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**SOAH DOCKET NO. 473-16-1848.WS
PUC DOCKET NO. 44809**

**APPLICATION OF QUADVEST, L.P.
FOR RATE/TARIFF CHANGE**

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**BEFORE THE STATE OFFICE
OF
ADMINISTRATIVE
HEARINGS**



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**DIRECT TESTIMONY OF
EMILY SEARS
WATER UTILITY DIVISION
PUBLIC UTILITY COMMISSION OF TEXAS
May 11, 2016**

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Table of Contents

1	I. INTRODUCTION OF WITNESS	1
2	II. PURPOSE AND SCOPE OF TESTIMONY	2
3	III. BACKGROUND	2
4	IV. STAFF POSITION	5
5	V. COMPANY POSITION	5
6	VI. PROXY (BAROMETER) GROUP	6
7	VII. CAPITAL STRUCTURE	9
8	VIII. COST RATE OF LONG-TERM DEBT	10
9	IX. EQUITY ANALYSIS	11
10	A. DISCOUNTED CASH FLOW (DCF)	12
11	B. CAPITAL ASSET PRICING MODEL (CAPM)	14
12	C. SIZE	19
13	X. SUMMARY	21

ATTACHMENTS

Attachment ES-1	Resume of Emily Sears
Attachment ES-2	List of testimonies of Emily Sears
Attachments ES-3 – ES-10	Workpapers

1

2 **I. INTRODUCTION OF WITNESS**

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

4 A. Emily Sears, Public Utility Commission of Texas, 1701 N. Congress Avenue, Austin, Texas
5 78711-3326.

6

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

8 A. I have been employed by the Public Utility Commission of Texas (Commission) since
9 January 1, 2015 as a Financial Analyst in the Water Utilities Division.

10

11 **Q. WHAT ARE YOUR PRINCIPAL RESPONSIBILITIES AT THE COMMISSION?**

12 A. I am responsible for reviewing certificate of convenience and necessity (CCN) applications
13 and amendments, sale/transfer/merger applications, tariff/rate change applications, stock
14 transfers, financial reviews, managerial reviews, and rate filings. I am also responsible for
15 preparing testimony and exhibits for contested case matters involving investor-owned, non-
16 profit and governmental water and sewer utilities, and assisting with settlement negotiations.

17

18 **Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL
19 EXPERIENCE.**

20 A. I have provided a summary of my educational background and professional experience in
21 Attachment ES-1 to my direct testimony.
22

**Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION OR THE
STATE OFFICE OF ADMINISTRATIVE HEARINGS (SOAH)?**

A. Yes. I have also testified before the Pennsylvania Public Utility Commission. Attachment
ES-2 provides a summary of the cases in which I have testified or submitted testimony.

II. PURPOSE AND SCOPE OF TESTIMONY

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

A. The purpose of my testimony is to present a recommendation for the rate of return for
Quadvest, L.P. (Quadvest).

Q. WHAT IS THE SCOPE OF YOUR REVIEW?

A. I reviewed the application of Quadvest, with respect to rate of return, including capital
structure, the cost of debt, the cost of common equity, and the overall fair rate of return.

III. BACKGROUND

Q. PLEASE DEFINE THE TERM "RATE OF RETURN."

A. Rate of return generally is the amount of revenue an investment generates (in the form of net
income), usually expressed as a percentage of the amount of capital invested, over a given
period of time. Rate of return is one of the components of the revenue requirement formula.

Q. WHAT IS THE REVENUE REQUIREMENT FORMULA?

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

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

Where:

RR = Revenue Requirement

E = Operating Expense

D = Depreciation Expense

T = Taxes

RB = Rate Base

ROR = Overall Rate of Return

In the above formula the rate of return is expressed as a percentage. The calculation of that rate is independent of the determination of the appropriate rate base value for ratemaking purposes. As such, the appropriate total dollar return (RB x ROR) is dependent upon the proper computation of the rate of return and the proper valuation of the utility's rate base.

Q. WHAT CONSTITUTES A FAIR AND REASONABLE OVERALL RATE OF RETURN?

A. A fair and reasonable overall rate of return is one which will allow the utility the opportunity to recover those costs prudently incurred by all classes of capital used to finance the rate base during the prospective period in which its rates will be in effect. *The Bluefield Water Works & Improvements Co. v. Public Service Comm. of West Virginia*, 292 U.S. 679, 692-93 (1923), and the *FPC v. Hope Natural Gas Co.*, 320 U.S. 591, 603

(1944) cases set forth the principles that are generally accepted by regulators throughout the country as the appropriate criteria for measuring a fair rate of return:

- 1) A utility is entitled to a return similar to that being earned by other enterprises with corresponding risks and uncertainties, but not as high as those earned by highly profitable or speculative ventures;
- 2) A utility is entitled to a return level reasonably sufficient to assure financial soundness;
- 3) A utility is entitled to a return sufficient to maintain and support its credit and raise necessary capital;
- 4) A fair return can change (increase or decrease) along with economic conditions and capital markets.

Q. HOW IS THE RATE OF RETURN CALCULATED?

A. The overall rate of return in this rate proceeding is calculated using the weighted average cost of capital method. To calculate the weighted average cost of capital, the utility's capital structure must first be determined by calculating the percentage of each capitalization component which has financed the rate base to total capital. The capital components consist of long-term debt and common equity. Next, the effective cost rate of each capital structure component must be determined. The cost rate of debt is fixed, and can be computed accurately. The cost rate of common equity is not fixed and it is more difficult to measure. Next, each capital structure component percentage is multiplied by its corresponding effective cost rate to determine the weighted capital component cost rate. Lastly, the sum of the weighted cost rates produces the overall rate of return. This overall rate of return is

multiplied by the rate base to determine the return portion of utility's revenue requirement.

IV. STAFF POSITION

Q. PLEASE SUMMARIZE STAFF'S RECOMMENDATION IN THIS PROCEEDING.

A. Staff recommends the following rate of return for Quadvest:

<u>Type of Capital</u>	<u>Ratios</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Long-Term Debt	48.97 %	4.80 %	2.35 %
Common Equity	<u>51.03 %</u>	8.90 %	<u>4.54 %</u>
Total	<u>100.00 %</u>		<u>6.89 %</u>

Source: Attachment ES-3

V. COMPANY POSITION

Q. PLEASE SUMMARIZE QUADVEST'S RATE OF RETURN REQUEST IN THIS CASE.

A. Based on the rate/tariff change application, Quadvest requested the following rate of return:

<u>Type of Capital</u>	<u>Ratios</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Long-Term Debt	48.97%	4.80%	2.35%
Common Equity	<u>51.03%</u>	12.10%	<u>6.17%</u>
Total	<u>100.00 %</u>		<u>8.52%</u>

Source: Application, Page 11, Section D.

VI. PROXY (BAROMETER) GROUP

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

A. A proxy group, also called a barometer group, is a group of companies which act as a benchmark for determining the subject utility's ROR in a base rate case.

Q. WHAT ARE THE REASONS FOR USING A BAROMETER GROUP?

A. A barometer group is typically utilized since the use of data exclusively from one company may be less reliable than using a barometer group. The lower reliability occurs because the data for one company may be subject to events which can cause short-term anomalies in the marketplace. The ROR on common equity for a single company could become distorted in these particular circumstances, and would therefore not be representative of similarly situated companies. The use of a barometer group has the effect of smoothing out potential anomalies associated with a single company.

A barometer group cost of equity is also used as a benchmark to satisfy the long established guideline of utility regulation that seeks to provide the subject utility with the opportunity to earn a return equal to that of similar risk enterprises.

Q. ARE THERE ANY ADDITIONAL REASONS FOR USING A BAROMETER GROUP IN THIS CASE?

A. Yes. Many public utility companies are not publicly traded, and therefore lack specific market data. A barometer group provides that industry specific market data. Furthermore, a barometer group of water utilities have shared common characteristics of regulated water

1 distribution utilities, and are well suited to comparison among utility companies. This
2 comparative method is a standard approach in utility rate cases.

3
4 **Q. WHAT CRITERIA DID YOU USE IN SELECTING YOUR BAROMETER GROUP**
5 **COMPANIES?**

6 A. When selecting a barometer group, I use the following criteria: 1) 50% or more of the
7 company's revenues must be generated from the water utility distribution industry; 2) the
8 company's stock must be publicly traded; 3) investment information for the company must
9 be available from more than one source; 4) the company must not be currently
10 involved/targeted in an announced merger or acquisition; and 5) the company must have five
11 years of historic earnings data.

12
13 **Q. WHAT BAROMETER GROUP DID YOU USE IN YOUR ANALYSIS?**

14 A. I selected American States Water Company, American Water Works, Aqua America,
15 California Water Service Group, Connecticut Water Service, Middlesex Water, SJW
16 Corporation, and York Water.

17
18 **Q. WHAT BAROMETER GROUP DID MR. SCHEIG USE IN HIS ANALYSIS?**

19 A. Mr. Scheig appears to use several different barometer groups. There are several companies
20 which are the same in all analyses; American Water Works Company, American States
21 Water Company, Aqua America, California Water Services Group, Middlesex Water, SJW
22 Corp, and York Water. In several of his analyses, he also includes Artesian Resources

Corp., Connecticut Water Services, and Pure Cycle Corporation. Finally, he uses electric and natural gas utility authorized returns on equity to determine a return on equity in this case.

Q. DOES MR. SCHEIG STATE WHY HE USED DIFFERENT BAROMETER GROUPS?

A. Mr. Scheig states that due to the small sample of water companies followed by Value Line, he expands his groups for the CAPM and ECAPM. He uses the electric and natural gas utilities in his Comparable Earnings analysis.

Q. DO YOU AGREE WITH HIS ANALYSES USING THE DIFFERENT BAROMETER GROUPS?

A. No. First, only one barometer group should be used across all analyses, as to be comparable and consistent. Mr. Scheig's use of different barometer groups can skew the resulting return on equity he recommends.

Second, the Pure Cycle Corporation, while labeled a water utility, does not have enough information or analyst estimates to be useful in the determination of the return on equity. It is for this reason that Mr. Scheig could not use it in his DCF analysis, as the growth rate is not reported by Morningstar, Zacks, or Yahoo!Finance. Furthermore, the utility is not followed by Value Line Investment Survey, which is the starting point for most return analysts' barometer groups, and is not used in water utility barometer groups. Finally, it is not a regulated utility, and is subject to competition. Including this entity in the barometer

group would only serve to inflate the return. Therefore, it is not a comparable company, and should not be used in the barometer group.

Finally, the use of electric and natural gas utility returns is improper. The risks of electric and natural gas are not comparable to the water industry. The use of different industries invalidates its use in Mr. Scheig's Comparable Earnings analysis.

VII. CAPITAL STRUCTURE

Q. WHAT DOES CAPITAL STRUCTURE REPRESENT IN A RATE CASE?

A. Capital structure represents the financing of long-term assets (rate base). The primary forms of financing employed by public utilities includes debt and common equity.

Q. WHAT IS QUADVEST'S CLAIMED CAPITAL STRUCTURE?

A. Quadvest is claiming a capital structure of 48.97% debt, and 51.03% equity.

Q. WHAT IS THE BASIS FOR QUADVEST'S CLAIMED CAPITAL STRUCTURE?

A. Mr. Scheig testifies that it is based on the debt and equity listed on Quadvest's books.

Q. WHAT IS YOUR RECOMMENDATION REGARDING QUADVEST'S CAPITAL STRUCTURE?

A. I recommend using the hypothetical capital structure requested by Quadvest.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION TO USE QUADVEST'S

HYPOTHETICAL CAPITAL STRUCTURE?

A. Quadvest's capital structure includes more investment than it has invested in current rate base. Quadvest's current rate base is \$14,194,706. Quadvest's claimed capital structure includes a total investment of \$18,513,300. After adjusting the rate base further to remove the AMRs and other staff adjustments, the rate base is \$11,090,857.¹ Using this number, the capital structure result is 81.74% debt, and 18.26% equity.

While the actual capital structure is typically used, it is an industry practice that if the capital structure is substantially out of line with the industry average a typical industry capital structure is considered. In this case, Quadvest's actual capital structure of 81.74% debt, and 18.26% equity is clearly atypical of current capital structures among water utility distribution systems. The barometer group's average capital structure is currently 47.38% debt, and 52.63% equity.

Quadvest's actual capital structure is atypical of the industry average. However, given that Quadvest's proposed capital structure is similar to the industry average as measured by the barometer group, I recommend using Quadvest's proposed capital structure in this case.

VIII. COST RATE OF LONG-TERM DEBT

Q. WHAT IS QUADVEST'S CLAIMED COST RATE OF LONG-TERM DEBT?

A. Quadvest calculates its claimed cost rate of long-term debt to be 4.80%.

¹ Based upon Quadvest's ability to prove up and support its claim.

Q. WHAT IS THE BASIS FOR QUADVEST'S CLAIMED COST RATE OF LONG-TERM DEBT?

A. Quadvest's claim of 4.80% is the weighted cost of debt of all debt issuances.

Q. DO YOU AGREE WITH QUADVEST'S CALCULATION FOR THE COST RATE OF LONG-TERM DEBT?

A. Yes.

Q. WHAT IS THE BASIS FOR AGREEING WITH QUADVEST'S COST RATE OF LONG-TERM DEBT?

A. Staff calculated an overall cost rate of 4.78%. Given that the cost rate is only a 0.02% difference, Staff agrees with Quadvest's debt cost rate.

IX. EQUITY ANALYSIS

Q. WHAT IS YOUR RECOMMENDATION FOR THE APPROPRIATE COST OF COMMON EQUITY IN THIS PROCEEDING?

A. Based upon my analysis, I recommend a cost of common equity of 8.90%.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. I arrived at this equity return using the Discounted Cash Flow (DCF) method. I used the Capital Asset Pricing Model (CAPM) method only as a comparison to my DCF results. My

DCF analysis employed a spot dividend yield, a 52-week dividend yield, and earnings growth forecasts.

A. DISCOUNTED CASH FLOW (DCF)

Q. PLEASE EXPLAIN YOUR DCF ANALYSIS.

A. My analysis employs the standard discrete DCF model as portrayed in the following formula:

$$k = D_1/P_0 + g$$

Where:

k = Cost of equity

D_1 = Dividend expected during the year

P_0 = Current price of the stock

g = Expected growth rate of dividends

When a forecast of D_1 is not available, D_0 (the current dividend) must be adjusted by $\frac{1}{2}$ the expected growth rate² in order to account for changes in the dividend paid in period 1.

Q. PLEASE EXPLAIN HOW YOU DEVELOPED THE DIVIDEND YIELDS USED IN YOUR DCF ANALYSIS.

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

² The adjustment of $\frac{1}{2}$ the growth rate is used when the timing of the dividend increase is not known for certain. It could occur next month, or in the twelfth month. On average, it is safe to assume that the increase will occur half way through the prospective year. Therefore, an adjustment by $\frac{1}{2}$ the expected growth rate is appropriate.

problems of short-term anomalies and “stale” data series. For purposes of my DCF analysis, the dividend yield calculation places equal emphasis on the most recent spot, and 52-week average dividend yield. The following table summarizes my dividend yield computations for the barometer group:

Eight Company Barometer Group	Dividend Yield
Spot	2.48%
52-week average	2.80%
Average	2.64%
Source: Attachment ES-4	

Q. WHAT INFORMATION DID YOU RELY UPON TO DETERMINE YOUR EXPECTED GROWTH RATE?

A. I have examined the earnings growth forecasts.

Q. PLEASE EXPLAIN YOUR USE OF EARNINGS GROWTH FORECASTS.

A. I have used five year projected growth rate estimates from established forecasting entities including Value Line, Reuters, Zacks, and Morningstar.

Q. WHAT WERE THE RESULTS OF YOUR FORECASTED EARNINGS GROWTH RATES?

A. The expected growth rates for the eight company barometer group are 4.55%, 7.53%, 6.35%, 8.05%, 4.83%, 3.10%, 9.83%, and 5.45%. The average of the eight companies' growth rate

forecasts is 6.21%.³

**Q. WHAT ARE THE RESULTS OF YOUR DISCOUNTED CASH FLOW ANALYSIS
BASED ON YOUR RECOMMENDED DIVIDEND YIELDS AND GROWTH
RATES?**

A. Using a dividend yield of 2.64% and a growth rate of 6.21%, the DCF result is 8.85%.⁴

B. CAPITAL ASSET PRICING MODEL (CAPM)

Q. EXPLAIN YOUR LIMITED USE OF THE CAPM MODEL.

A. I have included a CAPM analysis to confirm the DCF results submitted in base rate cases by
the use of a second method.

Q. PLEASE EXPLAIN YOUR CAPM ANALYSIS.

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

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

Where:

k = Cost of equity

R_f = Risk-free ROR

³ Attachment ES-5

⁴ Attachment ES-6.

1 R_m = Expected ROR on the overall stock

2 β = Beta measures the systematic risk of an asset

3 The CAPM formula above is actually a form of the more general risk premium approach and
4 is based on modern portfolio theory.

5
6 **Q. WHAT IS BETA, AS EMPLOYED IN YOUR USE OF THE STANDARD CAPM**
7 **MODEL?**

8 A. Beta is a measure of the systematic risk of a stock in relation to the rest of the stock market.
9 A stock's beta is estimated by running a linear regression of a stock's return against the return
10 on the overall stock market. The beta of a stock with an identical price pattern as the overall
11 stock market will have a beta of 1. A stock with a price movement that is greater than the
12 overall stock market will have a beta that is greater than 1, and would be described as having
13 more investment risk than the market. Conversely, a stock with a price movement that is
14 less than the overall stock market will have a beta of less than 1, and would be described as
15 having less investment risk than the market.

16
17 **Q. WHAT BETA DID YOU CHOOSE FOR YOUR CAPM ANALYSIS?**

18 A. In estimating an equity cost rate for the group of eight water utility companies, I used the
19 average of the betas for the water utility companies as provided in the Value Line Investment

Survey. The average beta for the eight water utility companies' barometer group is 0.71.⁵

Q. WHAT RISK-FREE ROR HAVE YOU CHOSEN FOR YOUR CAPM ANALYSIS?

A. For my CAPM analysis, I have chosen to use the risk-free rate of return (R_f) from the historic yield on 10-year Treasury Bonds. While the yield on the short-term T-Bill is a more theoretically correct parameter to represent a risk-free yield, this yield can be extremely volatile. The volatility of short-term T-Bills is directly influenced by Federal Reserve policy. At the other extreme, the 30-year Treasury bond yield exhibits more stability, but is not risk-free. Long-term Treasury Bonds have substantial maturity risk associated with the market risk and the risk of unexpected inflation. Long-term treasuries normally offer higher yields to compensate investors for these risks. As a result, I chose to use the yield on the 10-year Treasury bond because it balances the short comings of the other two alternatives. For my analysis, I chose 4.61% for my historic analysis, and 2.57% for my future analysis.⁶

Q. PLEASE EXPLAIN HOW YOU DETERMINED THE RETURN ON THE OVERALL STOCK MARKET, AS EMPLOYED IN YOUR CAPM ANALYSIS.

A. To arrive at a representative expected return on the overall stock market, I surveyed three sources. Value Line expects its universe of 1,500 stocks to have an average yearly return

⁵ Attachment ES-7

⁶ Attachment ES-8

of 12.97% over the next 3 to 5 years, based on a forecasted dividend yield of 2.30% and a yearly index appreciation of 50%. Yahoo! Finance expects the S&P 500 index to have an average yearly return of 11.40% over the next five years, based upon a forecasted dividend yield of 2.30% and an expected increase in the S&P 500 index of 9.10%. A historical return for the S&P Composite Index is routinely used as a benchmark for the expected return on the overall stock market. This component can vary widely depending on the historic period used.

Q. EXPLAIN THE RANGE OF EXPECTED RETURN ON THE OVERALL STOCK MARKET YOU CALCULATED USING THE HISTORICAL RETURN FOR THE S&P COMPOSITE INDEX.

A. Using the geometric mean of historic returns, I calculated the following results:

<u>Time Period</u>	<u>Return</u>
5 Years	12.57%
10 Years	7.30%
20 Years	8.19%
40 Years	11.34%
<u>86 Years</u>	<u>10.02%</u>
Average	9.88%

Source: Attachment ES-9

Q. WHY HAVE YOU SELECTED THESE TIME PERIODS?

A. I have selected the above time periods to represent a variety of investor experiences and time horizons. The 86-year time period represents the longest measurable time period available for the S&P Composite Index. The 40 and 20-year time periods coincide with the average useful lives of a utility's assets. The 10-year time period corresponds with the Treasury Bond that I have employed. The 5-year time period corresponds with time period the DCF growth rates are projected.

Q. WHAT ARE THE COST OF EQUITY RESULTS FROM YOUR FORECASTED AND HISTORIC CAPM ANALYSES?

A. The results of these two analyses are as follows:

CAPM cost of equity

Forecasted	9.42%
Historic	8.37%

Source: Attachment ES-10

Q. HOW DID YOU INCORPORATE THESE RESULTS INTO YOUR OVERALL COST OF EQUITY?

A. I have included the results of my CAPM analysis in my overall cost of equity calculation only as a comparison to my DCF result. The DCF model measures the cost of equity directly by measuring the discounted present value of future cash flows of the company. It is these cash flows that actually pay dividends to shareholders.

C. SIZE

**Q. MR. SCHEIG MAKES AN ADJUSTMENT TO HIS COST OF EQUITY FOR SIZE.
DO YOU AGREE WITH THIS ADJUSTMENT?**

A. No.

Q. PLEASE EXPLAIN.

A. First, although the scale of operations for water utility distribution systems can vary, the basic nature of a water utility's business does not change with respect to scale. A water utility's core business is to provide water to its customers, regardless of size. Therefore, it must construct and maintain its distribution system, provide administrative functions, treat the water, etc. This business model remains essentially the same for any size utility, along with the fact that water utilities operate as monopolies with a captive customer base in the areas they serve.

Second, water utilities are regulated, and the utility's earnings are set by the ratemaking process. The utilities are also subject to regulatory oversight.

Finally, while Mr. Scheig presented numerous articles regarding the size premium, none are specific to the utility industry. However, there are articles examining the size premium in the utility industry. Wallace Davidson states:

[O]ur results suggest that neither large nor small utilities merit a premium because of their size. The implications of our findings for regulatory officials for regulatory accounting standard-setters are straightforward: we find no evidence among the electric utility industry...to suggest that a utility's cost of capital or its

allowable ARR should be adjusted to reflect firm size.⁷

In research also specific to public utilities, Professor Annie Wong states:

[G]iven firm size, utility stocks are consistently less risky than industrial stocks. Second, industrial betas tend to decrease with firm size, but utility betas do not. These findings may be attributed to the fact that all public utilities operate in an environment with regional monopolistic power and regulated financial structure. As a result, the business and financial risks are very similar among the utilities regardless of their size. Therefore, utility betas would not necessarily be related to firm size.

She then concludes:

The object of this study is to examine if the size effect exists in the utility industry. After controlling for equity values, there is some weak evidence that firm size is a missing factor from the CAPM for industrial but not utility stocks. This implies that although the size phenomenon has been strongly documented for industrials, findings suggest that there is no need to adjust for the firm size in utility regulation.⁸

For all these reasons, I have not included a size premium in this case.

Q. DO YOU AGREE WITH MR. SCHEIG'S SUMMARY RESULT OF 12.1% RETURN ON EQUITY?

A. No. Mr. Scheig presented only the median result, which is the middle number in a set of numbers. However, the other measure of central tendency, which he did not present, is the

⁷ Wallace Davidson III, Kenneth Ferris, and William Reichenstein, A Note on the Relationship Between Firm Size and Return in the Electric Utility Industry, *Journal of Accounting, Auditing, and Finance* Vol. 8, Issue 3 (Summer 1993).

⁸ Annie Wong, Utility Stocks and the Size Effect: An Empirical Analysis, *Journal of the Midwest Finance Association* (1993), p.98.

average, which will give the arithmetic average of a set of numbers. Using the average, Mr.

Scheig's equity result would be 11.71%.

**Q. WHAT IS MR. SCHEIG'S RESULTING RETURN ON EQUITY AFTER ADJUSTING
FOR SIZE?**

A. After removing the 3% size premium, Mr. Scheig's return is 8.71% - 9.1%, which is in-line
with Staff's recommendation.

**Q. DO YOU HAVE ANY OTHER COMMENTS REGARDING THE RETURN ON
EQUITY RECOMMENDATIONS IN THIS CASE?**

A. Yes. Mr. Scheig's return on equity determination in this case should be given little weight.
He has incorrectly used several different barometer groups in different analyses, including
using a company subject to competition, he has used incomparable entities such as electric
and natural gas to recommend an equity return, and has included an improper size
adjustment. For these reasons, Mr. Scheig's return is not comparable to the return a utility
such as Quadvest would expect to earn.

X. SUMMARY

Q. WHAT IS STAFF'S RECOMMENDED RETURN ON EQUITY?

A. Staff recommends a return on equity of 8.90%.

Q. PLEASE EXPLAIN WHY YOUR RECOMMENDATION IS REASONABLE AND

Direct Testimony of Emily Sears

May 2016

MORE APPROPRIATE THAN QUADVEST'S REQUESTED RETURN ON EQUITY.

A. Staff's recommendation is more appropriate for this case, as it is consistent with the principles of determining a fair rate of return, and is more reflective of what a utility such as Quadvest would expect to earn.

Q. WHAT IS STAFF'S OVERALL RECOMMENDED RETURN?

A. Staff recommends an overall rate of return, to be applied to rate base, of 6.94%.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes. I reserve the right to supplement this testimony during the course of the proceeding as new evidence is presented.

Emily Sears

Professional Experience

- **Public Utility Commission of Texas**
Financial Analyst
Water Utilities Division
January 2015 - Present
- **Commonwealth of Pennsylvania, Public Utility Commission**
Fixed Utility Financial Analyst
Bureau of Investigation and Enforcement
May 2009 – December 2014
- **Commonwealth of Pennsylvania, Public Utility Commission**
Fixed Utility Financial Analyst
Bureau of Fixed Utility Services
April 2008 – May 2009
- **Nationwide Insurance Company**
Personal Lines Underwriting Screener
October 2004 – May 2007

Education

- **University of Pittsburgh, College of Business Administration**
Bachelors of Science in Business Administration
Major – Finance
August 2004
- **Annual Regulatory Studies Program: Camp NARUC**
Week 1-Introduction to Regulation
August 2008
- **Pennsylvania Public Utility Commission Rate Case Training**
December 2008
- **Society of Utility and Regulatory Financial Analysts**
Certified Rate of Return Analyst
June 2010

Presentations

- **Pennsylvania Public Utility Commission Rate Case Training**
Presented on Rate of Return/Return on Equity
October 2012, September 2014

TESTIMONY SUBMITTED:

I have testified and/or submitted testimony in the following proceedings before the Pennsylvania Public Utility Commission:

- Duquesne Light Company, Docket No. M-2009-2093217
- West Penn Power Company d/b/a Allegheny Power, Docket No. M-2009-2093218
- Duquesne Light Company, Docket No. M-2009-2123948
- West Penn Power Company d/b/a Allegheny Power, Docket No. M-2009-2123951
- Utilities, Inc. – Westgate, Docket No. R-2009-2117389
- Utilities, Inc. of Pennsylvania, Docket No. R-2009-2117402
- PECO Energy Company - Electric Division, Docket No. P-2009-2143607
- PECO Energy Company – Gas Division, Docket No. P-2009-2143588
- Philadelphia Gas Works, Docket No. R-2009-2139884
- York Water Company, Docket No. R-2010-2157140
- City of Lancaster, Docket No. R-2010-2179103
- Columbia Gas of Pennsylvania, Inc., Docket No. R-2010-2215623
- CMV Sewage, Inc., Docket No. R-2011-2218562
- Pennsylvania American Water Company, Docket No. R-2011-2232243
- UGI Penn Natural Gas, Docket No. R-2011-2238943
- Aqua Pennsylvania, Inc., Docket No. R-2011-2267958
- Equitable Gas Company, LLC, Docket No. R-2012-2287044
- Peoples Natural Gas Company, LLC, Docket No. R-2012-2285985
- PPL Electric Utilities Corporation, Docket No. R-2012-2290597
- Columbia Gas of Pennsylvania, Inc., Docket No. R- 2012-2321748
- The City of Lancaster – Sewer Fund, Docket No. R-2012-2310366
- Columbia Gas of Pennsylvania, Inc., Docket No. R-2012-2321748 and M-2012-2323645
- UGI Penn Natural Gas, Docket No. R-2013-2361763
- City of DuBois – Bureau of Water, Docket No. R-2013-2350509
- Pennsylvania-American Water Company, Docket No. R-2013-2355276
- Duquesne Light Company, Docket No. R-2013-2372129
- Pike County Light and Power Company, Gas Division, Docket No. R-2013-2397353
- Pike County Light and Power Company, Electric Division, Docket No. R-2013-2397237
- UGI Penn Natural Gas, Docket No. R-2014-2420273
- Emporium Water Company, Docket No. R-2014-2402324
- City of Lancaster – Water Fund, Docket No. R-2014-2418872
- Peoples TWP, LLC, R-2014-2429613
- Peoples Natural Gas Company, LLC, R-2014-2429606

I have testified and/or submitted testimony in the following proceedings before the Public Utility Commission of Texas:

- City of Austin-Wholesale Rate Appeal, Docket No. 42857

Summary of Cost of Capital

Type of Capital	Ratio	Cost Rate	Weighted Cost
Long term Debt	48.97%	4.80%	2.35%
Common Equity	51.03%	8.90%	4.54%
Total	100%		6.89%

Summary of Cost of Capital

ES-3
Page 2 of 2

Type of Capital	2015 Ratio	2014 Ratio	2013 Ratio	2012 Ratio	2011 Ratio
American States Water Co					
Long term Debt	41.10%	39.10%	39.80%	42.20%	45.40%
Common Equity	58.90%	60.90%	60.20%	57.80%	54.60%
	100.00%	100.00%	100.00%	100.00%	100.00%
American Water Works					
Long term Debt	53.80%	52.60%	52.40%	53.90%	55.80%
Common Equity	46.20%	47.40%	47.60%	46.10%	44.20%
	100.00%	100.00%	100.00%	100.00%	100.00%
Aqua America					
Long term Debt	50.30%	48.50%	48.90%	52.70%	52.70%
Common Equity	49.70%	51.50%	51.10%	47.30%	47.30%
	100.00%	100.00%	100.00%	100.00%	100.00%
California Water Service Group					
Long term Debt	44.40%	40.10%	41.60%	47.80%	51.70%
Common Equity	55.60%	59.90%	58.40%	52.20%	48.30%
	100.00%	100.00%	100.00%	100.00%	100.00%
Connecticut Water Service					
Long term Debt	44.20%	45.90%	47.10%	49.20%	53.50%
Common Equity	55.80%	54.10%	52.90%	50.80%	46.50%
	100.00%	100.00%	100.00%	100.00%	100.00%
Middlesex Water					
Long term Debt	40.20%	41.20%	41.30%	42.60%	43.40%
Common Equity	59.80%	58.80%	58.70%	57.40%	56.60%
	100.00%	100.00%	100.00%	100.00%	100.00%
SJW Corp.					
Long term Debt	49.80%	51.60%	51.10%	55.00%	56.60%
Common Equity	50.20%	48.40%	48.90%	45.00%	43.40%
	100.00%	100.00%	100.00%	100.00%	100.00%
York Water					
Long term Debt	44.50%	44.80%	45.10%	46.00%	47.10%
Common Equity	55.50%	55.20%	54.90%	54.00%	52.90%
	100.00%	100.00%	100.00%	100.00%	100.00%
5 Year Average					
Long term Debt	47.38%				
Common Equity	52.63%				

Source: Value Line

Dividend Yields of Eight Company Peer Group														
	American States Water Co	American Water Works	Aqua America	California Water Service Group	Connecticut Water Service	Middlesex Water	SJW Corp.	York Water						
Average														
Symbol	AWR	AWK	WTR	CWT	CTWS	MSEX	SJW	YORW						
Div	0.97	1.57	0.80	0.71	1.30	0.84	0.85	0.66						
52 wk low	35.80	48.36	24.40	19.55	33.15	21.24	27.54	19.69						
52 wk high	47.24	70.82	32.44	27.44	45.66	33.21	37.86	30.99						
Spot Price	39.06	70.1	31.47	27.28	44.75	32.97	36.10	30.30						
Spot Div Yield	2.48	2.24	2.54	2.60	2.91	2.55	2.35	2.18						
52 wk Div Yield	2.80%	2.34	2.63	3.02	3.30	3.09	2.60	2.60						
Average	2.41%	2.44%	2.68%	2.81%	3.10%	2.82%	2.48%	2.39%						

Source: Barrons April 12, 2016
Value Line April 15, 2016

Five Year Growth Estimate Forecast for Eight Company Barometer Group

<u>Company</u>	<u>Symbol</u>	Yahoo! Finance	Zacks	Morning star	Value Line	Average
American States Water Co	AWR	3.85%	3.80%	N/A	6.00%	4.55%
American Water Works	AWK	7.60%	7.40%	7.10%	8.00%	7.53%
Aqua America	WTR	5.85%	6.20%	N/A	7.00%	6.35%
California Water Service Group	CWT	9.05%	9.10%	N/A	6.00%	8.05%
Connecticut Water Service	CTWS	5.00%	5.00%	N/A	4.50%	4.83%
Middlesex Water	MSEX	2.70%	N/A	N/A	3.50%	3.10%
SJW Corp.	SJW	14.00%	N/A	14.00%	1.50%	9.83%
York Water	YORW	4.90%	N/A	N/A	6.00%	5.45%
						6.21%

Source:
Internet

April 12, 2016

Expected Market Cost Rate of Equity
Using Data for the Barometer Group of Eight Water Companies
5 Year Forecasted Growth Rates

<u>Time Period</u>		Adjusted Dividend Yield(1) (1)	Growth Rate (2)	Expected Rate of Return (3=1+2)
(1)	52 Week Average Ending: April 12, 2016	2.80%	6.21%	9.01%
(2)	Spot Price Ending: April 12, 2016	<u>2.48%</u>	<u>6.21%</u>	<u>8.69%</u>
(3)	Average:	<u>2.64%</u>	<u>6.21%</u>	<u>8.85%</u>

Sources: Value Line April 15, 2016
Barrons April 12, 2016

ES-7

<u>Company</u>	<u>Beta</u>
American States Water Co	0.75
American Water Works	0.70
Aqua America	0.75
California Water Service Group	0.75
Connecticut Water Service	0.60
Middlesex Water	0.70
SJW Corp.	0.75
York Water	0.70
Average beta for CAPM	0.71

Source:
Value Line

ES-8
Future

Risk Free Rate	
<u>Treasury note 10-yr Note</u>	<u>Yield</u>
4Q 2015	2.19
1Q 2016	2.00
2Q 2016	2.10
3Q 2016	2.30
4Q 3016	2.50
1Q 2017	2.70
2Q 2017	2.80
2017-2021	4.00
Average	<u><u>2.57</u></u>

Source:
Blue Chip

March 1, 2016

ES-8
Historic

10-year Treasury yields
61 years 6.034458
40 years 6.768479
20 years 4.377333
10 years 3.332833
5 years 2.538833
4.610387

Source FRB H.15 Release

Required Rate of Return on Market as a Whole Forecasted

	Dividend <u>Yield</u>	+	Growth <u>Rate</u>	=	Expected Market <u>Return</u>
Value Line Estimate	2.30%		10.67%	(a)	12.97%
S&P 500	2.30%	(b)	9.10%		11.40%
Average Expected Market Return				=	<u>12.18%</u>

- (a) $((1+0.50)^{.25} - 1)$ Value Line forecast for the 3 to 5 year index appreciation is 50%
 (b) S&P 500 multiplied by half the growth rate

Required Rate of Return on Market as a Whole Historic

	<u>Expected Market Return</u>
5 yr S&P Composite Index Historical Return	12.57%
10 yr S&P Composite Index Historical Return	7.30%
20 yr S&P Composite Index Historical Return	8.19%
40 yr S&P Composite Index Historical Return	11.34%
85 yr S&P Composite Index Historical Return	10.02%
Average Expected Market Return =	9.88%

CAPM with forecasted return

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

$$Re = Rf + Be(Rm - Rf)$$

$$Rf = 2.5738$$

$$Rm = 12.1841$$

$$Be = 0.7125$$

$$Re = \underline{\underline{9.42}}$$

Sources: Value Line April 15, 2016
Blue Chip March 1, 2016
ES-9

CAPM with historical return

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

$$Re = Rf + Be(Rm - Rf)$$

$$Rf = 4.6104$$

$$Rm = 9.8842$$

$$Be = 0.7125$$

$$Re = \underline{\underline{8.37}}$$

Sources: Value Line April 15, 2016
FRB H.15 Release
ES-9