Statement No. 8

PENNSYLVANIA-AMERICAN WATER COMPANY

Coatesville Wastewater Division

Docket No. R-2008-2032689

Direct Testimony

Of

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

Concerning

Cost of Equity

Date: April 28, 2008

DIRECT TESTIMONY OF PAUL R. MOUL

INTRODUCTION AND SUMMARY OF RECOMMENDATION

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

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

Q. What is the purpose of your testimony?

A. My testimony presents evidence, analysis and a recommendation concerning the appropriate rate of return on common equity that the Pennsylvania Public Utility Commission ("PUC" or the "Commission") should recognize in the determination of the revenues that Pennsylvania-American Water Company ("PAWC" or the "Company") should realize as a result of this proceeding. My analysis and recommendation are supported by the detailed financial data contained in Exhibit No. 8-A, which is a multi-page document divided into eleven (11) schedules. Additional evidence, in the form of appendices, follows my direct testimony. The items covered in these appendices provide additional detailed information concerning the explanation and application of the various financial models upon which I rely.

Q. Based upon your analysis, what is your conclusion concerning the cost of common equity and overall rate of return for the Company in this case?

A. My conclusion is that the Company's cost of common equity falls in a range from 11.50% to 12.50%. As shown on Schedule 1, for the purpose of this proceeding, the Company has selected an 11.50% cost of equity in calculating its requested overall rate of return in order to minimize the impact of the proposed increase on

customer rates. The calculation of the weighted average cost of capital requires the selection of appropriate capital structure ratios and a determination of the cost rate for each capital component. The Company's capital structure ratios and embedded costs of long-term debt and preferred stock are taken from the direct testimony of Mr. Steve L. Klick, the Company's Manager of Rates and Regulation. The resulting 8.63% overall rate of return, when applied to the Company's rate base, will provide a compensatory level of return for the use of capital and, if achieved, will provide the Company with the ability to attract capital on reasonable terms.

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

A. The Commission should consider the ratesetting principles that I have set forth in Appendix B. In this regard, the Commission's rate of return allowance must be set to cover the Company's interest and dividend payments, provide a reasonable level of earnings retention, produce an adequate level of internally generated funds to meet capital requirements, be commensurate with the risk to which the Company's capital is exposed, support reasonable credit quality, and allow the Company to raise capital on reasonable terms.

Q. Please briefly describe the Company.

A. PAWC is a wholly owned subsidiary of American Water Works Company, Inc., ("AWW"), the nation's largest water utility holding company. AWW has 25 water utility subsidiaries that operate in 32 states and Ontario, Canada. The stock of AWW was acquired on January 10, 2003 by Thames Water Aqua US Holdings GmbH, a subsidiary of RWE AG of Essen, Germany. AWW is in the process of undergoing an initial public offering of its common stock, which occurred on April 22, 2008.

At year-end 2007, PAWC provided wastewater service to 5,892 customers in the City of Coatesville and six surrounding boroughs and townships. Wastewater billings, which are based on metered water sales, break down as follows: approximately 33% to residential customers, 7% to commercial customers, 11% to industrial customers, 10% to municipal customers, and 39% to bulk treatment customers. While representing 39% of total volumes treated, bulk customers number only five. This means that the decisions of a few customers can have a significant impact on the Company's Coatesville operations. Further, treatment services provided to just two industrial customers represent approximately 11% of total volumes. Combined, seven customers therefore represent 50% of total volumes. This high concentration represents a significant risk for the Company.

Q. How have you determined the cost of equity for the Company?

A. My recommended cost of equity is established using capital market and financial data relied upon by investors when assessing the relative risk, and hence cost of equity, for a water utility, such as PAWC. In analyzing the Company's cost of equity, I have relied on four well-recognized measures: the Discounted Cash Flow ("DCF") model, the Risk Premium ("RP") analysis, the Capital Asset Pricing Model ("CAPM"), and the Comparable Earnings ("CE") approach. By considering the results of a variety of approaches, my analysis is consistent with well-recognized principles for determining a fair rate of return.

I have measured the cost of equity for the Company using data from a proxy group of eight water companies that are identified on page 2 of Schedule 3. I will refer to my proxy group of eight water companies as the "Water Group." I have employed group average data in order to minimize the effect of any anomalies in the market data for an individual company. I have used the Water Group to measure

the cost of equity for the Coatesville wastewater division because there are not enough wastewater utilities with traded stock that could be used in an analysis such as this. Moreover, of all utility types, the water utilities are probably most similar to the wastewater utilities.

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

A. My recommendation is derived from the results of the four methods/models previously identified. In general, the use of more than one approach provides a superior foundation to arrive at the cost of equity. At any point in time, any single method can provide an incomplete measure of the cost of equity depending upon extraneous factors which may influence market sentiment. The specific application of these methods/models will be described later in my testimony.

The following table provides a summary of the indicated costs of equity using each of these approaches.

	Water Group
DCF	12.57%
Risk Premium	11.50%
CAPM	15.13%
Comparable Earnings	12.80%
Average	13.00%
Median	12.69%
Mid-point	13.32%

Focusing upon the DCF and RP results, a reasonable range of the cost of common equity is approximately 11.50% to 12.50%. While typically I would propose a range

banded by one-half percentage point, the results of three out of four measures are well above 12.00%. For this case, I recommend that the Company's rate of return on common equity be set within the range of 11.50% to 12.50%. My recommended range of the rate of return on common equity makes no provision for the prospect that the rate of return may not be achieved due to unforeseen events, such as unexpected spikes in expenses, abrupt changes in customer usage, and abnormal weather events. Furthermore, general inflationary pressures can produce cost increases that will negatively impact the Company's return unless provision for them is recognized in the ratesetting process.

FUNDAMENTAL RISK ANALYSIS

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

A. Yes. It is necessary to establish a company's relative risk position within its industry through a fundamental analysis of various quantitative and qualitative factors that bear upon investors' assessment of overall risk. The items that influence investors' evaluation of risk and their required returns are described in Appendix C. For this purpose, I have compared the Company to the S&P Public Utilities, an industry-wide proxy consisting of various public utility endeavors, and the Water Group.

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

A. The S&P Public Utilities is a widely recognized index which is comprised of electric power and natural gas companies. These companies are identified on page 3 of Schedule 4.

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

A. The Water Group companies have the following common characteristics: (i) they are listed in the "Water Utility Industry" section (basic and expanded) of The Value

Line Investment Survey, (ii) their stock is publicly traded, and (iii) they are not currently the target of a publicly-announced merger or acquisition. It would be inappropriate to include a company that is a target of a takeover in a proxy group because the stock price of that company would not reflect its underlying fundamentals. I will discuss this issue in further detail later in my testimony.

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

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

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

A. The Company does not have a bond rating from Standard and Poor's Corporation ("S&P") or Moody's Investors Services ("Moody's"). AWW, and its affiliate American Water Capital Corporation ("AWCC"), which obtains the investor-provided long-term debt on behalf of PAWC and other water utility affiliates, has a corporate credit rating ("CCR") of A- from S&P and a Long Term ("LT") issuer rating of Baa1 from Moody's. The CCR designation by S&P and LT issuer rating by Moody's focus upon the credit quality of the issuer of the debt, rather than upon the debt obligation itself. The average CCR for the Water Group is an A from S&P and the average LT rating is A2 from Moody's. For the S&P Public Utilities, the average composite rating is BBB+ by S&P and Baa1 by Moody's. Many of the financial indicators that I

will subsequently discuss are considered during the rating process.

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

A. The broad categories of financial data that I will discuss are shown on Schedules 2, 3 and 4. The data cover the five-year period 2002-2006. The S&P Utility Compustat database that I used as a source of the schedules has not been fully updated with 2007 annual data (it is currently 42% updated). The important categories of relative risk may be summarized as follows:

Size. In terms of capitalization, PAWC is larger than the average size of the Water Group. The average S&P Public Utility is many times the size of PAWC and the average Water Group company. All other things being equal, a smaller company is riskier than a larger company because a given change in revenue and expense has a proportionately greater impact on a small firm. As I will demonstrate later, the size of a firm can impact its cost of equity.

Market Ratios. Market-based financial ratios, such as earnings/price ratios and dividend yields, provide a partial measure of the investor-required cost of equity. If all other factors are equal, investors will require a higher return on equity for companies that exhibit greater risk as compensation for that risk. That is to say, a firm that investors perceive to have higher risks will experience a lower price per share in relation to expected earnings.[1]

There are no market ratios available for PAWC because its stock is owned by AWW. The five-year average price-earnings multiple was higher for the Water

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

Group than for the S&P Public Utilities. The five-year average dividend yield was lower for the Water Group, as compared to the S&P Public Utilities. The five-year average market-to-book ratio was higher for the Water Group, as compared to the S&P Public Utilities.

Common Equity Ratio. The level of financial risk is measured by the proportion of long-term debt and other senior capital that is contained in a company's capitalization. Financial risk is also analyzed by comparing common equity ratios (the complement of the ratio of debt and other senior capital). That is to say, a firm with a high common equity ratio has low financial risk, while a firm with a low common equity ratio has high financial risk. The five-year average common equity ratios, based on permanent capital, were 45.3% for the Company, 50.5% for the Water Group, and 41.2% for the S&P Public Utilities. From a financial risk perspective, the S&P Public Utilities show the highest financial risk, followed by PAWC and then by the Water Group.

Return on Book Equity. Greater variability (i.e., uncertainty) of a firm's earned returns signifies relative levels of risk, as shown by the coefficient of variation (standard deviation ÷ mean) of the rate of return on book common equity. The higher the coefficient of variation, the greater degree of variability. For the five-year period, the coefficients of variation were 0.054 (0.5% ÷ 9.2%) for the Company, 0.040 (0.4% ÷ 10.0%) for the Water Group, and 0.159 (1.7% ÷ 10.7%) for the S&P Public Utilities. The earnings variability was somewhat higher for PAWC as compared to the Water Group. Also, the Company's historic returns on book common equity are lower than the Water Group and S&P Public Utilities.

Operating Ratios. I have also compared operating ratios (the percentage of revenues consumed by operating expense, depreciation and taxes other than

income).[2] The five-year average operating ratios were 59.2% for the Company, 74.0% for the Water Group, and 84.0% for the S&P Public Utilities. The Company's lower operating ratio can be traced to its high capital intensity because a larger operating margin (i.e., the complement of the operating ratio) derives from the income taxes and return associated with a larger capital investment per dollar of revenue. Indeed, the Company's investment in net plant is 4.73 times its revenue in 2006. This is to say, PAWC must invest $4.73 in new or replacement plant to produce $1.00 of additional revenue. This compares to the Water Group's investment in net plant which is 3.34 times its revenue in 2007. No direct conclusion should be drawn from the operating ratio comparison for the reason stated above.

Coverage. The level of fixed charge coverage (i.e., the multiple by which available earnings cover fixed charges, such as interest expense and preferred stock dividends) provides an indication of the earnings protection for creditors. Higher levels of coverage, and hence earnings protection for fixed charges, are usually associated with superior grades of creditworthiness. The five-year average pre-tax interest coverage (excluding AFUDC) was 2.99 times for the Company, 3.32 times for the Water Group, and 2.89 times for the S&P Public Utilities. Creditor protection, as shown by the interest coverage was somewhat weaker for PAWC as compared to the Water Group.

Quality of Earnings. Measures of earnings quality are usually revealed by the percentage of Allowance for Funds Used During Construction ("AFUDC") related to income available for common equity, the effective income tax rate, and other cost deferrals. These measures of earnings quality usually influence a firm's internally

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

generated funds because poor quality of earnings would not generate high levels of cash flow. Quality of earnings has not been a significant concern for the Company, the Water Group and the S&P Utilities in recent years.

Internally Generated Funds. Internally generated funds ("IGF") provide an important source of new investment capital for a utility and represent a key measure of credit strength. Historically, the five-year average percentage of IGF to capital expenditures was 79.6% for the Company, 54.6% for the Water Group, and 110.1% for the S&P Public Utilities.

The Company is engaged in a continuing capital expenditure program necessary to meet the needs of its customers and to comply with various regulations. Over the period 2001-2007, the Company invested $13.3 million in the Coatesville wastewater division, of which $5.3 million was from its own funds and $8.0 million was from developer contributions and bulk customer capacity fees. For the future test year in this case, the Company expects another $6.7 million of capital expenditures. The Company further expects that another $50 million of investment will be needed for the construction of a new wastewater treatment plant, which is currently projected to be completed and placed in service in 2009.

Betas. The financial data I have been discussing relate primarily to company-specific risks. Market risk for firms with traded stock is measured by beta coefficients. Beta coefficients attempt to identify systematic risk, i.e., the risk associated with changes in the overall market for common equities. Value Line publishes such a statistical measure of a stock's relative historical volatility to the rest of the market. A comparison of market risk is shown by the average betas of .93 for the Water Group (see page 2 of Schedule 3), and .95 for the S&P Public Utilities (see page 4 of Schedule 4).

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

A. The risk of the Company parallels that of the Water Group in certain respects. The Company has a higher degree of capital intensity than the Water Group, its common equity is lower thereby displaying more financial risk, and its achieved returns have been lower. The Company also has very substantial construction requirements for the future for its Coatesville wastewater division. Overall, the fundamental risk factors indicate that the Water Group provides a conservative basis for measuring the Company's cost of equity.

COST OF EQUITY – GENERAL APPROACH

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

A. Although my fundamental financial analysis provides the required framework to establish the risk relationships among PAWC, the Water Group and the S&P Public Utilities, the cost of equity must be measured by standard financial models that I describe in Appendix D. Differences in risk traits, such as size, business diversification, geographical diversity, regulatory policy, financial leverage, and bond ratings must be considered when analyzing the cost of equity indicated by the models.

It also is important to reiterate that no one method or model of the cost of equity can be applied in an isolated manner. Rather, informed judgment must be used to take into consideration the relative risk traits of the firm. It is for this reason that I have used more than one method to measure the Company's cost of equity. As noted in Appendix D and elsewhere in my direct testimony, each of the methods used to measure the cost of equity contains certain incomplete and/or overly restrictive assumptions and constraints that are not optimal. Therefore, I favor

considering the results from a variety of methods. In this regard, I have applied each of these methods with data taken from the Water Group and determined that the cost of equity falls in the range of 11.50% to 12.50%.

DISCOUNTED CASH FLOW ANALYSIS

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

A. The details of my use of the DCF approach and the calculations and evidence in support of my conclusions are set forth in Appendix E. I will summarize them here. The Discounted Cash Flow ("DCF") model seeks to explain the value of an asset as the present value of future expected cash flows discounted at the appropriate risk-adjusted rate of return. In its simplest form, the DCF return on common stocks consists of a current cash (dividend) yield and future price appreciation (growth) of the investment.

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

As I describe in Appendix E, the DCF approach has other limitations that diminish its usefulness in the ratesetting process when the market capitalization diverges significantly from the book value capitalization. When this situation exists, the DCF method will lead to a misspecified cost of equity when it is applied to a book value capital structure.

Q. Are there any other factors that make the results of the DCF model problematic in measuring the cost of equity for water utilities?

A. The results of the DCF model are especially troublesome at this time due to the merger and acquisition ("M&A") activity sweeping the water utility industry. Water companies have become acquisition targets during the process of "rolling-up" the industry. It has been reported that there are approximately 50,000 separate investor-owned and municipal water utility systems in the U.S. There are numerous examples of water utility acquisitions within recent memory. In the last several years, Aquarion purchased the New England properties from American Water Works; Philadelphia Suburban Corporation (now Aqua America) completed the major acquisition of Consumers Water Company and acquired the AquaSource assets from DQE; American Water Works completed the $700 million acquisition of National Enterprises, Inc. and acquired the water utility and wastewater assets of Citizens Utilities; Yorkshire Water/Kelda purchased Aquarion and subsequently sold it to Macquarie; Suez Lyonnaise des Eaux purchased all of the remaining shares of United Water Resources that it did not already own; Thames Water purchased E'Town Corporation; and the German utility RWE AG, after acquiring Thames, acquired American Water Works and now is in the process of divesting its interest in AWW through an initial public offering. On April 22, 2008, 58 million shares of American Water Works were sold in an initial public offering.

These acquisitions were accomplished at premiums offered to induce stockholders to sell their shares -- the Aquarion acquisition was at a 19.3% premium, the UWR acquisition was at a 54% premium, the E'Town Corp. acquisition was at a 36% premium, and the American Water Works acquisition was at a 36.5% premium. These premiums create a ripple effect on the stock prices of all water

utilities, just like a rising tide lifts all boats. Due to M&A activity, there has been a significant run-up of the stock prices for the water companies. With these elevated stock prices, dividend yields fall, and without some adjustment, the results become unduly depressed by reference to alternative investment opportunities – such as public utility bonds.

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

A. The DCF methodology requires the use of an expected dividend yield to establish the investor-required cost of equity. For the twelve months ended February 2008, the monthly dividend yields of the Water Group are shown graphically on Schedule 5. The monthly dividend yields shown on Schedule 5 reflect an adjustment to the month-end prices to reflect the build up of the dividend in the price that has occurred since the last ex-dividend date (i.e., the date by which a shareholder must own the shares to be entitled to the dividend payment – usually about two to three weeks prior to the actual payment). An explanation of this adjustment is provided in Appendix E.

For the twelve months ending February 2008, the average dividend yield was 2.72% for the Water Group based upon a calculation using annualized dividend payments and adjusted month-end stock prices. The dividend yields for the more recent six- and three- month periods were 2.79% and 2.91%, respectively. I have used, for the purpose of my direct testimony, a dividend yield of 2.79% for the Water Group, which represents the six-month average yield. The use of this dividend yield will reflect current capital costs, while avoiding spot yields.

For the purpose of a DCF calculation, the average dividend yields must be adjusted to reflect the prospective nature of the dividend payments i.e., the higher expected dividends for the future. Recall that the DCF is an expectational model

that must reflect investor anticipated cash flows for the Water Group. I have adjusted the six-month average dividend yield in three different, but generally accepted manners, and used the average of the three adjusted values as calculated in Appendix E. That adjusted dividend yield is 2.92% for the Water Group.

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

A. As noted previously, investors are interested principally in the future growth of their investments (i.e., the price per share of the stock). As I explain in Appendix E, future earnings per share growth represents their primary focus because under the constant price-earnings multiple assumption of the DCF model, the price per share of stock will grow at the same rate as earnings per share. In conducting a growth rate analysis, a wide variety of variables can be considered when reaching a consensus of prospective growth. The variables that can be considered include: earnings, dividends, book value, and cash flow stated on a per share basis. Historical values for these variables can be considered, as well as analysts' forecasts that are widely available to investors. A fundamental growth rate analysis also can be formulated, which consists of internal growth ("b x r"), where "r" represents the expected rate of return on common equity and "b" is the retention rate that consists of the fraction of earnings that are not paid out as dividends. The internal growth rate can be modified to account for sales of new common stock -- this is called external growth ("s x v"), where "s" represents the new common shares expected to be issued by a firm and "v" represents the value that accrues to existing shareholders from selling stock at a price different from book value. Fundamental growth, which combines internal and external growth, provides an explanation of the factors that cause book value per share to grow over time. Hence, a fundamental

growth rate analysis is duplicative of expected book value per share growth.

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

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

A. Investors consider both company-specific variables and overall market sentiment (i.e., level of inflation rates, interest rates, economic conditions, etc.) when balancing their capital gains expectations with their dividend yield requirements. I follow an approach that is not rigidly formatted because investors are not influenced by a single set of company-specific variables weighted in a formulaic manner. Therefore, in my opinion, all relevant growth rate indicators using a variety of techniques must be evaluated when formulating a judgment of investor expected growth.

Q. What data have you reviewed in your growth rate analysis?

A. I have reviewed the growth in the financial variables shown on Schedules 6 and 7. The bar graph provided on Schedule 6 shows the historical growth rates in earnings per share, dividends per share, book value per share, and cash flow per share for the Water Group. The historical growth rates were taken from the Value Line publication that provides these data. As shown on Schedule 6, historical growth in earnings per share was in the range of 2.56% to 5.50% for the Water Group. Negative growth rates reflected in the historical data provide no reliable guide to gauge investor expected growth for the future. Investor expectations encompass long-term positive growth rates and, as such, could not be represented by sustainable negative rates of change. Therefore, statistics that include negative growth rates should not be given any weight when formulating a composite growth rate expectation. The prospect of rate increases granted by regulators, the continued obligation to provide service as required by customers, and the ongoing growth of customers mandate investor expectations of positive future growth rates. Stated simply, there is no reason for investors to expect that a utility will wind up its business and distribute its common equity capital to shareholders, which would be symptomatic of a long-term permanent earnings decline. Although investors have knowledge that negative growth and losses can occur, their expectations include positive growth. Negative historic values will not provide a reasonable representation of future growth expectations because, in the long run, investors will always expect positive growth. Indeed, rational investors expect positive returns, otherwise they will hold cash rather than invest with the expectation of a loss.

Schedule 7 provides projected earnings per share growth rates taken from analysts' forecasts compiled by IBES/First Call, Zacks, and Reuters/Market Guide and from the Value Line publication. IBES/First Call, Zacks, and Reuters/Market

Guide represent reliable authorities of projected growth upon which investors rely. The IBES/First Call, Zacks, and Reuters/Market Guide forecasts are limited to earnings per share growth, while Value Line makes projections of other financial variables. The Value Line forecasts of dividends per share, book value per share, and cash flow per share have also been included on Schedule 7 for the Water Group.

Although five-year forecasts usually receive the most attention in the growth analysis for DCF purposes, present market performance has been strongly influenced by short-term earnings forecasts. Each of the major publications provides earnings forecasts for the current and subsequent year. These short-term earnings forecasts receive prominent coverage, and indeed they dominate these publications. While the DCF model typically focuses upon long-run estimates of earnings, stock prices are clearly influenced by current and near-term earnings forecasts.

Q. Is a five-year investment horizon associated with the analysts' forecasts consistent with the DCF model?

A. Yes. In fact, it illustrates that the infinite form of the DCF model contains an unrealistic assumption. Rather than viewing the DCF in the context of an endless stream of growing dividends (e.g., a century of cash flows), the growth in the share value (i.e., capital appreciation, or capital gains yield) is most relevant to investors' total return expectations. Hence, the sale price of a stock can be viewed as a liquidating dividend that can be discounted along with the annual dividend receipts during the investment-holding period to arrive at the investor expected return. The growth in the price per share will equal the growth in earnings per share absent any change in price-earnings (P-E) multiple -- a necessary assumption of the DCF. As

such, my company-specific growth analysis, which focuses principally upon five-year forecasts of earnings per share growth, conforms with the type of analysis that influences the total return expectation of investors. Moreover, academic research focuses on five-year growth rates as they influence stock prices. Indeed, if investors really required forecasts which extended beyond five years in order to properly value common stocks, then I am sure that some investment advisory service would begin publishing that information for individual stocks in order to meet the demands of investors. The absence of such a publication signals that investors do not require infinite forecasts in order to purchase and sell stocks in the marketplace.

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

A. As to the five-year forecast growth rates, Schedule 7 indicates that the projected earnings per share growth rates for the Water Group are 9.49% by IBES/First Call, 9.63% by Zacks, 9.54% by Reuters/Market Guide, and 10.05% by Value Line. The Value Line projections indicate that earnings per share for the Water Group will grow prospectively at a more rapid rate (i.e., 10.05%) than the dividends per share (i.e., 6.10%), which indicates a declining dividend payout ratio for the future. As indicated earlier, and in Appendix E, with the constant price-earnings multiple assumption of the DCF model, growth for these companies will occur at the higher earnings per share growth rate, thus producing the capital gains yield expected by investors.

Q. What conclusion have you drawn from these data?

A. Historical and projected earnings per share and dividends per share growth indicators should, of course, be considered. However, projections of future earnings growth provide the principal focus of investor expectations. In this regard, it is worthwhile to note that Professor Myron Gordon, the foremost proponent of the DCF

model in rate cases, concluded that the best measure of growth in the DCF model is forecasted earnings per share growth.[3] Hence, to follow Professor Gordon's findings, projections of earnings per share growth, such as those published by IBES/First Call, Zacks, Reuters/Market Guide, and Value Line, represent a reasonable assessment of investor expectations.

It is appropriate to consider all forecasts of earnings growth rates that are available to investors. In this regard, I have considered the forecasts from IBES/First Call, Zacks, Reuters/Market Guide and Value Line. The IBES/First Call, Zacks, and Reuters/Market Guide growth rates are consensus forecasts taken from a survey of analysts that make projections of growth for these companies. The IBES/First Call, Zacks, and Reuters/Market Guide estimates are obtained from the Internet and are widely available to investors free-of-charge. First Call is probably quoted most frequently in the financial press when reporting on earnings forecasts. The Value Line forecasts also are widely available to investors and can be obtained by subscription or free-of-charge at most public and collegiate libraries.

The forecasts of earnings per share growth, as shown on Schedule 7, provide a range of growth rates of 9.49% to 10.05%. To those company-specific growth rates, consideration must be given to long-term growth in corporate profits. Although the DCF growth rates cannot be established solely with a mathematical formulation, an investor-expected growth rate of 9.00% is a conservative representation of the analysts' growth rate forecasts, which are generally above 9.0%. The Value Line forecast of dividend per share growth is inadequate in this regard due to the forecast decline in the dividend payout that I previously described.

[3] "Choice Among Methods of Estimating Share Yield," The Journal of Portfolio Management, spring 1989 by Gordon, Gordon & Gould.

As such, a 9.00% growth rate will accommodate all these factors.

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

A. Only if the capital structure ratios are measured with the market value of debt and equity. If book values are used to compute the capital structure ratios, then an adjustment is required.

Q. Please explain why.

A. If regulators rely upon the results of the DCF (which are based on the market price of the stock of the companies analyzed) and use those results in computing the weighted average cost of capital with a book value capital structure, those results will not reflect the degree of financial risk associated with the capital structure shown by the market capitalization. When the price diverges from book value, the potential exists for a financial risk difference, whereby the capitalization of a utility measured at its market value contains relatively less debt and more equity than the capitalization measured at its book value.

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

- January 10, 2002 for Pennsylvania-American Water Company in Docket No. R-00016339 -- 60 basis points adjustment.
- August 1, 2002 for Philadelphia Suburban Water Company in Docket No. R-00016750 -- 80 basis points adjustment.
- January 29, 2004 for Pennsylvania-American Water Company in Docket No. R-00038304 (affirmed by the Commonwealth Court on November 8, 2004) -- 60 basis points adjustment.
- August 5, 2004 for Aqua Pennsylvania, Inc. in Docket No. R-00038805 -- 60 basis points adjustment.

- December 22, 2004 for PPL Electric Utilities Corporation in Docket No. R-00049255 -- 45 basis points adjustment.
- February 8, 2007 for PPL Gas Utilities Corporation in Docket No. R-00061398 -- 70 basis points adjustment.

In order to make the DCF results relevant to the capitalization measured at book value (as is done for rate setting purposes), the market-derived cost rate cannot be used without modification. As I will explain, the results of the DCF model can be modified to account for differences in risk when the book value capital structure contains more financial leverage than the market value capital structure.

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

A. The only perspective that is important to investors is the return that they can realize on the market value of their investment. As I have measured the DCF, the simple yield (D/P) plus growth (g) provides a return applicable strictly to the price (P) that an investor is willing to pay for a share of stock. The DCF formula is derived from the standard valuation model: P = D/ (k-g), where P = price, D = dividend, k = the cost of equity, and g = growth in cash flows. By rearranging the terms, we obtain the familiar DCF equation: k= D/P+g. All of the terms in the DCF equation represent investors' assessment of expected future cash flows that they will receive in relation to the value that they set for a share of stock (P). The need for the leverage adjustment arises when the results of the DCF model (k) are to be applied to a capital structure that is different than indicated by the market price (P). From the market perspective, the financial risk of the Water Group is accurately measured by the capital structure ratios calculated from the market capitalization of a firm. If the ratesetting process utilizes the market capitalization ratios, then no additional analysis or adjustment would be required, and the simple yield (D/P) plus growth (g)

components of the DCF would satisfy the financial risk associated with the market value of the equity capitalization. Since the ratesetting process uses a different set of ratios calculated from the book value capitalization, then further analysis is required to synchronize the financial risk of the book capitalization with the required return on the book value of the equity. This adjustment is developed through precise mathematical calculations, using well recognized analytical procedures that are widely accepted in the financial literature. To arrive at that return, the rate of return on common equity is the unleveraged cost of capital (or equity return at 100% equity) plus a term(s) reflecting the increase in financial risk resulting from the use of leverage in the capital structure. Multiple terms are used in the case of both debt and preferred stock. The resulting return is the one that is necessary for the utility to earn on its own book value capital structure to reflect the financial risk that varies from the return that applies to the market value capital structure.

Q. What are the implications of applying a DCF return derived from market data to the book value of a utility's capitalization?

A. The capital structure ratios measured at the utility's book value show more financial leverage, and higher risk, than the capitalization measured at its market values. Please refer to Appendix E for the comparison. This means that a market-derived cost of equity, using models such as DCF and CAPM, reflects a level of financial risk that is different -- in this instance, much lower -- from that shown by the book value capitalization. Hence, it is necessary to adjust the market-determined cost of equity upward to reflect the higher financial risk related to the book value capitalization used for ratesetting purposes. Failure to make this modification would result in a mismatch of the lower financial risk related to market value used to measure the cost of equity and the higher financial risk of the book value capital

structure used in the ratesetting process. That is to say, the cost of equity for the Water Group that is related to the 50.96% common equity ratio using book value has higher financial risk than the 69.01% common equity ratio using market values. Because the ratesetting process utilizes the book value capitalization, it is necessary to adjust the market-determined cost of equity for the higher financial risk related to the book value of the capitalization.

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

A. In pioneering work, Nobel laureates Modigliani and Miller developed several theories about the role of leverage in a firm's capital structure.[4] As detailed in Appendix E, the Modigliani and Miller theory shows that the cost of equity increases by 1.50% (13.42% - 11.92%) when the book value of equity, rather than the market value of equity, is used for ratesetting purposes. As noted previously, the Commission has recognized the need for this adjustment by adding 0.45% to 0.80% to the results of the simple dividend yield plus growth components of the DCF. The average adjustment for the four water company cases was 0.65%, and the adjustment in the most recent Commission order was 0.70%. For the purpose of this case, an adjustment of at least 0.65% is warranted given the actual calculation that shows a higher adjustment with year-end 2007 data.

Q. Please provide the DCF return based upon your preceding discussion of dividend yield, growth, and leverage.

A. As explained previously, I have utilized a six-month average dividend yield ("D1

[4] Modigliani, F. and Miller, M.H. "The Cost of Capital, Corporation Finance, and the Theory of Investments." American Economic Review, June 1958, 261-297.

Modigliani, F. and Miller, M. H. "Taxes and the Cost of Capital: A Correction." American Economic Review, June 1963, 433-443.

/P0") adjusted in a forward-looking manner for my DCF calculation. This dividend yield is used in conjunction with the growth rate ("g ") previously developed. The DCF also includes the leverage modification ("lev.") required when the book value equity ratio is used in determining the weighted average cost of capital in the ratesetting process rather than the market value equity ratio related to the price of stock. The resulting DCF cost rate is:

	D_1/P_0	+	g	+	$lev.$	=	k
Water Group	2.92%	+	9.00%	+	0.65%	=	12.57%

The DCF result shown above represents the simplified (i.e., Gordon) form of the model that contains a constant growth assumption. I should reiterate, however, that the DCF indicated cost rate provides an explanation of the rate of return on common stock market prices without regard to the prospect of a change in the price-earnings multiple. An assumption that there will be no change in the price-earnings multiple is not supported by the realities of the equity market, because price-earnings multiples do not remain constant.

RISK PREMIUM ANALYSIS

Q. Please describe your use of the Risk Premium approach to determine the cost of equity.

A. The details of my use of the Risk Premium approach and the evidence in support of my conclusions are set forth in Appendix G. I will summarize them here. With this method, the cost of equity capital is determined by corporate bond yields plus a premium to account for the fact that common equity is exposed to greater investment risk than debt capital. As with other models of the cost of equity, the Risk Premium approach has its limitations, including the difficulty in formulating an

accurate assessment of the future cost of corporate debt and the measurement of the risk-adjusted common equity premium.

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

A. In my opinion, 6.00% represents a reasonable estimate of the prospective yield on long-term A-rated public utility bonds. As I will subsequently show, the Moody's index and the Blue Chip forecasts support this figure.

The historical yields for long-term public utility debt are shown graphically on page 1 of Schedule 8. For the twelve months ended February 2008, the average monthly yield on Moody's A-rated index of public utility bonds was 6.10%. For the six and three-month periods ended February 2008, the yields were 6.11% and 6.13%, respectively. During the twelve-months ended February 2008, the range of the yields on A-rated public utility bonds was 5.85% to 6.30%.

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

A. I have determined the prospective yield on A-rated public utility debt by using the Blue Chip Financial Forecasts ("Blue Chip") along with the spread in the yields that I describe above and in Appendix F. The Blue Chip is a reliable authority and contains consensus forecasts of a variety of interest rates compiled from a panel of banking, brokerage, and investment advisory services. In early 1999, Blue Chip stopped publishing forecasts of yields on A-rated public utility bonds because the Federal Reserve deleted these yields from its Statistical Release H.15. To independently project a forecast of the yields on A-rated public utility bonds, I have combined the forecast yields on long-term Treasury bonds published on April 1, 2008, and the yield spread of 1.50%. For the past year, A-rated public utility bonds have yielded more than Treasury bonds by 1.66% as the three month average,

1.50% as the six month average, and 1.28% as the twelve months average. From these averages, 1.50% represents a reasonable spread for the yield on A-rated public utility bonds over Treasury bonds. For comparative purposes, I also have shown the Blue Chip forecasts for Aaa-rated and Baa-rated corporate bonds:

		Blue Chip Financial Forecasts				
		Corporate		30-Year	A-rated Public Utility	
Year	Quarter	Aaa-rated	Baa-rated	Treasury	Spread	Yield
2008	2nd	5.4%	6.7%	4.3%	1.50%	5.80%
2008	3rd	5.4%	6.6%	4.3%	1.50%	5.80%
2008	4th	5.5%	6.7%	4.4%	1.50%	5.90%
2009	1st	5.6%	6.7%	4.5%	1.50%	6.00%
2009	2nd	5.7%	6.8%	4.7%	1.50%	6.20%
2009	3rd	5.8%	6.9%	4.8%	1.50%	6.30%

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

A. Yes. Twice yearly, Blue Chip provides long-term forecasts of interest rates. In its December 1, 2007 publication, the Blue Chip forecasts of interest rates were as follows:

	Blue Chip Financial Forecasts				
	Corporate		30-Year	A-rated Public Utility	
Averages	Aaa-rated	Baa-rated	Treasury	Spread	Yield
2009-13	6.0%	7.0%	5.2%	1.50%	6.70%
2014-18	6.1%	7.0%	5.3%	1.50%	6.80%

Given these forecasted interest rates, a 6.00% yield on A-rated public utility bonds represents a reasonable, and perhaps conservative, expectation.

Q. What equity risk premium have you determined for public utilities?

A. Appendix G provides a discussion of the financial returns that I relied upon to develop the appropriate equity risk premium for the S&P Public Utilities. I have calculated the equity risk premium by comparing the market returns on utility stocks and the market returns on utility bonds. I chose the S&P Public Utility index for the

purpose of measuring the market returns for utility stocks. The S&P Public Utility index is reflective of the risk associated with regulated utilities, rather than some broader market indexes, such as the S&P 500 Composite index. The S&P Public Utility index is a subset of the overall S&P 500 Composite index. Use of the S&P Public Utility index reduces the role of judgment in establishing the risk premium for public utilities. With the equity risk premiums developed for the S&P Public Utilities as a base, I derived the equity risk premium for the Water Group.

Q. What equity risk premium for the S&P Public Utilities have you determined for this case?

A. To develop an appropriate risk premium, I analyzed the results for the S&P Public Utilities by averaging (i) the midpoint of the range shown by the geometric mean and median and (ii) the arithmetic mean. This procedure has been employed to provide a comprehensive way of measuring the central tendency of the historical returns. As shown by the values set forth on page 2 of Schedule 9, the indicated risk premiums for the various time periods analyzed are 5.51% (1928-2007), 6.58% (1952-2007), 6.08% (1974-2007), and 6.37% (1979-2007). The selection of the shorter periods taken from the entire historical series is designed to provide a risk premium that conforms more nearly to present investment fundamentals, and removes some of the more distant data from the analysis.

Q. Do you have further support for the selection of the time periods used in your equity risk premium determination?

A. Yes. First, the terminal year of my analysis presented in Schedule 9 represents the returns realized through 2007. Second, the selection of the initial year of each period was based upon the events that I described in Appendix G. These events were fixed in history and cannot be manipulated as later financial data becomes

available. That is to say, using the Treasury-Federal Reserve Accord as a defining event, the year 1952 is fixed as the beginning point for the measurement period regardless of the financial results that subsequently occurred. Likewise, 1974 represented a benchmark year because it followed the 1973 Arab Oil embargo. Also, the year 1979 was chosen because it began the deregulation of the financial markets. As such, additional data are merely added to the earlier results when they become available, clearly showing that the periods chosen were not driven by the desired results of the study.

Q. What conclusions have you drawn from these data?

A. Using the summary values provided on page 2 of Schedule 9, the 1928-2007 period provides the lowest indicated risk premium, while the 1952-2007 period provides the highest risk premium for the S&P Public Utilities. Within these bounds, a common equity risk premium of 6.23% (6.08% + 6.37% = 12.45% ÷ 2) can be calculated from data covering the periods 1974-2007 and 1979-2007. Therefore, 6.23% represents a reasonable risk premium for the S&P Public Utilities in this case.

As noted earlier in my fundamental risk analysis, differences in risk characteristics must be taken into account when applying the results for the S&P Public Utilities to the Water Group including size, market ratios, common equity ratio, return on book equity, operating ratios, coverage, quality of earnings, internally generated funds, and betas. In my opinion, these differences indicate that 5.50% represents a reasonable common equity risk premium in this case. This represents approximately 88% (5.50% ÷ 6.23% = 0.88) of the risk premium of the S&P Public Utilities and is reflective of the lower risk of the Water Group compared to the S&P Public Utilities.

Q. What common equity cost rate would be appropriate using this equity risk

premium and the yield on long-term public utility debt?

A. The cost of equity (i.e., "k") is represented by the sum of the prospective yield for long-term public utility debt (i.e., "i") and the equity risk premium (i.e., "RP"). The Risk Premium approach provides a cost of equity of:

	i	+	*RP*	=	*K*
Water Group	6.00%	+	5.50%	=	11.50%

CAPITAL ASSET PRICING MODEL

Q. Have you used the Capital Asset Pricing Model to measure the cost of equity in this case?

A. Yes, I have used the Capital Asset Pricing Model ("CAPM") in addition to my other methods. As with other models of the cost of equity, the CAPM contains a variety of assumptions that I discuss in Appendix H. Therefore, this method should be used with other methods to measure the cost of equity, as each will complement the other and will provide a result that will alleviate the unavoidable shortcomings found in each method.

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

A. The CAPM uses the yield on a risk-free interest bearing obligation plus a rate of return premium that is proportional to the systematic risk of an investment. The details of my use of the CAPM and evidence in support of my conclusions are set forth in Appendix H. To compute the cost of equity with the CAPM, three components are necessary: a risk-free rate of return ("Rf"), the beta measure of systematic risk ("β"), and the market risk premium ("Rm-Rf") derived from the total return on the market of equities reduced by the risk-free rate of return. The CAPM specifically accounts for differences in systematic risk (i.e., market risk as measured

by the beta) between an individual firm or group of firms and the entire market of equities. As such, to calculate the CAPM it is necessary to employ firms with traded stocks. In this regard, I performed a CAPM calculation for the Water Group. In contrast, my Risk Premium approach considers both industry- and company-specific factors because it is not limited to measuring just systematic risk. As a consequence, the Risk Premium approach is more comprehensive than the CAPM. In addition, the Risk Premium approach provides a better measure of the cost of equity because it is founded upon the yields on corporate bonds rather than Treasury bonds.

Q. What betas have you considered in the CAPM?

A. For my CAPM analysis, I initially considered the Value Line betas. As shown on page 1 of Schedule 10, the average beta is .93 for the Water Group.

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

A. The betas must be reflective of the financial risk associated with the ratesetting capital structure that is measured at book value. Therefore, Value Line betas cannot be used directly in the CAPM, unless those betas are applied to a capital structure measured with market values. To develop a CAPM cost rate applicable to a book value capital structure, the Value Line betas have been unleveraged and releveraged for the common equity ratios using book values using the Hamada formula.[5] This adjustment has been made with the formula:

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

where ßl = the leveraged beta, ßu = the unleveraged beta, t = income tax

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

rate, D = debt ratio, P = preferred stock ratio, and E = common equity ratio. The betas published by Value Line have been calculated with the market price of stock and therefore are related to the market value capitalization. By using the formula shown above and the capital structure ratios measured at its market values, the beta would become .72 for the Water Group if it employed no leverage and was 100% equity financed. With the unleveraged beta as a base, I calculated the leveraged beta of 1.17 for the Water Group associated with book value capital structure. The betas and their corresponding common equity ratios are:

Market Values		Book Values	
Beta	Common Equity Ratio	Beta	Common Equity Ratio
0.93	69.01%	1.17	50.96%

The leveraged beta that I will employ in the CAPM cost of equity calculation is 1.17 for the Water Group.

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

A. For reasons explained in Appendix F, I have employed the yields on 20-year Treasury bonds using both historical and forecast data to match the longer-term horizon associated with the ratesetting process. On pages 2 and 3 of Schedule 10, I provide the historical yields on Treasury notes and bonds. For the twelve months ended February 2008, the average yield was 4.82%, as shown on page 3 of that schedule. For the six- and three-months ended February 2008, the yields on 20-year Treasury bonds were 4.61% and 4.47%, respectively. During the twelve-months ended February 2008, the range of the yields on 20-year Treasury bonds was 4.35% to 5.29%. As shown on page 4 of Schedule 10, forecasts published by Blue Chip on April 1, 2008 indicate that the yields on long-term Treasury bonds are expected to be in the range of 4.3% to 4.8% during the next six quarters. The

longer term forecasts described previously show that the yields on Treasury bonds will average 5.2% from 2009 through 2013 and 5.3% for 2014 through 2018. For reasons explained previously, forecasts of interest rates should be emphasized at this time. Hence, I have used a 4.50% risk-free rate of return for CAPM purposes, which considers not only the Blue Chip forecasts, but also the recent trend in the yields on long-term Treasury bonds.

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

A. As developed in Appendix H, the market premium is developed by averaging historical market performance (i.e., 6.5%) and the forecasts (i.e., 10.10%). For the historically based market premium, I have used the arithmetic mean. The resulting market premium is 8.30% (6.5% + 10.10% = 16.60% ÷ 2), which represents the average market premium using historical and forecast data.

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

A. Yes. The technical literature supports an adjustment relating to the size of the company or portfolio for which the calculation is performed. There would be an understatement of a firm's cost of equity with the CAPM unless the size of a firm is considered. That is to say, as the size of a firm decreases, its risk and, hence, its required return increases. Moreover, in his discussion of the cost of capital, Professor Brigham has indicated that smaller firms have higher capital costs than otherwise similar larger firms (see Fundamentals of Financial Management, fifth edition, page 623). Also, the Fama/French study (see "The Cross-Section of Expected Stock Returns"; The Journal of Finance, June 1992) established that size of a firm helps explain stock returns. In an October 15, 1995 article in Public Utility Fortnightly, entitled "Equity and the Small-Stock Effect," it was demonstrated that

the CAPM could understate the cost of equity significantly according to a company's size. Indeed, it was demonstrated in the SBBI Yearbook that the returns for stocks in lower deciles (i.e., smaller stocks) had returns in excess of those shown by the simple CAPM. In this regard, Water Group has an average market equity capitalization of $726 million, which would make it a low-cap portfolio, but very close to the threshold of $724 million for the micro-cap classification. The low-cap market capitalization would indicate a size premium of 1.65%. Absent such an adjustment, the CAPM would understate the required return. However, for my CAPM analysis, I have adopted a more conservative size adjustment of 0.92%, which represents the mid-cap adjustment.

Q. What result have you determined using the CAPM?

A. Using the 4.50% risk-free rate of return, the leverage adjusted beta of 1.17 for the Water Group, the 8.30% market premium, and the size adjustment, the following result is indicated.

	Rf	+	ß	x	(	*Rm-Rf*	)	+	*size*	=	*K*
Gas Group	4.50%	+	1.17	x	(	8.30%	)	+	0.92%	=	15.13%

COMPARABLE EARNINGS APPROACH

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

A. The technical aspects of the Comparable Earnings approach are set forth in Appendix I. Because regulation is a substitute for competitively-determined prices, the returns realized by non-regulated firms with comparable risks to a public utility provide useful insight into a fair rate of return. In order to identify the appropriate return, it is necessary to analyze returns earned (or realized) by other firms within the context of the Comparable Earnings standard. The firms selected for the

Comparable Earnings approach should be companies whose prices are not subject to cost-based price ceilings (i.e., non-regulated firms) so that circularity is avoided. There are two avenues available to implement the Comparable Earnings approach. One method would involve the selection of another industry (or industries) with comparable risks to the public utility in question, and the results for all companies within that industry would serve as a benchmark. The second approach requires the selection of parameters that represent similar risk traits for the public utility and the comparable risk companies. Using this approach, the business lines of the comparable companies become unimportant. The latter approach is preferable with the further qualification that the comparable risk companies exclude regulated firms. As such, this approach to Comparable Earnings avoids the circular reasoning implicit in the use of the achieved earnings/book ratios of other regulated firms. The United States Supreme Court has held that:

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

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

Q. How have you implemented the Comparable Earnings approach?

A. To identify the comparable risk companies, the Value Line Investment Survey for

Windows was used to screen for firms of comparable risks. The Value Line Investment Survey for Windows includes data on approximately 1700 firms. Excluded from the selection process were companies incorporated in foreign countries and master limited partnerships (MLPs). In order to implement the Comparable Earnings approach, non-regulated companies were selected from the Value Line Investment Survey for Windows that have six categories (see Appendix I for definitions) of comparability designed to reflect the risk of the Water Group. These screening criteria were based upon the range as defined by the rankings of the companies in the Water Group. The items considered were: Timeliness Rank, Safety Rank, Financial Strength, Price Stability, Value Line betas, and Technical Rank. The identities of the companies comprising the Comparable Earnings group and its associated rankings within the ranges are identified on page 1 of Schedule 11.

Value Line data was relied upon because it provides a comprehensive basis for evaluating the risks of the comparable firms. As to the returns calculated by Value Line for these companies, there is some downward bias in the figures shown on page 2 of Schedule 11, because Value Line computes the returns on year-end rather than average book value. If average book values had been employed, the rates of return would have been slightly higher. Nevertheless, these are the returns considered by investors when taking positions in these stocks. Because many of the comparability factors, as well as the published returns, are used by investors for selecting stocks, it is appropriate an appropriate database for measuring comparable return opportunities.

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

A. I have used both historical realized returns and forecast returns for non-utility

companies. As noted previously, I have not used returns for utility companies in order to avoid the circularity that arises from using regulatory-influenced returns to determine a regulated return. It is appropriate to consider a relatively long measurement period in the Comparable Earnings approach in order to cover conditions over an entire business cycle. A ten-year period (5 historical years and 5 projected years) is sufficient to cover an average business cycle. Unlike the DCF and CAPM, the results of the Comparable Earnings method can be applied directly to the book value capitalization because the nature of the analysis relates to book value. Hence, the Comparable Earnings approach does not contain the potential misspecification contained in market models when the market capitalization and book value capitalization diverge significantly. The historical rate of return on book common equity was 12.3% using the median value as shown on page 2 of Schedule 11. The forecast rates of return, as published by Value Line, are shown by the 13.0% median value also provided on page 2 of Schedule 11.

Q. What rate of return on common equity have you determined in this case using the Comparable Earnings approach?

A. The average of the historical and forecast median rates of return is:

	Historical	*Forecast*	*Average*
Comparable Earnings Group	12.3%	13.00%	12.65%

CREDIT QUALITY AND CONCLUSION

Q. What are some of the important factors that influence credit quality?

A. The Company must have the financial strength that will, at a minimum, permit it to maintain a financial profile that is commensurate with the requirements to obtain a solid investment grade bond rating. Strong credit quality is necessary to provide a

utility with the highest degree of financial flexibility in order to attract capital on reasonable terms during all economic conditions. Customers also benefit from strong credit quality because the utility will be able to obtain lower financing costs that are passed on to customers in the form of a lower embedded cost of debt. For this reason, rates should be established that would promote the maintenance of a financial profile that would support a strong A bond rating.

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

A. Based upon the application of a variety of methods and models described previously, it is my opinion that the rate of return on common equity falls within the range of 11.50% to 12.50%.

Q. Does this conclude your direct testimony?

A. Yes.