

ARIZONA WATER COMPANY

DOCKET NO. W-01445A-08-0440

**DIRECT TESTIMONY
ON COST OF CAPITAL**

OF

WILLIAM A. RIGSBY, CRRA

ON BEHALF OF

THE

RESIDENTIAL UTILITY CONSUMER OFFICE

JUNE 12, 2009

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1 **INTRODUCTION**

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

3 A. My Name is William A. Rigsby. I am a Public Utilities Analyst V employed
4 by the Residential Utility Consumer Office (“RUCO”) located at 1110 W.
5 Washington, Suite 220, Phoenix, Arizona 85007.

6
7 Q. Please describe your qualifications in the field of utilities regulation and
8 your educational background.

9 A. I have been involved with utilities regulation in Arizona since 1994. During
10 that period of time I have worked as a utilities rate analyst for both the
11 Arizona Corporation Commission (“ACC” or “Commission”) and for RUCO.
12 I hold a Bachelor of Science degree in the field of finance from Arizona
13 State University and a Master of Business Administration degree, with an
14 emphasis in accounting, from the University of Phoenix. I have been
15 awarded the professional designation, Certified Rate of Return Analyst
16 (“CRRRA”) by the Society of Utility and Regulatory Financial Analysts
17 (“SURFA”). The CRRRA designation is awarded based upon experience
18 and the successful completion of a written examination. Appendix I, which
19 is attached to my direct testimony on operating income further describes
20 my educational background and also includes a list of the rate cases and
21 regulatory matters that I have been involved with.

22

23

1 Q. What is the purpose of your testimony?

2 A. The purpose of my testimony is to present recommendations that are
3 based on my analysis of Arizona Water Company's ("AWC" or the
4 "Company") application for a permanent rate increase ("Application") for
5 the Company's statewide Water operations. AWC filed the Application
6 with the Arizona Corporation Commission ("ACC" or "Commission") on
7 August 22, 2008. The Company has chosen the operating period ended
8 December 31, 2007 for the test year ("Test Year") in this proceeding.
9

10 Q. Please explain your role in RUCO's analysis of AWC's Application.

11 A. I reviewed AWC's Application and performed a cost of capital analysis to
12 determine a fair rate of return on the Company's invested capital. In
13 addition to my recommended capital structure, my direct testimony will
14 present my recommended costs of common equity and my recommended
15 cost of long-term debt (AWC has no preferred stock). The
16 recommendations contained in this testimony are based on information
17 obtained from Company responses to data requests, the Company's
18 Application and from market-based research that I conducted during my
19 analysis.
20
21

22 ...

23

1 Q. Were you also responsible for conducting an analysis on the Company's
2 proposed revenue level, rate base and rate design?

3 A. I have filed, under separate cover, direct testimony on the operating
4 income issues associated with AWC's application. RUCO witness
5 Timothy J. Coley will provide direct testimony on the rate base issues in
6 the case and RUCO witness Rodney L. Moore will file direct testimony on
7 RUCO's recommended rate design on Friday, June 26, 2009.

8
9 Q. What areas will you address in your testimony?

10 A. I will address the cost of capital issues associated with the case.

11

12 Q. Please identify the exhibits that you are sponsoring.

13 A. I am sponsoring Schedules WAR-1 through WAR-9.

14

15 **SUMMARY OF TESTIMONY AND RECOMMENDATIONS**

16 Q. Briefly summarize how your cost of capital testimony is organized.

17 A. My cost of capital testimony is organized into seven sections. First, the
18 introduction I have just presented and second, the summary of my
19 testimony that I am about to give. Third, I will present the findings of my
20 cost of equity capital analysis, which utilized both the discounted cash flow
21 ("DCF") method, and the capital asset pricing model ("CAPM"). These are
22 the two methods that RUCO and ACC Staff have consistently used for
23 calculating the cost of equity capital in rate case proceedings in the past,

1 and are the methodologies that the ACC has given the most weight to in
2 setting allowed rates of returns for utilities that operate in the Arizona
3 jurisdiction. In this third section I will also provide a brief overview of the
4 current economic climate within which AWC is operating. Fourth, I will
5 discuss my recommended cost of long-term debt. Fifth, I will compare my
6 recommended capital structure with the Company-proposed capital
7 structure. Sixth, I will explain my weighted cost of capital recommendation
8 and seventh, I will comment on AWC's cost of capital testimony.
9 Schedules WAR-1 through WAR-9 will provide support for my cost of
10 capital analysis.

11
12 Q. Please summarize the recommendations and adjustments that you will
13 address in your testimony.

14 A. Based on the results of my analysis of AWC, I am making the following
15 recommendations:

16
17 Cost of Equity Capital – I am recommending an 8.33 percent cost of equity
18 capital. This 8.33 percent figure is based on the results that I obtained in
19 my cost of equity analysis, which employed both the DCF and CAPM
20 methodologies. My 8.33 percent cost of equity capital is 407 basis points
21 lower than the 12.40 percent cost of equity capital being proposed by the
22 Company.

23

1 Cost of Long-Term Debt – I am recommending that the Commission adopt
2 the Company-proposed 7.31 percent cost of long-term debt. This is based
3 on my review of the costs associated with AWC's various bond issuances.

4
5 Capital Structure – I am recommending that the Commission adopt the
6 Company-proposed capital structure comprised of 50.76 percent long-
7 term debt and 49.24 percent common equity.

8
9 Weighted Average Cost of Capital – Based on the results of my
10 recommended capital structure, cost of common equity, and long-term
11 debt analyses, I am recommending a 7.81 percent weighted average cost
12 of capital for AWC. This figure represents the weighted cost of my
13 recommended costs of long-term debt and common equity. My
14 recommended weighted average cost of capital is 200 basis points lower
15 than the 9.81 percent weighted average cost of capital being proposed by
16 the Company.

17
18 Q. Why do you believe that your recommended 7.81 percent weighted
19 average cost of capital is an appropriate rate of return for AWC to earn on
20 its invested capital?

21 A. The 7.81 percent weighted average cost of capital figure that I am
22 recommending meets the criteria established in the landmark Supreme
23 Court cases of Bluefield Water Works & Improvement Co. v. Public

1 Service Commission of West Virginia (262 U.S. 679, 1923) and Federal
2 Power Commission v. Hope Natural Gas Company (320 U.S. 391, 1944).

3 Simply stated, these two cases affirmed that a public utility that is
4 efficiently and economically managed is entitled to a return on investment
5 that instills confidence in its financial soundness, allows the utility to attract
6 capital, and also allows the utility to perform its duty to provide service to
7 ratepayers. The rate of return adopted for the utility should also be
8 comparable to a return that investors would expect to receive from
9 investments with similar risk.

10 The Hope decision allows for the rate of return to cover both the operating
11 expenses and the “capital costs of the business” which includes interest
12 on debt and dividend payment to shareholders. This is predicated on the
13 belief that, in the long run, a company that cannot meet its debt obligations
14 and provide its shareholders with an adequate rate of return will not
15 continue to supply adequate public utility service to ratepayers.

16
17 Q. Do the Bluefield and Hope decisions indicate that a rate of return sufficient
18 to cover all operating and capital costs is guaranteed?

19 A. No. Neither case *guarantees* a rate of return on utility investment. What
20 the Bluefield and Hope decisions *do allow*, is for a utility to be provided
21 with the *opportunity* to earn a reasonable rate of return on its investment.
22 That is to say that a utility, such as AWC, is provided with the opportunity
23 to earn an appropriate rate of return if the Company's management

1 exercises good judgment and manages its assets and resources in a
2 manner that is both prudent and economically efficient.

3

4 **COST OF EQUITY CAPITAL**

5 Q. What is your final recommended cost of equity capital for AWC?

6 A. I am recommending a cost of equity of 8.33 percent. My recommended
7 8.33 percent cost of equity figure represents the 8.33 percent mean
8 average of the results of my DCF and CAPM analyses, which utilized both
9 a sample of publicly traded water providers and a sample of publicly
10 traded natural gas local distribution companies ("LDC"). This calculation is
11 exhibited on page 3 of my Schedule WAR-1.

12

13 **Discounted Cash Flow (DCF) Method**

14 Q. Please explain the DCF method that you used to estimate AWC's cost of
15 equity capital.

16 A. The DCF method employs a stock valuation model known as the constant
17 growth valuation model, that bears the name of Dr. Myron J. Gordon (i.e.
18 the Gordon model), the professor of finance who was responsible for its
19 development. Simply stated, the DCF model is based on the premise that
20 the current price of a given share of common stock is determined by the
21 present value of all of the future cash flows that will be generated by that
22 share of common stock. The rate that is used to discount these cash
23 flows back to their present value is often referred to as the investor's cost

1 of capital (i.e. the cost at which an investor is willing to forego other
2 investments in favor of the one that he or she has chosen).

3 Another way of looking at the investor's cost of capital is to consider it from
4 the standpoint of a company that is offering its shares of stock to the
5 investing public. In order to raise capital, through the sale of common
6 stock, a company must provide a required rate of return on its stock that
7 will attract investors to commit funds to that particular investment. In this
8 respect, the terms "cost of capital" and "investor's required return" are one
9 in the same. For common stock, this required return is a function of the
10 dividend that is paid on the stock. The investor's required rate of return
11 can be expressed as the percentage of the dividend that is paid on the
12 stock (dividend yield) plus an expected rate of future dividend growth.
13 This is illustrated in mathematical terms by the following formula:

$$k = \frac{D_1}{P_0} + g$$

14 where: k = the required return (cost of equity, equity capitalization rate),

15 $\frac{D_1}{P_0}$ = the dividend yield of a given share of stock calculated

16 by dividing the expected dividend by the current market

17 price of the given share of stock, and

18 g = the expected rate of future dividend growth
19

1 This formula is the basis for the standard growth valuation model that I
2 used to determine AWC's cost of equity capital.

3

4 Q. In determining the rate of future dividend growth for AWC, what
5 assumptions did you make?

6 A. There are two primary assumptions regarding dividend growth that must
7 be made when using the DCF method. First, dividends will grow by a
8 constant rate into perpetuity, and second, the dividend payout ratio will
9 remain at a constant rate. Both of these assumptions are predicated on
10 the traditional DCF model's basic underlying assumption that a company's
11 earnings, dividends, book value and share growth all increase at the same
12 constant rate of growth into infinity. Given these assumptions, if the
13 dividend payout ratio remains constant, so does the earnings retention
14 ratio (the percentage of earnings that are retained by the company as
15 opposed to being paid out in dividends). This being the case, a
16 company's dividend growth can be measured by multiplying its retention
17 ratio (1 - dividend payout ratio) by its book return on equity. This can be
18 stated as $g = b \times r$.

19

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1 Q. Would you please provide an example that will illustrate the relationship
2 that earnings, the dividend payout ratio and book value have with dividend
3 growth?

4 A. RUCO consultant Stephen Hill illustrated this relationship in a Citizens
5 Utilities Company 1993 rate case by using a hypothetical utility.¹

6 Table I

7		<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Growth</u>
8	Book Value	\$10.00	\$10.40	\$10.82	\$11.25	\$11.70	4.00%
9	Equity Return	10%	10%	10%	10%	10%	N/A
10	Earnings/Sh.	\$1.00	\$1.04	\$1.082	\$1.125	\$1.170	4.00%
11	Payout Ratio	0.60	0.60	0.60	0.60	0.60	N/A
12	Dividend/Sh	\$0.60	\$0.624	\$0.649	\$0.675	\$0.702	4.00%

13

14 Table I of Mr. Hill's illustration presents data for a five-year period on his
15 hypothetical utility. In Year 1, the utility had a common equity or book
16 value of \$10.00 per share, an investor-expected equity return of ten
17 percent, and a dividend payout ratio of sixty percent. This results in
18 earnings per share of \$1.00 (\$10.00 book value x 10 percent equity return)
19 and a dividend of \$0.60 (\$1.00 earnings/sh. x 0.60 payout ratio) during
20 Year 1. Because forty percent (1 - 0.60 payout ratio) of the utility's
21 earnings are retained as opposed to being paid out to investors, book
22 value increases to \$10.40 in Year 2 of Mr. Hill's illustration. Table I

¹ Citizens Utilities Company, Arizona Gas Division, Docket No. E-1032-93-111, Prepared Testimony, dated December 10, 1993, p. 25.

1 presents the results of this continuing scenario over the remaining five-
2 year period.

3 The results displayed in Table I demonstrate that under "steady-state" (i.e.
4 constant) conditions, book value, earnings and dividends all grow at the
5 same constant rate. The table further illustrates that the dividend growth
6 rate, as discussed earlier, is a function of (1) the internally generated
7 funds or earnings that are retained by a company to become new equity,
8 and (2) the return that an investor earns on that new equity. The DCF
9 dividend growth rate, expressed as $g = b \times r$, is also referred to as the
10 internal or sustainable growth rate.

11

12 Q. If earnings and dividends both grow at the same rate as book value,
13 shouldn't that rate be the sole factor in determining the DCF growth rate?

14 A. No. Possible changes in the expected rate of return on either common
15 equity or the dividend payout ratio make earnings and dividend growth by
16 themselves unreliable. This can be seen in the continuation of Mr. Hill's
17 illustration on a hypothetical utility.

18

Table II

19

20

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23

24

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Growth</u>
Book Value	\$10.00	\$10.40	\$10.82	\$11.47	\$12.158	5.00%
Equity Return	10%	10%	15%	15%	15%	10.67%
Earnings/Sh	\$1.00	\$1.04	\$1.623	\$1.720	\$1.824	16.20%
Payout Ratio	0.60	0.60	0.60	0.60	0.60	N/A
Dividend/Sh	\$0.60	\$0.624	\$0.974	\$1.032	\$1.094	16.20%

1 In the example displayed in Table II, a sustainable growth rate of four
2 percent² exists in Year 1 and Year 2 (as in the prior example). In Year 3,
3 Year 4 and Year 5, however, the sustainable growth rate increases to six
4 percent.³ If the hypothetical utility in Mr. Hill's illustration were expected to
5 earn a fifteen-percent return on common equity on a continuing basis,
6 then a six percent long-term rate of growth would be reasonable.
7 However, the compound growth rate for earnings and dividends, displayed
8 in the last column, is 16.20 percent. If this rate was to be used in the
9 DCF model, the utility's return on common equity would be expected to
10 increase by fifty percent every five years, [(15 percent ÷ 10 percent) – 1].
11 This is clearly an unrealistic expectation.

12 Although it is not illustrated in Mr. Hill's hypothetical example, a change in
13 only the dividend payout ratio will eventually result in a utility paying out
14 more in dividends than it earns. While it is not uncommon for a utility in
15 the real world to have a dividend payout ratio that exceeds one hundred
16 percent on occasion, it would be unrealistic to expect the practice to
17 continue over a sustained long-term period of time.

18

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² [(Year 2 Earnings/Sh – Year 1 Earnings/Sh) ÷ Year 1 Earnings/Sh] = [(\$1.04 - \$1.00) ÷ \$1.00] = [\$0.04 ÷ \$1.00] = 4.00%

³ [(1 – Payout Ratio) x Rate of Return] = [(1 - 0.60) x 15.00%] = 0.40 x 15.00% = 6.00%

1 Q. Other than the retention of internally generated funds, as illustrated in Mr.
2 Hill's hypothetical example, are there any other sources of new equity
3 capital that can influence an investor's growth expectations for a given
4 company?

5 A. Yes, a company can raise new equity capital externally. The best
6 example of external funding would be the sale of new shares of common
7 stock. This would create additional equity for the issuer and is often the
8 case with utilities that are either in the process of acquiring smaller
9 systems or providing service to rapidly growing areas.

10

11 Q. How does external equity financing influence the growth expectations held
12 by investors?

13 A. Rational investors will put their available funds into investments that will
14 either meet or exceed their given cost of capital (i.e. the return earned on
15 their investment). In the case of a utility, the book value of a company's
16 stock usually mirrors the equity portion of its rate base (the utility's earning
17 base). Because regulators allow utilities the opportunity to earn a
18 reasonable rate of return on rate base, an investor would take into
19 consideration the effect that a change in book value would have on the
20 rate of return that he or she would expect the utility to earn. If an investor
21 believes that a utility's book value (i.e. the utility's earning base) will
22 increase, then he or she would expect the return on the utility's common
23 stock to increase. If this positive trend in book value continues over an

1 extended period of time, an investor would have a reasonable expectation
2 for sustained long-term growth.

3

4 Q. Please provide an example of how external financing affects a utility's
5 book value of equity.

6 A. As I explained earlier, one way that a utility can increase its equity is by
7 selling new shares of common stock on the open market. If these new
8 shares are purchased at prices that are higher than those shares sold
9 previously, the utility's book value per share will increase in value. This
10 would increase both the earnings base of the utility and the earnings
11 expectations of investors. However, if new shares sold at a price below
12 the pre-sale book value per share, the after-sale book value per share
13 declines in value. If this downward trend continues over time, investors
14 might view this as a decline in the utility's sustainable growth rate and will
15 have lower expectations regarding growth. Using this same logic, if a new
16 stock issue sells at a price per share that is the same as the pre-sale book
17 value per share, there would be no impact on either the utility's earnings
18 base or investor expectations.

19

20

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22 ...

23

1 Q. Please explain how the external component of the DCF growth rate is
2 determined.

3 A. In his book, *The Cost of Capital to a Public Utility*,⁴ Dr. Gordon (the
4 individual responsible for the development of the DCF or constant growth
5 model) identified a growth rate that includes both expected internal and
6 external financing components. The mathematical expression for Dr.
7 Gordon's growth rate is as follows:

8
9
$$g = (br) + (sv)$$

10 where: g = DCF expected growth rate,
11 b = the earnings retention ratio,
12 r = the return on common equity,
13 s = the fraction of new common stock sold that
14 accrues to a current shareholder, and
15 v = funds raised from the sale of stock as a fraction
16 of existing equity.

17 and $v = 1 - [(BV) \div (MP)]$
18 where: BV = book value per share of common stock, and
19 MP = the market price per share of common stock.

20
21 ...
22

⁴ Gordon, M.J., *The Cost of Capital to a Public Utility*, East Lansing, MI: Michigan State University, 1974, pp. 30-33.

1 Q. Did you include the effect of external equity financing on long-term growth
2 rate expectations in your analysis of expected dividend growth for the DCF
3 model?

4 A. Yes. The external growth rate estimate (sv) is displayed on Page 1 of
5 Schedule WAR-4, where it is added to the internal growth rate estimate
6 (br) to arrive at a final sustainable growth rate estimate.

7

8 Q. Please explain why your calculation of external growth on page 2 of
9 Schedule WAR-4, is the current market-to-book ratio averaged with 1.0 in
10 the equation $[(M \div B) + 1] \div 2$.

11 A. The market price of a utility's common stock will tend to move toward book
12 value, or a market-to-book ratio of 1.0, if regulators allow a rate of return
13 that is equal to the cost of capital (one of the desired effects of regulation).
14 As a result of this situation, I used $[(M \div B) + 1] \div 2$ as opposed to the
15 current market-to-book ratio by itself to represent investor's expectations
16 that, in the future, a given utility will achieve a market-to-book ratio of 1.0.

17

18 Q. Has the Commission ever adopted a cost of capital estimate that included
19 this assumption?

20 A. Yes. In a prior Southwest Gas Corporation rate case⁵, the Commission
21 adopted the recommendations of ACC Staff's cost of capital witness,
22 Stephen Hill, who I noted earlier in my testimony. In that case, Mr. Hill

⁵ Decision No. 68487, Dated February 23, 2006 (Docket No. G-01551A-04-0876)

1 used the same methods that I have used in arriving at the inputs for the
2 DCF model. His final recommendation for Southwest Gas Corporation
3 was largely based on the results of his DCF analysis, which incorporated
4 the same valid market-to-book ratio assumption that I have used
5 consistently in the DCF model as a cost of capital witness for RUCO.

6

7 Q. How did you develop your dividend growth rate estimate?

8 A. I analyzed data on two separate proxy groups. A water company proxy
9 group comprised of three publicly traded water companies and a natural
10 gas proxy group consisting of ten natural gas local distribution companies
11 (“LDC”) that have similar operating characteristics to water providers.

12

13 Q. Why did you use a proxy group methodology as opposed to a direct
14 analysis of AWC?

15 A. One of the problems in performing this type of analysis is that the utility
16 applying for a rate increase is not always a publicly traded company, as is
17 the case with AWC itself. Consequently it was necessary to create a
18 proxy by analyzing publicly traded water companies and LDC’s with
19 similar risk characteristics.

20

21 Q. Are there any other advantages to the use of a proxy?

22 A. Yes. As I noted earlier, the U.S. Supreme Court ruled in the Hope
23 decision that a utility is entitled to earn a rate of return that is

1 commensurate with the returns on investments of other firms with
2 comparable risk. The proxy technique that I have used derives that rate of
3 return. One other advantage to using a sample of companies is that it
4 reduces the possible impact that any undetected biases, anomalies, or
5 measurement errors may have on the DCF growth estimate.

6

7 Q. What criteria did you use in selecting the companies that make up your
8 water company proxy for AWC?

9 A. The three water companies used in the proxy are publicly traded on the
10 New York Stock Exchange ("NYSE"). All three water companies are
11 followed by The Value Line Investment Survey ("Value Line") and are the
12 same companies that comprise Value Line's large capitalization Water
13 Utility Industry segment of the U.S. economy (Attachment A contains
14 Value Line's April 24, 2009 update of the water utility industry and
15 evaluations of the water companies used in my proxy).

16

17 Q. Are these the same water utilities that you have used in prior rate case
18 proceedings?

19 A. Yes. However, in prior proceedings I have also included a fourth water
20 provider known as Southwest Water Company which is traded over the
21 counter through the National Association of Securities Dealers Automated
22 Quotation System ("NASDAQ").

23

1 Q. Why did you exclude Southwest Water Company from your sample in this
2 proceeding?

3 A. Value Line has suspended its long-term projections on Southwest Water
4 Company as a result of accounting errors that were recently discovered by
5 Southwest Water Company's management. The lack of projected data
6 made Southwest Water Company unsuitable for my sample group of
7 water providers.

8
9 Q. Please describe the companies that comprise your water company proxy
10 group.

11 A. My water company proxy group includes American States Water Co.
12 (stock ticker symbol "AWR"), California Water Service Group ("CWT") and
13 Aqua America, Inc. ("WTR"). Each of these water companies face the
14 same types of risk that AWC faces. For the sake of brevity, I will refer to
15 each of these companies by their appropriate stock ticker symbols
16 henceforth.

17
18 Q. Briefly describe the areas served by the companies in your water
19 company sample proxy.

20 A. In addition to providing water service to residents of Fountain Hills,
21 Arizona through its wholly owned subsidiary Chaparral City Water
22 Company, AWR also serves communities located in Los Angeles, Orange
23 and San Bernardino counties in California. CWT provides service to

1 customers in seventy-five communities in California, New Mexico and
2 Washington. CWT's principal service areas are located in the San
3 Francisco Bay area, the Sacramento, Salinas and San Joaquin Valleys
4 and parts of Los Angeles. WTR is a holding company for a large number
5 of water and wastewater utilities operating in nine different states including
6 Pennsylvania, Ohio, New Jersey, Illinois, Maine, North Carolina, Texas,
7 Florida and Kentucky.

8

9 Q. Are these the same water companies that AWC used in its application?

10 A. AWC's cost of equity witness, Dr. Thomas Zepp, used the same water
11 companies included in my proxy. Dr. Zepp also used three other water
12 companies in his cost of capital analysis⁶ which are included in Value
13 Line's Small and Mid Cap Edition.

14

15 Q. Why did you exclude the water companies that are followed in Value
16 Line's Small and Mid Cap Edition?

17 A. Value Line does not provide the same type of forward-looking information
18 (i.e. long-term estimates on return on common equity and share growth)
19 on small and mid-cap companies that it provides on the three water
20 companies that I used in my proxy. Consequently, as in the case of
21 Southwest Water Company, these water providers are not as suitable as
22 the ones that I have used in my analysis.

⁶ Connecticut Water Service, Inc., Middlesex Water Company and SJW Corp.

1 Q. What criteria did you use in selecting the natural gas LDC's included in
2 your proxy for AWC?

3 A. As are the water companies that I just described, each of the natural gas
4 LDC's used in the proxy are publicly traded on a major stock exchange (all
5 ten trade on the NYSE) and are followed by Value Line. Each of the ten
6 LDC's in my sample are tracked in Value Line's natural gas Utility industry
7 segment. All of the companies in the proxy are engaged in the provision
8 of regulated natural gas distribution services. Attachment B of my
9 testimony contains Value Line's most recent evaluation of the natural gas
10 proxy group that I used for my cost of common equity analysis.

11

12 Q. What companies are included your natural gas proxy?

13 A. The ten natural gas LDC's included in my proxy (and their NYSE ticker
14 symbols) are AGL Resources, Inc. ("AGL"), Atmos Energy Corp. ("ATO"),
15 Laclede Group, Inc. ("LG"), New Jersey Resources Corporation ("NJR"),
16 Nicor, Inc. ("GAS"), Northwest Natural Gas Co. ("NWN"), Piedmont
17 Natural Gas Company ("PNY"), South Jersey Industries, Inc. ("SJI")
18 Southwest Gas Corporation ("SWX"), which is the dominant natural gas
19 provider in Arizona, and WGL Holdings, Inc. ("WGL"). These are the
20 same ten LDC's that I analyzed in the most recent UNS Gas, Inc.
21 proceeding.⁷

22

⁷ Docket No. G-04204A-06-0463

1 Q. Briefly describe the regions of the U.S. served by the ten natural gas
2 LDC's that make up your sample proxy.

3 A. The ten LDC's listed above provide natural gas service to customers in the
4 Middle Atlantic region (i.e. NJI which serves portions of northern New
5 Jersey, SJI which serves southern New Jersey and WGL which serves the
6 Washington D.C. metro area), the Southeast and South Central portions
7 of the U.S. (i.e. AGL which serves Virginia, southern Tennessee and the
8 Atlanta, Georgia area and PNY which serves customers in North Carolina,
9 South Carolina and Tennessee), the South, deep South and Midwest (i.e.
10 ATO which serves customers in Kentucky, Mississippi, Louisiana, Texas,
11 Colorado and Kansas, GAS which provides service to northern and
12 western Illinois, and LG which serves the St. Louis area), and the Pacific
13 Northwest (i.e. NWN which serves Washington state and Oregon).
14 Portions of Arizona, Nevada and California are served by SWX.

15
16 Q. Did the Company's witness also perform a similar analysis using natural
17 gas LDC's?

18 A. No, he did not.

19
20 Q. Please explain your DCF growth rate calculations for the sample
21 companies used in your proxy.

22 A. Schedule WAR-5 provides retention ratios, returns on book equity, internal
23 growth rates, book values per share, numbers of shares outstanding, and

1 the compounded share growth for each of the utilities included in the
2 sample for the historical observation period 2004 to 2008 for both the
3 water and LDC industries. Schedule WAR-5 also includes Value Line's
4 projected 2009, 2010 and 2012-14 values for the retention ratio, equity
5 return, book value per share growth rate, and number of shares
6 outstanding for both the water utilities and the LDC's.

7

8 Q. Please describe how you used the information displayed in Schedule
9 WAR-5 to estimate each comparable utility's dividend growth rate.

10 A. In explaining my analysis, I will use AWR as an example. The first
11 dividend growth component that I evaluated was the internal growth rate.
12 I used the "b x r" formula (described on pages 10 and 11) to multiply
13 AWR's earned return on common equity by its earnings retention ratio for
14 each year in the 2003 to 2007 observation period to derive the utility's
15 annual internal growth rates. I used the mean average of this five-year
16 period as a benchmark against which I compared the projected growth
17 rate trends provided by Value Line. Because an investor is more likely to
18 be influenced by recent growth trends, as opposed to historical averages,
19 the five-year mean noted earlier was used only as a benchmark figure. As
20 shown on Schedule WAR-5, Page 1, AWR's average internal growth rate
21 of 2.62 percent over the 2004 to 2008 time frame reflects an up and down
22 pattern of growth that ranged from a low of 1.01 percent in 2002 to a high
23 of 3.79 percent during 2007. Value Line is predicting that growth will

1 increase steadily from 3.05 percent in 2008, to 6.35 percent by the end of
2 the 2012-14 time frame. After weighing Value Line's projections for
3 internal growth, lower outlook for earnings per share, no change in
4 dividends and a higher estimate for book value, I believe that a 6.00
5 percent rate of growth is reasonable for AWR (Schedule WAR-4, Page 1
6 of 2).

7

8 Q. Please continue with the external growth rate component portion of your
9 analysis.

10 A. Schedule WAR-5 demonstrates that the pattern of shares outstanding for
11 AWR increased from 16.75 million to 17.30 million from 2004 to 2008.
12 Value Line is predicting that this level will increase from 18.25 million in
13 2008 to 20.25 million by the end of 2014. Based on this data, I believe
14 that a 4.75 percent growth in shares is not unreasonable for AWR (Page 2
15 of Schedule WAR-4). My final dividend growth rate estimate for AWR is
16 7.81 percent (6.00 percent internal + 1.81 percent external) and is shown
17 on Page 1 of Schedule WAR-4.

18

19 Q. What is your average DCF dividend growth rate estimate for your sample
20 of water utilities?

21 A. My average DCF dividend growth rate estimate for my water company
22 sample is 6.25 percent as displayed on page 1 of Schedule WAR-4.

23

1 Q. Did you use the same approach to determine an average dividend growth
2 rate for the proxy comprised of natural gas LDC's?

3 A. Yes.

4

5 Q. What is your average DCF dividend growth rate estimate for the sample
6 natural gas utilities?

7 A. My average DCF dividend growth rate estimate is 6.44 percent, which is
8 also displayed on page 1 of Schedule WAR-4.

9

10 Q. How does your average dividend growth rate estimates on water
11 companies compare to the growth rate data published by Value Line and
12 other analysts?

13 A. Schedule WAR-6 compares my sustainable growth estimates with the
14 five-year projections of analysts at both Zacks Investment Research, Inc.
15 ("Zacks") (Attachment C) and Value Line. In the case of the water
16 companies, my 6.25 percent estimate falls between Zacks' average long-
17 term EPS projection of 8.33 percent and Value Line's growth projection of
18 5.36 percent (which is an average of EPS, DPS and BVPS). My 6.25
19 percent estimate is 38 basis points higher than the 5.87 percent average
20 of Value Line's historical and projected data (and the consensus opinions
21 published by Zacks) and is also 69 basis points higher than Value Line's
22 5.56 percent 5-year compound historical average of EPS, DPS and BVPS.
23 The estimates of analysts at Value Line indicate that investors are

1 expecting somewhat lower increased performance from water utilities in
2 the future. On balance, I would say my 6.25 percent estimate is a good
3 representation of the growth projections that are available to the investing
4 public.

5

6 Q. How do your average dividend growth rate estimates on natural gas LDC's
7 compare to the growth rate data published by Value Line and other
8 analysts?

9 A. In regard to the natural gas LDC's, my 6.44 percent estimate also falls
10 between the average 6.59 percent long-term consensus projections
11 published by Zacks, and the 4.33 percent Value Line projected estimate
12 (which is an average of EPS, DPS and BVPS). As can also be seen on
13 Schedule WAR-6, the 6.44 percent estimate that I have calculated is 76
14 basis points higher than the 5.68 percent average of the 5-year historic
15 EPS, DPS and BVPS means of Value Line and 108 basis points higher
16 than the 5.36 percent five-year compound historical average of Value Line
17 data (on EPS, DPS and BVPS). In fact, my 6.44 percent estimate is 122
18 basis points higher than the combined 5.22 percent Value Line and Zacks
19 averages displayed in Schedule WAR-6. The estimates of both Value
20 Line's and Zacks' analysts indicate that investors are also expecting
21 somewhat lower performance from natural gas distribution companies in
22 the future. In the case of the LDC's I would say that my 6.44 percent
23 estimate, which is lower than Zack's projections but higher than Value

1 Line's forecasts, is a fair representation of the growth projections
2 presented by securities analysts at this point in time.

3

4 Q. How did you calculate the dividend yields displayed in Schedule WAR-3?

5 A. For both the water companies and the natural gas LDC's I used the
6 estimated annual dividends, for the next twelve-month period, that
7 appeared in Value Line's April 24, 2009 Ratings and Reports water
8 services industry update and Value Line's March 13, 2009 Ratings and
9 Reports natural gas utility update. I then divided those figures by the
10 eight-week average price per share of the appropriate utility's common
11 stock. The eight-week average price is based on the daily closing stock
12 prices for each of the companies in my proxies for the period April 6, 2009
13 to May 29, 2009.

14

15 Q. Based on the results of your DCF analysis, what is your cost of equity
16 capital estimate for the water and natural gas utilities included in your
17 sample?

18 A. As shown on page 2 of Schedule WAR-2, the cost of equity capital derived
19 from my DCF analysis is 9.32 percent for the water utilities and 11.42
20 percent for the natural gas LDC's.

21

22

23

1 **Capital Asset Pricing Model (CAPM) Method**

2 Q. Please explain the theory behind CAPM and why you decided to use it as
3 an equity capital valuation method in this proceeding.

4 A. CAPM is a mathematical tool that was developed during the early 1960's
5 by William F. Sharpe⁸, the Timken Professor Emeritus of Finance at
6 Stanford University, who shared the 1990 Nobel Prize in Economics for
7 research that eventually resulted in the CAPM model. CAPM is used to
8 analyze the relationships between rates of return on various assets and
9 risk as measured by beta.⁹ In this regard, CAPM can help an investor to
10 determine how much risk is associated with a given investment so that he
11 or she can decide if that investment meets their individual preferences.
12 Finance theory has always held that as the risk associated with a given
13 investment increases, so should the expected rate of return on that
14 investment and vice versa. According to CAPM theory, risk can be
15 classified into two specific forms: nonsystematic or diversifiable risk, and
16 systematic or non-diversifiable risk. While nonsystematic risk can be
17 virtually eliminated through diversification (i.e. by including stocks of
18 various companies in various industries in a portfolio of securities),
19 systematic risk, on the other hand, cannot be eliminated by diversification.

⁸ William F. Sharpe, "A Simplified Model of Portfolio Analysis," Management Science, Vol. 9, No. 2 (January 1963), pp. 277-93.

⁹ Beta is defined as an index of volatility, or risk, in the return of an asset relative to the return of a market portfolio of assets. It is a measure of systematic or non-diversifiable risk. The returns on a stock with a beta of 1.0 will mirror the returns of the overall stock market. The returns on stocks with betas greater than 1.0 are more volatile or riskier than those of the overall stock market; and if a stock's beta is less than 1.0, its returns are less volatile or riskier than the overall stock market.

1 Thus, systematic risk is the only risk of importance to investors. Simply
2 stated, the underlying theory behind CAPM states that the expected return
3 on a given investment is the sum of a risk-free rate of return plus a market
4 risk premium that is proportional to the systematic (non-diversifiable risk)
5 associated with that investment. In mathematical terms, the formula is as
6 follows:

$$k = r_f + [\beta (r_m - r_f)]$$

7
8 where: k = the expected return of a given security,
9 r_f = risk-free rate of return,
10 β = beta coefficient, a statistical measurement of a
11 security's systematic risk,
12 r_m = average market return (e.g. S&P 500), and
13 r_m - r_f = market risk premium.
14
15

16 Q. What types of financial instruments are generally used as a proxy for the
17 risk-free rate of return in the CAPM model?

18 A. Generally speaking, the yields of U.S. Treasury instruments are used by
19 analysts as a proxy for the risk-free rate of return component.
20
21

22 ...
23

1 Q. Please explain why U.S. Treasury instruments are regarded as a suitable
2 proxy for the risk-free rate of return?

3 A. As citizens and investors, we would like to believe that U.S. Treasury
4 securities (which are backed by the full faith and credit of the United
5 States Government) pose no threat of default no matter what their maturity
6 dates are. However, a comparison of various Treasury instruments will
7 reveal that those with longer maturity dates do have slightly higher yields.
8 Treasury yields are comprised of two separate components,¹⁰ a real rate
9 of interest (believed to be approximately 2.00 percent) and an inflationary
10 expectation. When the real rate of interest is subtracted from the total
11 treasury yield, all that remains is the inflationary expectation. Because
12 increased inflation represents a potential capital loss, or risk, to investors,
13 a higher inflationary expectation by itself represents a degree of risk to an
14 investor. Another way of looking at this is from an opportunity cost
15 standpoint. When an investor locks up funds in long-term T-Bonds,
16 compensation must be provided for future investment opportunities
17 foregone. This is often described as maturity or interest rate risk and it
18 can affect an investor adversely if market rates increase before the
19 instrument matures (a rise in interest rates would decrease the value of
20 the debt instrument). As discussed earlier in the DCF portion of my

¹⁰ As a general rule of thumb, there are three components that make up a given interest rate or rate of return on a security: the real rate of interest, an inflationary expectation, and a risk premium. The approximate risk premium of a given security can be determined by simply subtracting a 91-day T-Bill rate from the yield on the security.

1 testimony, this compensation translates into higher rates of returns to the
2 investor.

3

4 Q. What security did you use for a risk-free rate of return in your CAPM
5 analysis?

6 A. I used an eight-week average of the yield on a 5-year U.S. Treasury
7 instrument. The yields were published in Value Line's Selection and
8 Opinion publication dated April 10, 2009 through May 29, 2009
9 (Attachment D). This resulted in a risk-free (r_f) rate of return of 1.87
10 percent.

11

12 Q. Why did you use the yield on a 5-year year U.S. Treasury instrument as
13 opposed to a short-term T-Bill?

14 A. While a shorter term instrument, such as a 91-day T-Bill, presents the
15 lowest possible total risk to an investor, a good argument can be made
16 that the yield on an instrument that matches the investment period of the
17 asset being analyzed in the CAPM model should be used as the risk-free
18 rate of return. Since utilities in Arizona generally file for rates every three
19 to five years, the yield on a 5-year U.S. Treasury Instrument closely
20 matches the investment period or, in the case of regulated utilities, the
21 period that new rates will be in effect.

22

23 ...

1 Q. How did you calculate the market risk premium used in your CAPM
2 analysis?

3 A. I used both a geometric and an arithmetic mean of the historical total
4 returns on the S&P 500 index from 1926 to 2007 as the proxy for the
5 market rate of return (r_m). For the risk-free portion of the risk premium
6 component (r_f), I used the geometric mean of the total returns of long-term
7 government bonds for the same eighty-one year period. The market risk
8 premium ($r_m - r_f$) that results by using these inputs is 5.10 percent (10.40%
9 - 5.30% = 5.10%). The market risk premium that results by using the
10 arithmetic mean calculation is 6.80 percent (12.30% - 5.50% = 6.80%).
11

12 Q. How did you select the beta coefficients that were used in your CAPM
13 analysis?

14 A. The beta coefficients (β), for the individual utilities used in both my
15 proxies, were calculated by Value Line and were current as of April 24,
16 2009 for the water companies and March 13, 2008 for the natural gas
17 LDC's. Value Line calculates its betas by using a regression analysis
18 between weekly percentage changes in the market price of the security
19 being analyzed and weekly percentage changes in the NYSE Composite
20 Index over a five-year period. The betas are then adjusted by Value Line
21 for their long-term tendency to converge toward 1.00. The beta
22 coefficients for the service providers included in my water company
23 sample ranged from 0.75 to 0.85 with an average beta of 0.82. The beta

1 coefficients for the LDC's included in my natural gas sample ranged from
2 0.60 to 0.75 with an average beta of 0.67.

3

4 Q. What are the results of your CAPM analysis?

5 A. As shown on pages 1 and 2 of Schedule WAR-7, my CAPM calculation
6 using a geometric mean to calculate the risk premium results in an
7 average expected return of 6.04 percent for the water companies and 5.26
8 percent for the natural gas LDC's. My calculation using an arithmetic
9 mean results in an average expected return of 7.43 percent for the water
10 companies and 6.39 percent for the natural gas LDC's.

11

12 Q. Please summarize the results derived under each of the methodologies
13 presented in your testimony.

14 A. The following is a summary of the cost of equity capital derived under
15 each methodology used:

16

17	<u>METHOD</u>	<u>RESULTS</u>
18	DCF (Water Sample)	9.32%
19	DCF (Natural Gas Sample)	11.42%
20	CAPM (Water Sample)	6.04% – 7.43%
21	CAPM (Natural Gas)	5.26% – 6.39%

22

1 Based on these results, my best estimate of an appropriate range for a
2 cost of common equity for AWC is 5.26 percent to 11.42 percent. My final
3 recommended cost of common equity figure is 8.33 percent.

4
5 Q How did you arrive at your final recommended 8.33 percent cost of
6 common equity?

7 A. My recommended 8.33 percent cost of common equity is the mean
8 average of my DCF and CAPM results. The calculation of my 8.33
9 percent cost of common equity can be seen on Schedule WAR-1, Page 2
10 of 2.

11
12 Q. Did you make any direct adjustment to your recommended cost of
13 common equity that takes into consideration the higher level of equity
14 contained in AWC's capital structure?

15 A. No. As can be seen in Schedule WAR- 9, the Company-proposed capital
16 structure is in line with the capital structures of the water utilities included
17 in my sample and is roughly in line with the capital structures of the LDC's
18 included in my sample.

19

20

21

22 ...

23

1 Q. How does your recommended cost of equity capital compare with the cost
2 of equity capital proposed by the Company?

3 A. The 12.40 percent cost of equity capital proposed by the Company is 407
4 basis points higher than the 8.33 percent OCRB cost of equity capital that
5 I am recommending.

6

7 **Current Economic Environment**

8 Q. Please explain why it is necessary to consider the current economic
9 environment when performing a cost of equity capital analysis for a
10 regulated utility.

11 A. Consideration of the economic environment is necessary because trends
12 in interest rates, present and projected levels of inflation, and the overall
13 state of the U.S. economy determine the rates of return that investors earn
14 on their invested funds. Each of these factors represent potential risks
15 that must be weighed when estimating the cost of equity capital for a
16 regulated utility and are, most often, the same factors considered by
17 individuals who are also investing in non-regulated entities.

18

19 Q. Please discuss your analysis of the current economic environment.

20 A. My analysis includes a brief review of the economic events that have
21 occurred since 1990. Schedule WAR-8 displays various economic
22 indicators and other data that I will refer to during this portion of my
23 testimony.

1 In 1991, as measured by the most recently revised annual change in
2 gross domestic product (“GDP”), the U.S. economy experienced a rate of
3 growth of negative 0.20 percent. This decline in GDP marked the
4 beginning of a mild recession that ended sometime before the end of the
5 first half of 1992. Reacting to this situation, the Federal Reserve Board
6 (“Federal Reserve” or “Fed”), then chaired by noted economist Alan
7 Greenspan, lowered its benchmark federal funds rate¹¹ in an effort to
8 further loosen monetary constraints - an action that resulted in lower
9 interest rates.

10

11 During this same period, the nation's major money center banks followed
12 the Federal Reserve's lead and began lowering their interest rates as well.
13 By the end of the fourth quarter of 1993, the prime rate (the rate charged
14 by banks to their best customers) had dropped to 6.00 percent from a
15 1990 level of 10.01 percent. In addition, the Federal Reserve's discount
16 rate on loans to its member banks had fallen to 3.00 percent and short-
17 term interest rates had declined to levels that had not been seen since
18 1972.

19

¹¹ This is the interest rate charged by banks with excess reserves at a Federal Reserve district bank to banks needing overnight loans to meet reserve requirements. The federal funds rate is the most sensitive indicator of the direction of interest rates, since it is set daily by the market, unlike the prime rate and the discount rate, which are periodically changed by banks and by the Federal Reserve Board, respectively.

1 Although GDP increased in 1992 and 1993, the Federal Reserve took
2 steps to increase interest rates beginning in February of 1994, in order to
3 keep inflation under control. By the end of 1995, the Federal discount rate
4 had risen to 5.21 percent. Once again, the banking community followed
5 the Federal Reserve's moves. The Fed's strategy, during this period, was
6 to engineer a "soft landing." That is to say that the Federal Reserve
7 wanted to foster a situation in which economic growth would be stabilized
8 without incurring either a prolonged recession or runaway inflation.

9

10 Q. Did the Federal Reserve achieve its goals during this period?

11 A. Yes. The Fed's strategy of decreasing interest rates to stimulate the
12 economy worked. The annual change in GDP began an upward trend in
13 1992. A change of 4.50 percent and 4.20 percent were recorded at the
14 end of 1997 and 1998 respectively. Based on daily reports that were
15 presented in the mainstream print and broadcast media during most of
16 1999, there appeared to be little doubt among both economists and the
17 public at large that the U.S. was experiencing a period of robust economic
18 growth highlighted by low rates of unemployment and inflation. Investors,
19 who believed that technology stocks and Internet company start-ups (with
20 little or no history of earnings) had high growth potential, purchased these
21 types of issues with enthusiasm. These types of investors, who exhibited
22 what former Chairman Greenspan described as "irrational exuberance,"

1 pushed stock prices and market indexes to all time highs from 1997 to
2 2000.

3

4 Q. What has been the state of the economy since 2001?

5 A. The U.S. economy entered into a recession near the end of the first
6 quarter of 2001. The bullish trend, which had characterized the last half of
7 the 1990's, had already run its course sometime during the third quarter of
8 2000. Economic data released since the beginning of 2001 had already
9 been disappointing during the months preceding the September 11, 2001
10 terrorist attacks on the World Trade Center and the Pentagon. Slower
11 growth figures, rising layoffs in the high technology manufacturing sector,
12 and falling equity prices (due to lower earnings expectations) prompted
13 the Fed to begin cutting interest rates as it had done in the early 1990's.
14 The now infamous terrorist attacks on New York City and Washington
15 D.C. marked a defining point in this economic slump and prompted the
16 Federal Reserve to continue its rate cutting actions through December
17 2001. Prior to the 9/11 attacks, commentators, reporting in both the
18 mainstream financial press and various economic publications including
19 Value Line, believed that the Federal Reserve was cutting rates in the
20 hope of avoiding a recession.

21

22 Despite several intervals during 2002 and 2003 in which the Federal Open
23 Market Committee ("FOMC") decided not to change interest rates – moves

1 which indicated that the worst may be over and that the recession might
2 have bottomed out during the last quarter of 2001 – a lackluster economy
3 persisted. The continuing economic malaise and even fears of possible
4 deflation prompted the FOMC to make a thirteenth rate cut on June 25,
5 2003. The quarter point cut reduced the federal funds rate to 1.00
6 percent, the lowest level in forty-five years.

7
8 Even though some signs of economic strength, mainly attributed to
9 consumer spending, began to crop up during the latter part of 2002 and
10 into 2003, Chairman Greenspan appeared to be concerned with sharp
11 declines in capital spending in the business sector.

12
13 During the latter part of 2003, the FOMC went on record as saying that it
14 intended to leave interest rates low “for a considerable period.” After its
15 two-day meeting that ended on January 28, 2004, the FOMC announced
16 “that with inflation ‘quite low’ and plenty of excess capacity in the
17 economy, policy-makers ‘can be patient in removing its policy
18 accommodation.¹²”

19
20
21 ...
22

¹² Wolk, Martin, “Fed holds interest rates steady,” MSNBC, January 28, 2004.

1 Q. What actions has the Federal Reserve taken in terms of interest rates
2 since the beginning of 2001?

3 A. As noted earlier, from January 2001 to June 2003 the Federal Reserve cut
4 interest rates a total of thirteen times. During this period, the federal funds
5 rate fell from 6.50 percent to 1.00 percent. The FOMC reversed this trend
6 on June 29, 2004 and raised the federal funds rate 25 basis points to 1.25
7 percent. From June 29, 2004 to January 31, 2006, the FOMC raised the
8 federal funds rate thirteen more times to a level of 4.50 percent.

9 The FOMC's January 31, 2006 meeting marked the final appearance of
10 Alan Greenspan, who had presided over the rate setting body for a total of
11 eighteen years. On that same day, Greenspan's successor, Ben
12 Bernanke, the former chairman of the President's Council of Economic
13 Advisers and a former Fed governor under Greenspan from 2002 to 2005,
14 was confirmed by the U.S. Senate to be the new Federal Reserve chief.

15 As expected by Fed watchers, Chairman Bernanke picked up where his
16 predecessor left off and increased the federal funds rate by 25 basis
17 points during each of the next three FOMC meetings for a total of
18 seventeen consecutive rate increases since June 2004, and raising the
19 federal funds rate to a level of 5.25 percent. The Fed's rate increase
20 campaign finally came to a halt at the FOMC meeting held on August 8,
21 2006, when the FOMC decided not to raise rates.

22

23

1 Q. What was the reaction in the financial community to the Fed's decision not
2 to raise interest rates?

3 A. As in the past, banks followed the Fed's lead once again and held the
4 prime rate to a level of 8.25 percent, or 300 basis points higher than the
5 federal funds rate of 5.25 percent established on June 29, 2006.

6

7 Q. How did analysts view the Fed's actions between January 2001 and
8 August 2006?

9 A. According to an article that appeared in the December 2, 2004 edition of
10 The Wall Street Journal, the FOMC's decision to begin raising rates two
11 years ago was viewed as a move to increase rates from emergency lows
12 in order to avoid creating an inflation problem in the future as opposed to
13 slowing down the strengthening economy.¹³ In other words, the Fed was
14 trying to head off inflation *before* it became a problem. During the period
15 following the August 8, 2006 FOMC meeting, the Fed's decisions not to
16 raise rates were viewed as a gamble that a slower U.S. economy would
17 help to cap growing inflationary pressures.¹⁴

18

19 ...

20

¹³ McKinnon, John D. and Greg IP, "Fed Raises Rates by a Quarter Point," The Wall Street Journal, September 22, 2004.

¹⁴ Ip, Greg, "Fed Holds Interest Rates Steady As Slowdown Outweighs Inflation," The Wall Street Journal Online Edition, August 8, 2006.

1 Q. Was the Fed attempting to engineer another “soft landing”, as it did in the
2 mid-nineties, by holding interest rates steady?

3 A. Yes, however, as pointed out in an August 2006 article in The Wall Street
4 Journal by E.S. Browning, soft landings – like the one that the Fed
5 managed to pull off during the 1994-95 time frame, in which a recession or
6 a bear market were avoided – rarely happen¹⁵. Since it began increasing
7 the federal funds rate in June 2004, the Fed had assured investors that it
8 would increase rates at a “measured” pace. Many analysts and
9 economists interpreted this language to mean that former Chairman
10 Greenspan would be cautious in increasing interest rates too quickly in
11 order to avoid what is considered to be one of the Fed’s few blunders
12 during Greenspan’s tenure – a series of increases in 1994 that caught the
13 financial markets by surprise after a long period of low rates. The rapid
14 rise in rates contributed to the bankruptcy of Orange County, California
15 and the Mexican peso crisis¹⁶. According to Mr. Browning, at the time that
16 his article was published, the hope was that Chairman Bernanke would
17 succeed in slowing the economy “just enough to prevent serious inflation,
18 but not enough to choke off growth.” In other words, “a ‘Goldilocks
19 economy,’ in which growth is not too hot and not too cold.”

20

¹⁵ Browning, E.S, “Not Too Fast, Not Too Slow...,” The Wall Street Journal Online Edition, August 21, 2006.

¹⁶ Associated Press (AP), “Fed begins debating interest rates” USA Today, June 29, 2004.

1 Q. Was the Fed's attempt to engineer a soft landing successful during the
2 period that followed the August 8, 2006 FOMC meeting?

3 A. It would appear so. Articles published in the mainstream financial press
4 were generally upbeat on the economy during that period. An example of
5 this is an article written by Nell Henderson that appeared in the January
6 30, 2007 edition of The Washington Post. According to Ms. Henderson, "a
7 year into [Fed Chairman] Bernanke's tenure, the [economic] picture has
8 turned considerably brighter. Inflation is falling; unemployment is low;
9 wages are rising; and the economy, despite continued problems in
10 housing, is growing at a brisk clip."¹⁷

11

12 Q. What has been the state of the economy over the past two years?

13 A. Reports in the mainstream financial press during the majority of 2007
14 reflected the view that the U.S. economy was slowing as a result of a
15 worsening situation in the housing market and higher oil prices. The
16 overall outlook for the economy was one of only moderate growth at best.
17 Also during this period the Fed's key measure of inflation began to exceed
18 the rate setting body's comfort level.

19

20 On August 7, 2007, the FOMC decided not to increase or decrease the
21 federal funds rate for the ninth straight time and left its target rate

¹⁷ Henderson, Nell, "Bullish on Bernanke" The Washington Post, January 30, 2007.

1 unchanged at 5.25 percent.¹⁸ At the time of the Fed's decision, analysts
2 speculated that a rate cut over the next several months was unlikely given
3 the Fed's concern that inflation would fail to moderate. However, during
4 this same period, evidence of an even slower economy and a possible
5 recession was beginning to surface. Within days of the Fed's decision to
6 stand pat on rates, a borrowing crisis rooted in a deterioration of the
7 market for subprime mortgages and securities linked to them, forced the
8 Fed to inject \$24 billion in funds (raised through open market operations)
9 into the credit markets.¹⁹ By Friday, August 17, 2007, after a turbulent
10 week on Wall Street, the Fed made the decision to lower its discount rate
11 (i.e. the rate charged on direct loans to banks) by 50 basis points, from
12 6.25 percent to 5.75 percent, and took steps to encourage banks to
13 borrow from the Fed's discount window in order to provide liquidity to
14 lenders. According to an article that appeared in the August 18, 2007
15 edition of The Wall Street Journal,²⁰ the Fed had used all of its tools to
16 restore normalcy to the financial markets. If the markets failed to settle
17 down, the Fed's only weapon left was to cut the Federal Funds rate –
18 possibly before the next FOMC meeting scheduled on September 18,
19 2007.

20

¹⁸ Ip, Greg, "Markets Gyrate As Fed Straddles Inflation, Growth" The Wall Street Journal, August 8, 2007

¹⁹ Ip, Greg, "Fed Enters Market To Tamp Down Rate" The Wall Street Journal, August 9, 2007

²⁰ Ip, Greg, Robin Sidel and Randall Smith, "Fed Offers Banks Loans Amid Crises" The Wall Street Journal, August 9, 2007

1 Q. Did the Fed cut rates as a result of the subprime mortgage borrowing
2 crises?

3 A. Yes. At its regularly scheduled meeting on September 18, 2007, the
4 FOMC surprised the investment community and cut both the federal funds
5 rate and the discount rate by 50 basis points (25 basis points more than
6 what was anticipated). This brought the federal funds rate down to a level
7 of 4.75 percent. The Fed's action was seen as an effort to curb the
8 aforementioned slowdown in the economy. Over the course of the next
9 four months, the FOMC reduced the Federal funds rate by a total 175
10 basis points to a level of 3.00 percent – mainly as a result of concerns that
11 the economy was slipping into a recession. This included a 75 basis point
12 reduction that occurred one week prior to the FOMC's meeting on January
13 29, 2008.

14
15 Q. What actions has the Fed taken in regard to interest rates over the past
16 year?

17 A. The Fed made two more rate cuts which included a 75 basis point
18 reduction in the federal funds rate on March 18, 2008 and an additional 25
19 basis point reduction on April 30, 2008. The Fed's decision to cut rates
20 was based on its belief that the slowing economy was a greater concern
21 than the current rate of inflation (which the majority of FOMC members

1 believed would moderate during the economic slowdown).²¹ As a result of
2 the Fed's actions, the federal funds rate was reduced to a level of 2.00
3 percent. From April 30, 2008 through September 16, 2008, the Fed took
4 no further action on its key interest rate. However, the days before and
5 after the Fed's September 16, 2008 meeting saw longstanding Wall Street
6 firms such as Lehman Brothers, Merrill Lynch and AIG failing as a result of
7 their subprime holdings. By the end of the week, the Bush administration
8 had announced plans to deal with the deteriorating financial condition
9 which had now become a worldwide crisis. The administrations actions
10 included former Treasury Secretary Henry Paulson's request to Congress
11 for \$700 billion to buy distressed assets as part of a plan to halt what has
12 been described as the worst financial crisis since the 1930's²². Amidst this
13 turmoil, the Fed made the decision to cut the federal funds rate by another
14 50 basis points in a coordinated move with foreign central banks on
15 October 8, 2008. This was followed by another 50 basis point cut during
16 the regular FOMC meeting on October 29, 2008. At the time of this
17 writing, the federal funds target rate now stands at 0.25 percent, the result
18 of a 75 basis point cut announced on December 16, 2008. After FOMC
19 meetings in January, March and April of 2009, the Fed elected not to
20 make any changes in the federal funds rate, stating in January that the

²¹ Ip, Greg, "Credit Worries Ease as Fed Cuts, Hints at More Relief" The Wall Street Journal, March 19, 2008

²² Soloman, Deborah, Michael R. Crittenden and Damian Paletta, "U.S. Bailout Plan Calms Markets, But Struggle Looms Over Details" The Wall Street Journal, September 20, 2008

1 rate would remain low “for some time.”²³ Presently, the Fed’s discount
2 rate is at 0.50 percent, a level not seen since 1940s.²⁴ Based on data
3 released during the early part of December 2008, the U.S. is now officially
4 in a recession which began in December of 2007.

5
6 Q. Putting this all into perspective, how have the Fed’s actions since 2000
7 affected benchmark rates?

8 A. U.S. Treasury instruments are for the most part still at historically low
9 levels. The Fed’s actions have also had the overall effect of reducing the
10 cost of many types of business and consumer loans. As can be seen in
11 Schedule WAR-8, the previously mentioned federal discount rate (the rate
12 charged to the Fed’s member banks), has fallen to 0.50 percent from 2.25
13 percent in 2008.

14
15 Q. What has been the trend in other leading interest rates over the last year?

16 A. As of May 20, 2009, the leading interest rates have all dropped from the
17 levels that existed a year ago (Attachment C, Value Line Selection &
18 Opinion page 3517). The prime rate has fallen from 5.00 percent a year
19 ago to 3.25 percent. The benchmark federal funds rate, just discussed,
20 has decreased from 2.00 percent, in May 2008, to a level of 0.25 percent

²³ Hilsenrath, Jon and Liz Rappaport, “Fed Weighs Idea of Buying Treasurys as Focus Shifts” The Wall Street Journal, January 29, 2009

²⁴ Hilsenrath, Jon, “Fed Cuts Rates Near Zero to Battle Slump” The Wall Street Journal, December 17, 2008

1 (as a result of the December 16, 2008 rate cut discussed above). The
2 yields on all of the non-inflation protected maturities of U.S. Treasury
3 instruments exhibited in my Attachment C have also decreased over the
4 past year. A previous trend, described by former Chairman Greenspan as
5 a “conundrum”²⁵, in which long-term rates fell as short-term rates
6 increased, thus creating a somewhat inverted yield curve that existed as
7 late as June 2007, is completely reversed and a more traditional yield
8 curve (one where yields increase as maturity dates lengthen) presently
9 exists (Attachment C). The 5-year Treasury yield, used in my CAPM
10 analysis, has fallen from 3.04 percent, in May 2008, to 2.03 percent as of
11 May 20, 2009. The 30-Year Treasury constant maturity rate also
12 decreased from 4.54 percent over the past year to 4.14 percent. These
13 current yields are considerably lower than corresponding yields that
14 existed during the early nineties and at the beginning of the current
15 decade (as can be seen on Schedule WAR-8).

16
17 Q. What is the current outlook for the economy?

18 A. Value Line’s analysts have become more optimistic in their outlook on the
19 economy as of late and had this to say in their Quarterly Economic Review
20 that appeared in the May 29, 2009 edition of Value Line’s Selection and
21 Opinion publication:

²⁵ Wolk, Martin, “Greenspan wrestling with rate 'conundrum',” MSNBC, June 8, 2005

1 **We probably have seen the low point in the business cycle**, with the
2 six month period from early last fall through late this winter likely having
3 marked that trough. The business outlook, which deteriorated steadily
4 during this time—with housing, auto demand, retail sales, manufacturing,
5 and on manufacturing all slumping in tandem— has grown less troubling
6 in recent weeks. The lessening in the recession's clout suggests that the
7 U.S. gross domestic product, which fell 6.3% in the fourth quarter of
8 2008 and by 6.1% in the opening period of this year, will decline by less
9 than half that amount in the quarter that ends on June 30th. It should be
10 noted that the surveys being issued largely detail a reduction in the
11 economic downturn's severity, rather than any appreciable pickup in
12 strength. In our view, we are still months away from a sustained
13 business upturn. The best that seems ahead in the next 12 to 18 months
14 is an uneven and understated recovery, with quarterly growth only
15 gradually rising above 2%. We think it will be late 2010 or early 2011
16 before the economy really gets rolling.
17
18

19 Q. What is Value Line's outlook for interest rates?

20 A. In the Selection and Opinion publication noted above, Value Line's
21 analysts had this to say:

22 **Interest Rates:** Late last year, with the threat of a deepening recession,
23 or worse, increasing by the day, the Federal Reserve voted to lower the
24 Federal Funds rate (the rate charged on overnight loans between banks)
25 to near zero. That is where they remain now and are likely to stay for a
26 year or more. Other short-term interest rates — notably on three-and
27 six-month Treasury bills — remain negligible, as do yields on money
28 market funds and bank certificates of deposit of short duration. Longer-
29 term fixed-income instruments (i.e., 10-year Treasury notes and 30-year
30 Treasury bonds), where yields are more closely tied to long-range
31 inflationary expectations, are also low by recent standards, at 3.2% and
32 4.2%, respectively. Here, though, yields are trending higher, as some
33 market forecasters opine that inflation will pose a problem later in the
34 pending business recovery. Time will tell if such worries are justified.
35 Long-term interest rates are not yet serious competition for stocks, but
36 they could become so with even a moderate further increase.
37

38 Q. What is Value Line's opinion on the current rate of inflation?

39 A. Also in the Selection and Opinion publication noted above, Value Line's
40 analysts had this to say:
41
42

1 **Inflation:** The major story here has been the ratcheting down of inflation
2 since late last year, when declining global economic activity and plunging
3 oil prices helped bring about selective deflation, or falling prices.
4 Producer (wholesale) and consumer prices fell further during the opening
5 quarter of 2009, albeit less sharply than in the preceding three months,
6 as demand for labor, raw materials, and energy all contracted. The
7 threat of deflation now seems to be lessening, as the decline in
8 economic activity slows. Our sense is that aggregate price changes will
9 be limited in the second quarter of this year and that inflation will start to
10 selectively edge higher by the fourth quarter. Somewhat higher producer
11 and consumer prices are likely in 2010. We think it will be 2011 or 2012,
12 before there is much chance of an inflation problem.
13

14 Q. How are water utilities faring in the current economic environment?

15 A. Although there are some concerns regarding long-term infrastructure
16 requirements, water utilities appear to be doing well according to Value
17 Line analyst Andre J. Costanza. In the October 24, 2008 quarterly update
18 on the water utility industry Mr. Costanza stated the following:

19 The Water Utility Industry has held up relatively well over the past few
20 months. Although the broad market has been sent into a tailspin by
21 growing economic uncertainties and a tightening credit market, water
22 utility stocks have given little, if any, ground, and have thus jumped into
23 the middle of the pack of The Value Line Investment Survey for
24 Timeliness. Companies here are enjoying an increasingly favorable
25 regulatory environment, but the primary reason for the share-price
26 strength boils down to their perceived safety. Indeed, because of the
27 steady stream of income these stocks generate and the necessity for
28 water itself, the group provides shelter for investors looking to get out of
29 the treacherous economic waters that have been pulling many under
30 without having to take too conservative a stance. With no end to the
31 volatility in sight, these stocks are likely to continue outpacing the broad
32 market averages over the coming six to 12 months.
33

34 Mr. Costanza reiterated his sentiments on the water utility industry
35 in the Value Line update published on January 23, 2009:

36 Not much has changed in the Water Utility Industry since our October
37 report. Stocks here have held their ground for the most part, whereas the
38 broader market continued to struggle with ongoing economic uncertainty.
39 Although an improving regulatory environment has played a hand, the
40 industry is really benefiting from the its perceived safety, stemming from
41 the necessity of water itself as well as the steady stream of income that
42 the stocks here generate. The group as a whole ranks near the top of the
43 Value Line Investment Survey for Timeliness and should continue to do

1 well over the next six to 12 months, as investors look for a place to ride
2 out the economic turbulence that is likely to persist.
3

4 Mr. Costanza continued to have an upbeat assessment of the water
5 utility industry in the most recent Value Line update published on
6 April 24, 2009:

7 Not much has changed in the Water Utility Industry since our October
8 report. Stocks here have held their ground for the most part, whereas the
9 broader market continued to struggle with ongoing economic uncertainty.
10 Although an improving regulatory environment has played a hand, the
11 industry is really benefiting from the its perceived safety, stemming from
12 the necessity of water itself as well as the steady stream of income that
13 the stocks here generate. The group as a whole ranks near the top of the
14 Value Line Investment Survey for Timeliness and should continue to do
15 well over the next six to 12 months, as investors look for a place to ride
16 out the economic turbulence that is likely to persist.
17

18 Q. After weighing the economic information that you've just discussed, do you
19 believe that the 8.33 percent cost of equity capital that you have estimated
20 is reasonable for AWC?

21 A. I believe that my recommended 8.33 percent cost of equity will provide
22 AWC with a reasonable rate of return on the Company's invested capital
23 when economic data on interest rates (that are low by historical
24 standards), the current slowdown in growth in new housing construction,
25 and the Fed's ability to keep inflation in check are all taken into
26 consideration. As I noted earlier, the Hope decision determined that a
27 utility is entitled to earn a rate of return that is commensurate with the
28 returns it would make on other investments with comparable risk. I
29 believe that my cost of equity analysis, which is an average of the results
30 of both the DCF and CAPM models, has produced such a return.

1 **COST OF DEBT**

2 Q. Have you reviewed AWC's testimony on the Company-proposed cost of
3 long-term debt?

4 A. Yes.

5

6 Q. What cost of long-term debt are you recommending for AWC?

7 A. I am recommending that the Commission adopt the Company proposed
8 cost of debt of 7.31 percent.

9

10 **CAPITAL STRUCTURE**

11 Q. Have you reviewed AWC's testimony regarding the Company's proposed
12 capital structure?

13 A. Yes.

14

15 Q. Please describe the Company's proposed capital structure.

16 A. The Company is proposing a capital structure comprised of 50.76 percent
17 long-term debt and 49.24 percent common equity.

18

19 Q. Is AWC's capital structure in line with industry averages?

20 A. For the most part, yes. As can be seen in Schedule WAR-9, AWC's
21 capital structure is definitely in line with the capital structures of the water
22 utilities in my sample. The capital structures for those utilities averaged
23 50.4 percent for debt and 49.6 percent for equity. AWC is roughly in line

1 with the capital structures of the LDC's in my sample. The capital
2 structures for those utilities averaged 45.9 percent for debt and 54.1
3 percent for equity (53.4 percent common equity + 0.7 percent preferred
4 equity).

5

6 Q. What capital structure are you recommending for AWC?

7 A. I am recommending that the Commission adopt the Company-proposed
8 capital structure comprised of 50.76 percent long-term debt and 49.24
9 percent common equity.

10

11 **WEIGHTED COST OF CAPITAL**

12 Q. How does the Company's proposed weighted cost of capital compare with
13 your recommendation?

14 A. The Company has proposed a weighted cost of capital of 9.81 percent.
15 This figure is the result of a weighted average of AWC's proposed 7.31
16 percent cost of long-term debt and 12.40 percent cost of common equity
17 capital. The Company-proposed 9.81 percent weighted cost of capital is
18 200 basis points higher than the 7.81 percent weighted cost of capital that
19 I am recommending.

20

21

22

23

1 **COMMENTS ON AWC'S COST OF EQUITY CAPITAL**

2 **TESTIMONY**

3 Q. How does your recommended cost of equity capital compare with the cost
4 of equity capital proposed by the Company?

5 A. The Company's cost of capital witness, Dr. Zepp, is recommending a cost
6 of common equity of 12.40 percent. His 12.40 percent cost of equity
7 capital is 407 basis points higher than the 8.33 percent cost of equity
8 capital that I have calculated.

9

10 Q. Briefly summarize Dr. Zepp's direct testimony.

11 A. Dr. Zepp devotes a large portion of his testimony describing the risks
12 faced by AWC and why the Company's requests for a number pass
13 through adjustor mechanisms is justified. The remainder of his testimony
14 presents the results of his DCF and CAPM analyses.

15

16 Q. What methods did Dr. Zepp use to arrive at his cost of common equity for
17 AWC?

18 A. Dr. Zepp used both the DCF and CAPM methods. His DCF analysis
19 relies on two estimates for the growth component ("g") of the constant
20 model that I also used in my analysis. Dr. Zepp's DCF results range from
21 11.30 percent to 11.90 percent compared with my DCF average of 10.37
22 percent. In regard to the CAPM, Dr. Zepp also uses the same
23 Sharpe/Litner version of the CAPM model that I have used. His CAPM

1 analysis uses two different market risk premium inputs and his results
2 range from 11.80 percent to 12.50 percent compared to my average
3 CAPM result of 6.28 percent.

4

5 **DCF Comparison**

6 Q. What are the main reasons for the difference in the results that you
7 obtained from your DCF analysis and the results that Dr. Zepp obtained
8 from his DCF analysis using the constant growth model?

9 A. Dr. Zepp's dividend yields, based on three and twelve months of observed
10 stock price movements, are roughly the same as the results I obtained
11 from my water company sample but are lower than the dividend yields
12 obtained from my sample of LDC's. The main reason for the difference in
13 our DCF results are the growth estimates that Dr. Zepp used in his DCF
14 model. His first growth estimate, which he labels as the "conceptually
15 correct DCF estimates" is 8.81 percent based on a 3-month dividend yield
16 and 8.79 percent based on a 12-month dividend yield. His second growth
17 estimate which, is based on ACC Staff's past approach for calculating a
18 DCF growth component is 8.31 percent based on a 3-month dividend yield
19 and 8.29 percent based on a 12-month dividend yield. On average his
20 growth estimates for the DCF model are 221 basis points higher than the
21 average of my DCF growth estimates.

22

23 ...

1

2 Q. Do you agree with Dr. Zepp's estimates of growth?

3 A. No. I believe that the main reason for the difference in our earnings
4 estimates is that Dr. Zepp is relying only on earnings per share forecasts
5 as opposed to taking estimates of future growth in earnings, dividends and
6 book value per share into consideration as I have in developing my DCF
7 growth estimates (current Value Line estimates of EPS, DPS and BVPS
8 for the companies included in my water and gas samples can be seen on
9 my Schedule WAR-6). Reliance on earnings per share estimates alone
10 would tend to produce the higher results obtained by Dr. Zepp.

11

12 **CAPM Comparison**

13 Q. What is the difference between the risk-free instrument that Dr. Zepp used
14 in his CAPM model and the one that you used?

15 A. Dr. Zepp used forecasted yields on long-term U.S. Treasury instruments
16 as the input for the risk-free rate of return component in the CAPM model.
17 Dr Zepp's average forecasted long-term yield of 4.90 percent is 303 basis
18 points higher than 1.87 percent average yield of the 5-year treasury
19 instrument that I relied on.

20

21 Q. What are your concerns with Dr. Zepp's use of forecasted yields on long-
22 term U.S. Treasury instruments for a risk-free rate of return?

1 A. Besides the fact that Dr. Zepp relied on forecasts as opposed to actual
2 current yields (that result from prices for Treasury instruments that factor
3 in investors' future expectations) I believe that long-term treasury
4 instruments are not as suitable as intermediate-term instruments. As I
5 stated earlier in my testimony a good argument can be made that since
6 utilities in Arizona typically file for rates every three to five years, the yield
7 on a 5-year U.S. Treasury Instrument is a better proxy for a risk-free rate
8 of return.

9

10 Q. How did Dr. Zepp's average beta used in his CAPM model compare with
11 the average beta that you used in yours?

12 A. Dr Zepp's average beta for the water companies in his sample averaged
13 0.98 as opposed to the average 0.82 beta that I used in my CAPM
14 analysis (which did not rely on three of the water utilities that Dr. Zepp
15 included in his sample) and the average beta of 0.67 that I obtained from
16 my sample of LDC's.

17

18 Q. Has the average for the water utilities that Dr. Zepp included in his sample
19 changed since the time his testimony was filed?

20 A. Yes. The current average beta for the water utilities that Dr. Zepp
21 included in his sample is now 0.84 as opposed to the average beta of 0.98
22 that he relied on. The updated average would produce a lower expected
23 rate of return in Dr. Zepp's CAPM model.

1 Q. How does Dr. Zepp's market risk premium compare with the market risk
2 premium that you used in your CAPM analysis?

3 A. Dr. Zepp relied on two higher market risk premiums which produced an
4 average risk premium of 7.40 percent as opposed to the average market
5 risk premium of 5.95 percent that I used. His market risk premiums were
6 calculated on a narrower range of observed returns as opposed to the
7 range of returns that I relied on.

8
9 Q. How did Dr. Zepp arrive at his final 12.40 percent cost of common equity
10 for AWC?

11 A. Dr. Zepp's final estimate of 12.40 percent is based upon an average of the
12 results of his various DCF and CAPM models. In arriving at final cost of
13 equity figure for AWC, he adds an additional 50 basis points, to take into
14 account the additional risks that Dr. Zepp believes AWC faces.

15
16 Q. Does your silence on any of the issues, matters or findings addressed in
17 the testimony of Dr. Zepp or any other witness for AWC constitute your
18 acceptance of their positions on such issues, matters or findings?

19 A. No, it does not.

20
21 Q. Does this conclude your testimony on AWC?

22 A. Yes, it does.