

A. No, it is not. The adjustment that I label as a "leverage adjustment" is merely a convenient way of showing the amount that must be added to (or subtracted from) the result of the simple DCF model (i.e., D/P + g), in the context of a return that applies to the capital structure used in ratemaking, which is computed with book value weights rather than market value weights, in order to arrive at the utility's total cost of equity. I specify a separate factor, which I call the leverage adjustment, but there is no need to do so other than providing identification for this factor. If I expressed my return solely in the context of the book value weights that we use to calculate the weighted average cost of capital, and ignore the familiar D/P + g expression entirely, then there would be no separate element to reflect the financial leverage change from market value to book value capitalization. As shown in the

bottom panel of data on Schedule 10, the equity return applicable to the book value common equity ratio is equal to 8.25%, which is the return for the Water Group applicable to its equity with no debt in its capital structure (i.e., the cost of capital is equal to the cost of equity with a 100% equity ratio) plus 2.64% compensation for having a 49.07% debt ratio, plus 0.01% for having a 0.16% preferred stock ratio. The sum of the parts is 10.90% (8.25% + 2.64% + 0.01%) and there is no need to even address the cost of equity in terms of D/P + g. To express this same return in the context of the familiar DCF model, I summed the 3.23% dividend yield, the 6.75% growth rate, and the 0.92% leverage adjustment in order to arrive at the same 10.90% (3.23% + 6.75% + 0.92%) return. I know of no means to mathematically solve for the 0.92% leverage adjustment by expressing it in the terms of any particular relationship of market price to book value. The 0.92% adjustment is merely a convenient way to compare the 10.90% return computed directly with the Modigliani & Miller formulas to the 9.98% return generated by the DCF model based on a market value capital structure. My point is that when we use a market-determined cost of equity developed from the DCF model, it reflects a level of financial risk that is different (in this case, lower) from the capital structure stated at book value. This process has nothing to do with targeting any particular market-to-book ratio.

RISK PREMIUM ANALYSIS

Q. Please describe your use of the risk premium approach to determine the cost of equity.

A. With the Risk Premium approach, the cost of equity capital is determined by corporate bond yields plus a premium to account for the fact that common equity is exposed to greater investment risk than debt capital. The result of my Risk

Premium study is shown on page 2 of Schedule 1. That result is 12.25%. As with other models used to determine the cost of equity, the Risk Premium approach has its limitations, including potential imprecision in the assessment of the future cost of corporate debt and the measurement of the risk-adjusted common equity premium.

Q. What long-term public utility debt cost rate did you use in your risk premium analysis?

A. In my opinion, a 5.25% yield represents a reasonable estimate of the prospective yield on long-term A-rated public utility bonds.

Q. What forecasts of interest rates have you considered in your analysis?

A. I have determined the prospective yield on A-rated public utility debt by using the Blue Chip Financial Forecasts ("Blue Chip") along with the spread in the yields that I describe below. The Blue Chip is a reliable authority and contains consensus forecasts of a variety of interest rates compiled from a panel of banking, brokerage, and investment advisory services. In early 1999, Blue Chip stopped publishing forecasts of yields on A-rated public utility bonds because the Federal Reserve deleted these yields from its Statistical Release H.15. To independently project a forecast of the yields on A-rated public utility bonds, I have combined the forecast yields on long-term Treasury bonds published on April 1, 2013, and a yield spread of 1.50%, derived from historical data.

Q. What historical data have you analyzed?

A. I have analyzed the historical yields on the Moody's index of long-term public utility debt and are shown on page 1 of Schedule 11. For the twelve months ended March 2013, the average monthly yield on Moody's index of A-rated public utility bonds was 4.08%. For the six and three-month periods ended March 2013, the yields were 4.05% and 4.18%, respectively. During the twelve-months ended March 2013,

the range of the yields on A-rated public utility bonds was 3.84% to 4.40%. Page 2 of Schedule 11 shows the long-run spread in yields between A-rated public utility bonds and long-term Treasury bonds. As shown on page 3 of Schedule 11, the yields on A-rated public utility bonds have exceeded those on Treasury bonds by 1.54% on a twelve-month average basis, 1.45% on a six-month average basis, and 1.43% on a the three-month average basis. From these averages, 1.50% represents a reasonable spread for the yield on A-rated public utility bonds over Treasury bonds.

Q. How have you used these data to project the yield on A-rated public utility bonds for the purpose of your Risk Premium analysis?

A. Shown below is my calculation of the prospective yield on A-rated public utility bonds using the building blocks discussed above, i.e., the Blue Chip forecast of Treasury bond yields and the public utility bond yield spread. For comparative purposes, I also have shown the Blue Chip forecasts of Aaa-rated and Baa-rated corporate bonds. These forecasts are:

		Blue Chip Financial Forecasts				
		Corporate		30-Year	A-rated Public Utility	
Year	Quarter	Aaa-rated	Baa-rated	Treasury	Spread	Yield
2013	Second	3.9%	4.8%	3.2%	1.50%	4.70%
2013	Third	4.0%	4.9%	3.2%	1.50%	4.70%
2013	Fourth	4.1%	5.0%	3.4%	1.50%	4.90%
2014	First	4.2%	5.1%	3.5%	1.50%	5.00%
2014	Second	4.3%	5.2%	3.6%	1.50%	5.10%
2014	Third	4.4%	5.3%	3.7%	1.50%	5.20%

Q. Are there additional forecasts of interest rates that extend beyond those shown above?

A. Yes. Twice yearly, Blue Chip provides long-term forecasts of interest rates. In its December 1, 2012 publication, Blue Chip published longer-term forecasts of interest rates, which were reported to be:

	Blue Chip Financial Forecasts		
	30-Year	Corporate	
Averages	Treasury	Aaa-rated	Baa-rated
2014-18	4.7%	5.4%	6.4%
2019-23	5.5%	6.1%	7.1%

Given these forecasted interest rates, a 5.25% yield on A-rated public utility bonds represents a reasonable expectation.

Q. What equity risk premium have you determined for this case?

A. To develop an appropriate equity risk premium, I analyzed the results from the 2013 Classic Yearbook for Stocks, Bonds, Bills and Inflation ("SBBI") published by Ibbotson Associates that is part of Morningstar. My investigation reveals that the equity risk premium varies according to the level of interest rates. That is to say, the equity risk premium increases as interest rates decline and it declines as interest rates increase. This inverse relationship is revealed by the summary data presented below and shown on page 1 of Schedule 12.

Common Equity Risk Premiums

Low Interest Rates	7.00%
Average Across All Interest Rates	5.41%
High Interest Rates	3.77%

Based on my analysis of the historical data, the equity risk premium was 7.00% when the marginal cost of long-term government bonds was low (i.e., 3.03%, which was the average yield during periods of low rates). Conversely, when the yield on long-term government bonds was high (i.e., 7.35% on average during

periods of high interest rates) the spread narrowed to 3.77%. Over the entire spectrum of interest rates, the equity risk premium was 5.41% when the average government bond yield was 5.16%. With the current low interest rates, an equity risk premium of 7.00% is indicated today.

CAPITAL ASSET PRICING MODEL

Q. What are the features of the CAPM as you have used it?

A. The CAPM uses the yield on a risk-free interest bearing obligation plus a rate of return premium that is proportional to the systematic risk of an investment. The result of the CAPM is 11.62% as shown on page 2 of Schedule 1. To compute the cost of equity with the CAPM, three components are necessary: a risk-free rate of return ("Rf"), the beta measure of systematic risk ("β"), and the market risk premium ("Rm-Rf") derived from the total return on the market of equities reduced by the risk-free rate of return. The CAPM specifically accounts for differences in systematic risk (i.e., market risk as measured by the beta) between an individual firm or group of firms and the entire market of equities.

Q. What betas have you considered in the CAPM?

A. For my CAPM analysis, I initially considered the Value Line betas. As shown on Schedule 10, the average beta is 0.69 for the Water Group.

Q. What betas have you used in the CAPM determined cost of equity?

A. The betas must be reflective of the financial risk associated with the ratesetting capital structure that is measured at book value. Therefore, Value Line betas cannot be used directly in the CAPM, unless the cost rate developed using those betas is applied to a capital structure measured with market values. To develop a CAPM cost rate applicable to a book-value capital structure, the Value Line (market

value) betas have been unleveraged and releveraged for the book value common equity ratios using the Hamada formula,[8] as follows:

$$\beta l = \beta u\,[1 + (1 - t)\,D/E + P/E]$$

where ßl = the leveraged beta, ßu = the unleveraged beta, t = income tax rate, D = debt ratio, P = preferred stock ratio, and E = common equity ratio. The betas published by Value Line have been calculated with the market price of stock and, therefore, are related to the market value capitalization. By using the formula shown above and the capital structure ratios measured at market value, the beta would become 0.49 for the Water Group if it employed no leverage and was 100% equity financed. Those calculations are shown on Schedule 10 under the category "Hamada" who is credited with developing those formulas. With the unleveraged beta as a base, I calculated the leveraged beta of 0.80 for the book value capital structure of the Water Group. The book value leveraged beta that I will employ in the CAPM cost of equity is 0.80 for the Water Group.

Q. What risk-free rate have you used in the CAPM?

A. As shown on page 1 of Schedule 13, I provided the historical yields on Treasury notes and bonds. For the twelve months ended March 2013, the average yield on 30-year Treasury bonds was 2.92%. For the six- and three-months ended March 2013, the yields on 30-year Treasury bonds were 3.00% and 3.14%, respectively. During the twelve-months ended March 2013, the range of the yields on 30-year Treasury bonds was 2.59% to 3.18%. The recent low yields on Treasury bonds can be traced to events that have occurred during the past several years that included the financial crisis and its aftermath. The resulting decline in the yields on Treasury

[8] Robert S. Hamada, "The Effects of the Firm's Capital Structure on the Systematic Risk of Common Stocks" *The Journal of Finance* Vol. 27, No. 2, Papers and Proceedings of the Thirtieth Annual Meeting of the American Finance Association, New Orleans, Louisiana, December 27-29, 1971. (May 1972), pp.435-452

obligations can be attributed to a number of factors, including: the sovereign debt crisis in the euro zone, concern over a possible double dip recession, the potential for deflation, and the Federal Reserve's large balance sheet that has been expanded through the purchase of Treasury obligations and mortgage-backed securities (also known as QEI, QEII, and QEIII), and the reinvestment of the proceeds from maturing obligations and the lengthening of the maturity of the Fed's bond portfolio through the sale of short-term Treasuries and the purchase of long-term Treasury obligations (also known as "operation twist"). Essentially, low interest rates are the product of the policy of the FOMC in its attempt to deal with stagnant job growth, which is part of its dual mandate. As shown on page 2 of Schedule 13, forecasts published by Blue Chip on April 1, 2013 indicate that the yields on long-term Treasury bonds are expected to be in the range of 3.2% to 3.7% during the next six quarters. The longer term forecasts described previously show that the yields on 30-year Treasury bonds will average 4.7% from 2014 through 2018 and 5.5% from 2019 to 2023. For the reasons explained previously, forecasts of interest rates should be emphasized at this time in selecting the risk-free rate of return in CAPM. Hence, I have used a 3.75% risk-free rate of return for CAPM purposes, which considers not only the Blue Chip forecasts, but also the recent trend in the yields on long-term Treasury bonds.

Q. What market premium have you used in the CAPM?

A. As shown in the lower panel of data presented on page 2 of Schedule 13, the market premium is derived from historical data and the Value Line and S&P 500 returns. For the historically based market premium, I have used the arithmetic mean obtained from the data presented on page 1 of Schedule 12. On that schedule, the market return on large stocks during periods of low interest rates was

11.72%. During that time, the yield on long-term government bonds was 3.03%. The resulting market premium is 8.69% (11.72% - 3.03%) based on historical data. For the forecast returns, I calculated a 12.87% total market return from the Value Line data and a DCF return of 11.01% for the S&P 500. With the average forecast return of 11.94% (12.87% + 11.01% = 23.88% ÷ 2), I calculated a market premium of 8.19% (11.94% - 3.75%) using forecast data. The market premium applicable to the CAPM derived from these sources equals 8.44% (8.19% + 8.69% = 16.88% ÷ 2).

Q. Are there adjustments to the CAPM that are necessary to fully reflect the rate of return on common equity?

A. Yes. The technical literature supports an adjustment relating to the size of the company or portfolio for which the calculation is performed. As the size of a firm decreases, its risk and, hence, its required return increases. Moreover, in his discussion of the cost of capital, Professor Brigham has indicated that smaller firms have higher capital costs than otherwise similar larger firms (see Fundamentals of Financial Management, fifth edition, page 623). Also, the Fama/French study (see "The Cross-Section of Expected Stock Returns"; The Journal of Finance, June 1992) established that the size of a firm helps explain stock returns. In an October 15, 1995 article in Public Utility Fortnightly, entitled "Equity and the Small-Stock Effect," it was demonstrated that the CAPM could understate the cost of equity significantly according to a company's size. Indeed, it was demonstrated in the SBBI Yearbook that the returns for stocks in lower deciles (i.e., smaller stocks) had returns in excess of those shown by the simple CAPM. In this regard, the Water Group has a market-based average equity capitalization of $1,487 million, as shown

on Schedule 10. For my CAPM analysis, I have adopted the mid-cap adjustment of 1.12%, as revealed on page 3 of Schedule 14.

COMPARABLE EARNINGS

Q. How have you applied the Comparable Earnings approach in this case?

A. The Comparable Earnings approach determines the equity return based upon results from non-regulated companies. It is the oldest of all rate of return methods, having been around for about one century. Because regulation is a substitute for competitively determined prices, the returns realized by non-regulated firms with comparable risks to a public utility provide useful insight into a fair rate of return. In order to identify the appropriate return, it is necessary to analyze returns earned (or realized) by other firms within the context of the Comparable Earnings standard. The firms selected for the Comparable Earnings approach should be companies whose prices are not subject to cost-based price ceilings (i.e., non-regulated firms) so that circularity is avoided.

There are two avenues available to implement the Comparable Earnings approach. One method involves the selection of another industry (or industries) with comparable risks to the public utility in question, and the results for all companies within that industry serve as a benchmark. The second approach requires the selection of parameters that represent similar risk traits for the public utility and the comparable risk companies. Using this approach, the business lines of the comparable companies become unimportant. The latter approach is preferable with the further qualification that the comparable risk companies exclude regulated firms in order to avoid the circular reasoning implicit in the use of the achieved earnings/book ratios of other regulated firms. The United States Supreme Court has held that:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties.... The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. Bluefield Water Works vs. Public Service Commission, 262 U.S. 668 (1923).

Therefore, it is important to identify the returns earned by firms that compete for capital with a public utility. This can be accomplished by analyzing the returns of non-regulated firms that are subject to the competitive forces of the marketplace.

Q. How have you implemented the Comparable Earnings approach?

A. In order to implement the Comparable Earnings approach, non-regulated companies were selected from The Value Line Investment Survey for Windows that have six categories of comparability designed to reflect the risk of the Water Group. These screening criteria were based upon the range as defined by the rankings of the companies in the Water Group. The items considered were: Timeliness Rank, Safety Rank, Financial Strength, Price Stability, Value Line betas, and Technical Rank. The identities of the companies comprising the Comparable Earnings group and their associated rankings within the ranges are identified on page 1 of Schedule 14.

Value Line data was relied upon because it provides a comprehensive basis for evaluating the risks of the comparable firms. As to the returns calculated by Value Line for these companies, there is some downward bias in the figures shown on page 2 of Schedule 14, because Value Line computes the returns on year-end rather than average book value. If average book values had been employed, the

rates of return would have been slightly higher. Nevertheless, these are the returns considered by investors when taking positions in these stocks. Because many of the comparability factors, as well as the published returns, are used by investors in selecting stocks, and the fact that investors rely on the Value Line service to gauge returns, it is, therefore, an appropriate database for measuring comparable return opportunities.

Q. What data have you used in your Comparable Earnings analysis?

A. I have used both historical realized returns and forecasted returns for non-utility companies. As noted previously, I have not used returns for utility companies in order to avoid the circularity that arises from using regulatory-influenced returns to determine a regulated return. It is appropriate to consider a relatively long measurement period in the Comparable Earnings approach in order to cover conditions over an entire business cycle. A ten-year period (five historical years and five projected years) is sufficient to cover an average business cycle. Unlike the DCF and CAPM, the results of the Comparable Earnings method can be applied directly to the book value capitalization. In other words, the Comparable Earnings approach does not contain the potential misspecification contained in market models when the market capitalization and book value capitalization diverge significantly. The historical rate of return on book common equity was 13.1% using only the returns that were less than 20% and greater than 8% as shown on page 2 of Schedule 14. Points of demarcation were chosen to eliminate the results of highly profitable enterprises, which the Bluefield case stated were not the type of returns that a utility was entitled to earn, and unrepresentatively low returns. For this purpose, I used 20% as the point where those returns could be viewed as highly profitable and should be excluded from the Comparable Earnings approach. And to

minimize the effect of a skewed distribution, I removed from the average the returns that were less than 8%. The forecast rates of return as published by Value Line are shown by the 13.6% using the same parameters, as provided on page 2 of Schedule 14. Using these data my Comparable Earnings result is 13.35%, as shown on page 2 of Schedule 1.

CONCLUSION ON COST OF EQUITY

Q. What is your conclusion regarding the Company's cost of common equity?

A. Based upon the application of a variety of methods and models described previously, it is my opinion that a reasonable cost of common equity for the Company is 11.25%. My cost of equity recommendation is obtained from a range of results and should be considered in the context of the Company's risk characteristics, as well as the exemplary performance of the Company's management. It is essential that the Commission employ a variety of techniques to measure the Company's cost of equity because of the limitations/infirmities that are inherent in each method.

Q. Does this complete your direct testimony?

A. Yes. However, I reserve the right to supplement my testimony, if necessary, and to respond to witnesses presented by other parties.

APPENDIX A TO DIRECT TESTIMONY OF PAUL R. MOUL

EDUCATIONAL BACKGROUND, BUSINESS EXPERIENCE AND QUALIFICATIONS

I was awarded a degree of Bachelor of Science in Business Administration by Drexel University in 1971. While at Drexel, I participated in the Cooperative Education Program which included employment, for one year, with American Water Works Service Company, Inc., as an internal auditor, where I was involved in the audits of several operating water companies of the American Water Works System and participated in the preparation of annual reports to regulatory agencies and assisted in other general accounting matters.

Upon graduation from Drexel University, I was employed by American Water Works Service Company, Inc., in the Eastern Regional Treasury Department where my duties included preparation of rate case exhibits for submission to regulatory agencies, as well as responsibility for various treasury functions of the thirteen New England operating subsidiaries.

In 1973, I joined the Municipal Financial Services Department of Betz Environmental Engineers, a consulting engineering firm, where I specialized in financial studies for municipal water and wastewater systems.

In 1974, I joined Associated Utility Services, Inc., now known as AUS Consultants. I held various positions with the Utility Services Group of AUS Consultants, concluding my employment there as a Senior Vice President.

In 1994, I formed P. Moul & Associates, an independent financial and regulatory consulting firm. In my capacity as Managing Consultant and for the past twenty-nine years, I have continuously studied the rate of return requirements for cost of service-regulated firms. In this regard, I have supervised the preparation of rate of return studies, which were employed, in connection with my testimony and in the past for other individuals. I have

presented direct testimony on the subject of fair rate of return, evaluated rate of return testimony of other witnesses, and presented rebuttal testimony.

My studies and prepared direct testimony have been presented before thirty-seven (37) federal, state and municipal regulatory commissions, consisting of: the Federal Energy Regulatory Commission; state public utility commissions in Alabama, Alaska, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Virginia, West Virginia, Wisconsin, and the Philadelphia Gas Commission, and the Texas Commission on Environmental Quality. My testimony has been offered in over 200 rate cases involving electric power, natural gas distribution and transmission, resource recovery, solid waste collection and disposal, telephone, wastewater, and water service utility companies. While my testimony has involved principally fair rate of return and financial matters, I have also testified on capital allocations, capital recovery, cash working capital, income taxes, factoring of accounts receivable, and take-or-pay expense recovery. My testimony has been offered on behalf of municipal and investor-owned public utilities and for the staff of a regulatory commission. I have also testified at an Executive Session of the State of New Jersey Commission of Investigation concerning the BPU regulation of solid waste collection and disposal.

I was a co-author of a verified statement submitted to the Interstate Commerce Commission concerning the 1983 Railroad Cost of Capital (Ex Parte No. 452). I was also co-author of comments submitted to the Federal Energy Regulatory Commission regarding the Generic Determination of Rate of Return on Common Equity for Public Utilities in 1985, 1986 and 1987 (Docket Nos. RM85-19-000, RM86-12-000, RM87-35-000 and RM88-25-000). Further, I have been the consultant to the New York Chapter of the National Association of Water Companies, which represented the water utility group in the

Proceeding on Motion of the Commission to Consider Financial Regulatory Policies for New York Utilities (Case 91-M-0509). I have also submitted comments to the Federal Energy Regulatory Commission in its Notice of Proposed Rulemaking (Docket No. RM99-2-000) concerning Regional Transmission Organizations and on behalf of the Edison Electric Institute in its intervention in the case of Southern California Edison Company (Docket No. ER97-2355-000). Also, I was a member of the panel of participants at the Technical Conference in Docket No. PL07-2 on the Composition of Proxy Groups for Determining Gas and Oil Pipeline Return on Equity.

In late 1978, I arranged for the private placement of bonds on behalf of an investor-owned public utility. I have assisted in the preparation of a report to the Delaware Public Service Commission relative to the operations of the Lincoln and Ellendale Electric Company. I was also engaged by the Delaware P.S.C. to review and report on the proposed financing and disposition of certain assets of Sussex Shores Water Company (P.S.C. Docket Nos. 24-79 and 47-79). I was a co-author of a Report on Proposed Mandatory Solid Waste Collection Ordinance prepared for the Board of County Commissioners of Collier County, Florida.

I have been a consultant to the Bucks County Water and Sewer Authority concerning rates and charges for wholesale contract service with the City of Philadelphia. My municipal consulting experience also included an assignment for Baltimore County, Maryland, regarding the City/County Water Agreement for Metropolitan District customers (Circuit Court for Baltimore County in Case 34/153/87-CSP-2636).