c. Selection of Growth Rates for Use in the DCF Model

Q. Please explain the basis of the growth rates of 5.3%/5.2% for the proxy group of seven water companies and 4.8%/5.3% for the proxy group of eight utilities selected on the basis of least relative distance which you use in your application of the DCF model.

A. Schedule 13 of Exhibit No. 7 indicates that 78.5% and 66.5% of the common shares of each proxy group, respectively, are held by individuals as opposed to institutional investors. Individual investors are particularly likely to place great significance on the opinions expressed by financial information services, such as Value Line and I/B/E/S, which are easily accessible and/or available on the Internet.

Forecasts by analysts, including Value Line, are typically limited to five years. In my opinion, I believe that investors in water utilities would have little interest in historical growth rates beyond the most recent five years. Consequently, the use of five-year historical and five-year projected growth rates in earnings per share (EPS) and dividends per share (DPS) as well as the sum of internal and external growth in per share value (BR + SV) is appropriate to consider in the determination of a growth rate for use in this application of the DCF model. In addition, investors realize that analysts have significant insight into the dynamics of the industries and they analyze individual companies as well as companies' abilities to effectively manage the effects of changing laws and regulations. Consequently, I have reviewed analysts' projected growth in EPS, as well as historical and projected five-year compound growth rates in EPS, DPS and BR + SV for each company in both proxy groups. The historical growth rates are from Value Line or calculated in a manner similar to Value Line, while the projected growth rates in earnings are from Value Line and I/B/E/S forecasts. I/B/E/S growth rate estimates are not available for DPS and internal growth, and they do not include the Value Line projections. Thus, Value Line's estimates are not included twice.

In addition to evaluating EPS and DPS growth rates, it is reasonable to assume that investors also assess BR + SV. The concept is based on well documented financial theory that future dividend growth is a function of the portion of the overall return to investors which is reinvested in the firm plus the sales of new common stock. Consequently, the growth component as proxied by internal and external growth is defined as follows:

$$g = BR + SV$$

Where:

B = the fraction of earnings retained by the firm, i.e., retention ratio

R = the return on common equity

S = the growth in common shares outstanding

V = the premium/discount of a company's stock price relative to its book value, i.e., one minus the complement of the market/book ratio.

Consistent with the use of five-year historical and five-year projected growth rates in EPS and DPS, I have derived five-year historical and five-year projected BR+SV growth. Projected EPS growth rate averages are shown on Line No. 9, while historical and projected growth in DPS, EPS, and BR + SV is shown on Line No. 4, Schedule 10. All of these growth rates are summarized for the companies in the proxy group on Schedule 14, page 1 of Exhibit No. 7. Supporting growth rate data are detailed on pages 2 through 8 of Schedule 14. Pages 9 through 16 of Schedule 14 contain all of the most current Value Line Investment Survey (Standard Edition) data for those companies in each proxy group which are covered in the Standard Edition of Value Line Investment Survey.

As shown on page 1 of Schedule 14, growth rates for the proxy group of seven water companies range from 3.3% to 7.6%, with a midpoint of 5.5% and an average of 5.0%, while projected growth rates in EPS averaged 5.2%. Consequently, I conclude that growth rates of

5.3%/5.2% for the proxy group of seven water companies are suitable to use in the application of the DCF model. Growth rates for the proxy group of eight utilities range from 3.1% to 6.1%, with a midpoint of 4.6% and an average of 5.0%, while projected growth rates in EPS averaged 5.3%. Consequently, I conclude that growth rates of 4.8%/5.3% for the proxy group of eight utilities are suitable for use in the application of the DCF model.

d. Conclusion of Single-Stage DCF Cost Rates

Q. Please summarize the single-stage growth DCF model results.

A. As shown on Exhibit No. 7, Schedule 10, Line Nos. 5 and 10, the results of the applications of the single-stage DCF model are 9.1%/9.0% for the proxy group of seven water companies and 10.1%/10.6% for the proxy group of eight utilities.

4. Application of the Quarterly Version of the DCF Model

Q. Please describe the quarterly version of the DCF model which you use to calculate the indicated common equity cost rates.

A. The traditional, or annual, single-stage, DCF model is based upon the assumption that dividends are paid annually. Virtually every utility pays dividends on a quarterly basis. The quarterly DCF model takes into account the reality of quarterly payments of dividends to investors. As Morin states[20] (Schedule 11, page 5):

> By analogy, a bank rate on deposits that does not take into consideration the timing of the interest payments understates the true yield if the customer receives the interest payments more than one a year. The actual yield will exceed the stated nominal rate.

The form of the model employed is shown in detail in Equation (7-2) shown on Schedule

[20] Id., p. 184.

11, page 5, an excerpt from Morin's text, Regulatory Finance: Utilities' Cost of Capital.

a. Selection of Market Prices for Use in the Quarterly Version of the DCF Model

Q. What periods of time have you used for market prices in order to employ the quarterly DCF model?

A. As indicated in Schedule 11, I employed the recent spot market prices as of March 21, 2000 as well as average market prices of the three, six and twelve months ended February 29, 2000 consistent with my application of the single-stage DCF model previously discussed.

b. Selection of Growth Rates for Use in the Quarterly Version of the DCF Model

Q. What growth rates did you use in your application of the quarterly version of the DCF model?

A. I utilized growth rates for each company based upon historical and projected growth in DPS, EPS, and BR+SV as well as based upon average projected growth in EPS calculated in a manner identical to the average growth rates for each proxy group previously discussed in this testimony.

c. Conclusion of Quarterly Version DCF Cost Rates

Q. Please summarize the quarterly DCF model results.

A. As shown on Exhibit No. 7, Schedule 11, pages 1 and 2, the results of the application of the quarterly version of the DCF model are 8.6%/9.1% for the proxy group of seven water companies and 10.5%/10.6% for the proxy group of eight utilities.

5. Conclusion of DCF Cost Rates

Q. Please summarize the DCF model results.

A. As shown on Exhibit No. 7, Schedule 9, the results of the applications of the DCF models are 9.0% for the proxy group of seven water companies and 10.5% for the proxy group of eight utilities selected on the basis of least relative distance.

C. The Risk Premium Model (RPM)

1. Theoretical Basis

Q. Please describe the theoretical basis of the RPM.

A. Risk Premium theory indicates that the cost of common equity capital is greater than the prospective company-specific cost rate for long-term debt capital. In other words, the cost of common equity equals the expected cost rate for long-term debt capital plus a risk premium to compensate common shareholders for the added risk of being unsecured and last-in-line in any claim on the corporation's assets and earnings.

Q. Some analysts state that the RPM is another form of the CAPM. Do you agree?

A. While there are some similarities, there is a very significant distinction between the two models. The RPM and CAPM both add a "risk premium" to an interest rate. However, the beta approach to the determination of an equity risk premium in the RPM should not be confused with the CAPM. Beta is a measure of systematic, or market, risk, a relatively small percentage of total risk, i.e., the sum of both non-diversifiable systematic and diversifiable unsystematic risk. Unsystematic risk is fully captured in the RPM through the use of the prospective long-term bond yield as can be verified by reference to pages 3 through 9 of Exhibit No. 7, Schedule 2, which confirm that the bond rating process involves an assessment of all business and financial risks. In contrast, the use of a risk-free rate of return in the CAPM does not, and by definition can not, reflect a

company's specific, i.e., unsystematic risk. Consequently, a much larger portion of the total common equity cost rate is reflected in the company-specific bond yield (a product of the bond rating) than is reflected in the risk-free rate in the CAPM, or indeed even by the dividend yield employed in the DCF model. Moreover, the financial literature recognizes the RPM and CAPM as two separate and distinct cost of common equity models as discussed previously.

Q. Have you performed RPM analyses of common equity cost rate for the proxy group of seven water companies and proxy group of eight utilities selected on the basis of least relative distance?

A. Yes. The results of my application of the RPM are summarized on page 1 of Exhibit No. 7, Schedule 15. On Line No. 3, page 1, Schedule 15, I show the average expected yield on A rated public utility bonds of 8.3%. On Line No. 4, I show the adjustments, if necessary, that need to be made to the average 8.3% expected A rated utility bond yield so that the expected yield of 8.3% is reflective of the proxy group of seven companies' average Moody's bond rating of A2 and 8.4% is reflective of the proxy group of eight utilities' average Moody's bond rating of A3 as shown on page 2 of Exhibit No. 7, Schedule 15. On Line No. 6 of page 1, my conclusions of an equity risk premiums applicable to the proxy groups are shown while the total risk premium common equity cost rates are shown on Line No. 7.

2. Estimation of Expected Bond Yield

Q. Please explain the basis of the expected bond yield of 8.3% and 8.4% applicable to the average proxy group company in the proxy groups of seven water companies and eight utilities, respectively.

A. Because the cost of common equity is prospective, a prospective yield on similarly-rated long-term debt is essential. As shown on Schedule 15, page 2, the average Moody's bond rating for the proxy group of seven water companies is A2 and A3 for the proxy group of eight utilities. I relied

on a consensus forecast of about 50 economists of the expected yield on Aaa rated corporate bonds for the six calendar quarters ending with the second calendar quarter of 2001 as derived from the March 1, 2000 Blue Chip Financial Forecasts (shown on page 7 of Schedule 14). As shown on Line No. 1 of page 1 of Schedule 15, the average expected yield on Moody's Aaa rated corporate bonds is 7.7%. It is necessary to adjust that average yield to be equivalent to a Moody's A2 rated public utility bond. Consequently, an adjustment of 0.6% to the average prospective yield on Aaa rated corporate bonds was required. It is shown on Line No. 2, page 1 of Schedule 14 and explained in Note 2 at the bottom of the page. After adjustment, the expected bond yield applicable to a Moody's A2 rated public utility bond is 8.3% as shown on Line No. 3, page 1 of Schedule 14.

No adjustment is need to the expected yield of 8.3% on A rated public utility bonds relative to the proxy group of seven water companies because the average Moody's bond rating of the group is A2. However, an adjustment of 0.1%, as explained in Note (4) on page 1 of Schedule 15, is needed to the expected yield on A rated public utility bonds of 8.3% in order to reflect the average Moody's bond rating of A3 for the proxy group of eight utilities. After such adjustments, as necessary, the expected proxy group specific bond yields are 8.3% for the proxy group of seven water companies and 8.4% for the proxy group of eight utilities.

3. Estimation of the Equity Risk Premium

Q. Please explain the method utilized to estimate the equity risk premium.

A. I evaluated the results of two different historical equity risk premium studies, as well as Value Line's forecasted total annual return on the market over the prospective yield on high grade corporate bonds, as detailed on pages 5, 6 and 8 of Exhibit No. 7, Schedule 15. As shown on Line No. 3, page 5 of Schedule 15, the mean equity risk premiums based on both of the studies are 4.7% applicable to the proxy group of seven water companies and 4.6% applicable to the

proxy group of eight utilities. This estimate is the result of an average of beta-derived historical equity risk premium and a forecasted total market equity risk premium as well as the mean historical equity risk premium applicable to public utilities with bonds rated A based upon holding *period returns.*

The basis of the beta-derived equity risk premiums applicable to the proxy groups is shown on page 6 of Exhibit No. 7, Schedule 15. Beta-determined equity risk premiums should receive substantial weight because betas are derived from the market prices of common stocks over a recent five-year period. Beta is a meaningful measure of prospective relative risk to the market as a whole and is a logical means by which to allocate a relative share of the market's total equity risk premium.

The total market equity risk premium utilized was 8.9% and is based upon an average of both the long-term historical and forecasted market risk premiums of 7.4% and 10.3%, respectively, as shown on page 6 of Exhibit No. 7, Schedule 15. To derive the historical market equity risk premium, I used the most recent Ibbotson Associates' data on holding period returns for the S&P 500 Composite Index and Salomon Brothers Long-term High-grade Corporate Bond Index covering the period 1926-1999. The use of holding period returns over a very long period of time is useful in the beta approach. As Ibbotson Associates'[21] 2000 Yearbook states:

> A long view of capital market history, exemplified by the 74-year period (1926-1999) examined here, uncovers the basic relationships between risk and return among the different asset classes, and between nominal and real (inflation-adjusted) returns. The goal of this study of asset returns is to provide a period long enough to include most or all of the major types of events that investors have experienced and may experience in the future. Such events include war and peace, growth and decline, bull and bear markets, inflation and deflation, as well as less dramatic events that affect asset returns.
>
> By studying the past, one can make inferences about the future. While the actual events that occurred in 1926-1998 will not be repeated, the event-types (not specific events) of that period can be expected to recur. *It is sometimes said that only a few periods are unusual, such as the crash of 1929-1932 and World War II. This logic is suspicious because all periods are unusual. Two of the most unusual events of the century--the stock market crash of 1987 and*

[21] Id., p. 27.

the equally remarkable inflation of the 1970s and early 1980s--took place just over a decade ago. From the perspective that historical event-types tend to repeat themselves, a 74-year examination of past capital market returns reveals a great deal about what may be expected in the future. (italics added)

And, in their 1999 Yearbook, Ibbotson Associates[22] state:

Some analysts calculate the expected equity risk premium over a shorter, more recent time period on the basis that more recent events are more likely to be repeated in the near future; furthermore, the 1920s, 1930s and 1940s contain too many unusual events. *This view is suspect because all periods contain unusual events.* Some of the most 'unusual' events of this century took place quite recently. These events include the inflation of the late 1970s and early 1980s, the October 1987 stock market crash, the collapse of the high yield bond market, the major contraction and consolidation of the thrift industry, and the collapse of the Soviet Union -- all of which happened in the past 20 years. Without an appreciation of the 1920s and 1930s, no one would believe that such events could happen. More generally, the 73-year period starting with 1926 is representative of what can happen; it includes high and low returns, volatile and quiet markets, war and peace, inflation and deflation, and prosperity and depression. *Restricting attention to a shorter historical period underestimates the amount of change that could occur in a long future period. Finally, because historical event-types (not specific events) tend to repeat themselves, long-run capital market return studies can reveal a great deal about the future. Investors probably expect "unusual" events to occur from time- to-time* and their return expectations reflect this. (italics added)

In addition, the use of long-term data in a RPM model is consistent with the long-term investment horizon presumed by the DCF model. Consequently, the long-term arithmetic mean total return rates on the market as a whole of 13.3% and on corporate bonds of 5.9% were used, as shown at Line Nos. 1 and 2 of page 6 of Exhibit No. 7, Schedule 15. As shown on Line No. 3 of page 6, the resultant long-term historical equity risk premium on the market as a whole is 7.4%.

I used arithmetic mean return rates were used because they are appropriate for cost of capital purposes. As Ibbotson Associates[23] states in their 1999 Yearbook:

The expected equity risk premium should always be calculated using the arithmetic mean. The arithmetic mean is the rate of return which, when compounded over multiple periods, gives the mean of the probability distribution of ending wealth values....Stated another way, the arithmetic mean is correct because an investment with uncertain returns will have a higher expected

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22 Ibbotson Associates, Stocks, Bonds, Bills and Inflation - 1999 Yearbook, p. 156.

23 Id., at pp. 157-158.

> ending wealth value than an investment which earns, with certainty, its compound or geometric rate of return every year.... *Therefore, in the investment markets, where returns are described by a probability distribution, the arithmetic mean is the measure that accounts for uncertainty, and is the appropriate one for estimating discount rates and the cost of capital.* (italics added)

Ex-post (historical) total returns and equity risk premium spreads differ in size and direction over time. This is precisely why the arithmetic mean is important as it provides insight into the variance and standard deviation of returns. This prospect for variance, as captured in the arithmetic mean, provides the valuable insight needed by investors to estimate future risk when making a current investment. Absent such valuable insight into the potential variance of returns, investors cannot meaningfully evaluate prospective risk. As discussed previously, all of the cost of common equity models, including the DCF, are premised upon the EMH, that all publicly available information is reflected in the market prices paid. If investors relied upon the geometric mean of ex-post spreads, they would have no insight into the potential variance of future returns because the geometric mean relates the change over many periods to a constant rate of change, thereby obviating the year-to-year fluctuations, or variance, *critical to risk analysis*.

The basis of the forecasted market equity risk premium can be found on Line Nos. 4 through 6 on page 6 of Exhibit No. 7, Schedule 15. It is derived from an average of the most recent 12-month, 6-month, 3-month (using the months of March 1999 through February 2000) and a recent spot (March 17, 2000) median market price appreciation potentials by Value Line as explained in detail in Note 1 on page 3 of Exhibit No. 7, Schedule 16. The average expected price appreciation is 80% which translates to 15.83% per annum and, when added to the average (similarly calculated) dividend yield of 2.18% equates to a forecasted annual total return rate on the market as a whole of 18.01%, rounded to 18.0%. Thus, this methodology is consistent with the use of the 12-month, 6-month, 3-month and spot dividend yields in my application of the DCF model. To derive the forecasted total market equity risk premium of 10.3% shown on Exhibit No. 7, Schedule 15, page 6, Line No. 6, the March 1, 2000 forecast of about 50 economists of the expected yield on Moody's Aaa rated corporate bonds for the six calendar quarters ending with the second calendar quarter 2001 of 7.7% from Blue Chip Financial Forecasts was deducted from

the Value Line total market return of 18.0%. The calculation resulted in an expected market risk premium of 10.3%.

The average of the historical and projected market equity risk premiums of 7.4% and 10.3% is 8.85% rounded to 8.9%.

On page 9 of Exhibit No. 7, Schedule 15, the most current Value Line (Standard Edition) betas for the companies in both proxy groups are shown.

Applying these betas to the average market equity risk premium of 8.9% yields an equity risk premium of 4.8% for the seven water companies and 4.5% for the eight utilities selected on the basis of least relative distance as shown on Exhibit No. 7, Schedule 15, page 6, Line No. 9.

A mean equity risk premium of 4.6% applicable to companies with A rated public utility bonds was calculated based on holding period returns from a study using public utilities, as shown on Line No. 2, page 5 of Exhibit No. 7, Schedule 15, and detailed on page 8 of the same schedule.

The equity risk premiums applicable to the proxy group of seven water companies and proxy group of eight utilities are the averages of the beta-derived premiums and those based upon the holding period returns of public utilities with A rated bonds, as summarized on Exhibit No. 7, Schedule 15, page 5, i.e., 4.7% and 4.6%, respectively.

Q. *What are the RPM calculated common equity cost rates?*

A. It is 13.0% for both the seven water companies and eight utilities as shown on Exhibit No. 7, Schedule 15, page 1.

Q. Some critics of the RPM model claim that its weakness is that it presumes a constant equity risk premium. Is such a claim valid?

A. No. The equity risk premium varies inversely with interest rate changes, although not in tandem with those changes. This presumption of a constant equity risk premium is no different than the presumption of a constant "g", or growth component, in the DCF model. If one calculates a DCF *cost rate today, the absolute result* "k", *as well as the growth component "g", would invariably* differ from a calculation made just one or several months earlier. This implies that the "g" does change, although in the application of the standard DCF model, the "g" is presumed to be constant. Hence, there is no difference between the RPM and DCF models in that both models assume a constant component, but in reality, these components, the "g" and the equity risk premium both change.

As Morin[24] states with respect to the DCF model:

> It is not necessary that *g* be constant year after year to make the model valid. *The growth rate may vary randomly around some average expected value. Random variations around trend are perfectly acceptable, as long as the mean expected growth is constant.* The growth rate must be 'expectationally constant' to use formal statistical jargon. (italics added)

The foregoing confirms that the RPM is similar to the DCF model. Both assume an "expectationally constant" risk premium and growth rate, respectively, but in reality both vary (change) randomly around an arithmetic mean. Consequently, the use of the arithmetic mean, and not the geometric mean is confirmed as appropriate in the determination of an equity risk premium as discussed previously.

D. The Capital Asset Pricing Model (CAPM)

1. Theoretical Basis

Q. Please explain the theoretical basis of the CAPM.

A. CAPM theory defines risk as the covariability of a security's returns with the market's returns. This

[24] Id., p. 111.

covariability is measured by beta ("β"), an index measure of an individual security's variability relative to the market. A beta less than 1.0 indicates lower variability while a beta greater than 1.0 indicates greater variability than the market.

The CAPM assumes that all other risk, i.e., all non-market or unsystematic risk, can be *eliminated through diversification. The risk that cannot be eliminated through diversification is* called market, or systematic, risk. The CAPM presumes that investors require compensation for risks that cannot be eliminated through diversification. Systematic risks are caused by socioeconomic and other events that affect the returns on all assets. Essentially, the model is applied by adding a risk-free rate of return to a market risk premium. This market risk premium is adjusted proportionately to reflect the systematic risk of the individual security relative to the market as measured by beta. The traditional CAPM model is expressed as:

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

Where:

R_s	=	Return rate on the common stock
R_f	=	Risk-free rate of return
R_m	=	Return rate on the market as a whole
β	=	Adjusted beta (volatility of the security relative to the market as a whole)

Numerous tests of the CAPM have confirmed its validity. These tests have measured the extent to which security returns and betas are related as predicted by the CAPM. However, Morin observes that while the results support the notion that beta is related to security returns, it has been determined that the empirical Security Market Line (SML) described by the CAPM is not as steeply sloped as the predicted SML. *Morin*[25] *states:*

> With few exceptions, the empirical studies agree that the implied intercept term exceeds the risk-free rate and the slope term is less than predicted by the CAPM. That is, low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted.

[25] Id., at p. 321.

* * *

Therefore, the empirical evidence suggests that the expected return on a security is related to its risk by the following approximation:

$$K = R_F + x(R_M - R_F) + (1-x)\beta(R_M - R_F)$$

where x is a fraction to be determined empirically. ...the value of x that best explains the observed relationship is between 0.25 and 0.30. If x = 0.25, the equation becomes:

$$K = R_F + 0.25(R_M - R_F) + 0.75\beta(R_M - R_F)$$[26]

In view of theory and practical research, I have applied both the traditional CAPM and the empirical CAPM to the companies in the proxy group and averaged the results.

2. Risk-Free Rate of Return

Q. Please describe your selection of a risk-free rate of return.

A. My applications of the traditional and empirical CAPM are summarized on Exhibit No. 7, Schedule 16, page 1. As shown on Line Nos. 1 and 4, the risk-free rate adopted for both applications is 6.3%. It is based upon the average consensus forecast of the reporting economists in the March 1, 2000 of Blue Chip Financial Forecasts as shown in Note 2, page 3, of the expected yields on 30-year U.S. Treasury bonds for the six quarters ending with the second calendar quarter 2001.

Q. Why is the prospective yield on 30-year U.S. Treasury Bonds appropriate for use as the risk-free rate?

A. The yield on 30-year T-Bonds is almost risk-free and its term is consistent with the long-term cost of capital to public utilities measured by the yields on A rated public utility bonds, and is consistent with the long-term investment horizon inherent in utilities' common stocks. Therefore, it is

[26] Id., at pp. 335-336.

consistent with the long-term investment horizon presumed in the standard DCF model employed in regulatory ratemaking. Moreover, Morin[27] states:

> Equity investors generally have an investment horizon far in excess of ninety days. More importantly, the short-term T-bill yields reflect the impact of factors different from those influencing long-term securities, such as common stock. For example, the premium for expected inflation absorbed into 90-day Treasury bills is likely to be far different than the inflationary premium absorbed into long-term securities yields. The yields on long-term Treasury bonds match more closely with common stock returns. *For investors with a long time horizon, a long-term government bond is almost risk-free.* (italics added)

As to the use of the highly volatile Treasury Bill rate, Morin cites Brigham and Gapenski who conclude[28]:

> Treasury bill rates are subject to more random disturbances than are Treasury bond rates. For example, bills are used by the Federal Reserve System to control the money supply, and bills are also used by foreign governments, firms, and individuals as a temporary safe-house for money. Thus, if the Fed decides to stimulate the economy, it drives down the bill rate and the same thing happens if trouble erupts somewhere in the world and money flows into the United States seeking a temporary haven.

In conclusion, the average expected yield on 30-year Treasury Bonds is the appropriate proxy for the risk-free rate in the CAPM because it is less volatile than yields on Treasury Bills, is almost risk-free as noted by Morin above and is consistent with the long-term investment horizon implicit in common stocks.

3. Market Equity Risk Premium

Q. Please explain the estimation of the expected equity risk premium for the market.

A. First, I estimate investors' expected total return rate for the market. Then I estimate the expected risk-free rate which I subtract from the expected total return rate for the market. The result is an

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[27] Id., at p. 308.

[28] Id., at p. 308.

expected equity risk premium for the market, some proportion of which must be allocated to the companies in both proxy groups through the use of beta. As a measure of risk relative to the market as a whole, the beta is an appropriate means by which to apportion the market risk premium to a specific company or group.

As shown on Exhibit No. 7, Schedule 16, page 1, Line No. 2, the proportional market equity risk premium, based on the traditional CAPM, is 5.3% for the proxy group of seven water companies and 5.0% for the proxy group of eight utilities. Applying the empirical CAPM results in an equity risk premium of 6.2% for the seven water companies and 6.2% for the eight utilities as shown on Line No. 5 on page 1 of Schedule 16. The total market equity risk premium utilized was 9.9% and is based upon an average of the long-term historical and projected market risk premiums.

The basis of the projected median market equity risk premium is explained in detail in Note 1 on page 4 of Exhibit No. 7, Schedule 16. As previously discussed, it is derived from an average of the most recent 12-month, 6-month, 3-month (using the months of March 1999 through February 2000) and a recent spot (March 17, 2000) 3 - 5 year median total market price appreciation projections from Value Line and the long-term historical average from Ibbotson Associates. The appreciation projections by Value Line plus average dividend yield equate to a forecasted annual total return rate on the market of 18.0%. The long-term historical return rate of 13.3% on the market as a whole is from Ibbotson Associates' Stocks, Bonds, Bills and Inflation - 2000 Yearbook. In each instance, the relevant risk-free rate was deducted from the total market return rate. For example, from the Value Line projected total market return of 18.0%, the forecasted average risk-free rate of 6.3% was deducted indicating a forecasted market risk premium of 11.7%. From the Ibbotson Associates' long-term historical total return rate of 13.3%, the long-term historical income return rate on long-term U.S. Government Securities of 5.2% was deducted indicating an historical equity risk premium of 8.1%. Thus, the average of the projected and historical total market risk premiums of 11.7% and 8.1%, respectively, is 9.9%.

Q. What are the results of your applications of the traditional and empirical CAPM to the two proxy groups?

A. As shown on Exhibit No. 7, Schedule 13, Line No. 3 of page 1, the traditional CAPM cost rate is 11.6% for the proxy group of seven water companies and 11.3% for the proxy group of eight utilities. As shown on Line No. 6 of page 1, the empirical CAPM cost rate is 12.5% for the proxy group of seven water companies and 12.5% for the eight utilities. The traditional and empirical CAPM cost rate is shown individually by company on page 2 of Exhibit No. 7, Schedule 15. As shown on Line No. 7, the CAPM cost rate applicable to the proxy group of seven water companies is 12.1%, while the CAPM cost rate applicable to the proxy group of eight utilities is 11.9%, both based upon the traditional and empirical CAPM results.

E. Comparable Earnings Model (CEM)

1. Theoretical Basis

Q. Please describe your application of the Comparable Earnings Model and how it is used to determine common equity cost rate.

A. My application of the CEM is summarized in Exhibit No. 7, Schedule 17 which consists of four pages. Page 1 shows the CEM results for the proxy group of seven water companies. Page 2 shows the CEM results for the proxy group of eight utilities selected on the basis of least relative distance. Pages 3 and 4 contain the notes related to pages 1 and 2.

The comparable earnings approach is derived from the "corresponding risk" standard of the landmark cases of the U.S. Supreme Court. Therefore, it is consistent with the Hope doctrine that the return to the equity investor should be commensurate with returns on investments in other firms having corresponding risks.

The CEM is based upon the fundamental economic concept of opportunity cost which maintains that the true cost of an investment is equal to the cost of the best available alternative use of the funds to be invested. The opportunity cost principle is also consistent with one of the fundamental principles upon which regulation rests: that regulation is intended to act as a surrogate for competition and to provide a fair rate of return to investors.

The CEM is designed to measure the returns expected to be earned on the book common equity, in this case net worth, of similar risk enterprises. Thus, it provides a direct measure of return, since it translates into practice the competitive principle upon which regulation rests. In my opinion, it is inappropriate to use the achieved returns of regulated utilities of similar risk because to do so would be circular and inconsistent with the principle of equality of risk with non-price regulated firms.

The difficulty in application of the CEM is to select a proxy group of companies which are similar in risk, but are not price regulated utilities. Consequently, the first step in determining a cost of common equity using the comparable earnings model is to choose an appropriate proxy group of non-price regulated firms. The proxy group should be broad-based in order to obviate any company-specific aberrations. As stated previously, utilities need to be eliminated to avoid circularity since the returns on book common equity of utilities are substantially influenced by regulatory awards and are therefore not representative of the returns that could be earned in a truly competitive market.

2. Application of the CEM

Q. Please describe your application of the CEM.

A. My application of the CEM is market-based in that the selection of non-price regulated firms of comparable risk is based upon statistics derived from the market prices paid by investors.

I have chosen two proxy groups of eighteen domestic, non-price regulated firms, each to

reflect both the systematic and unsystematic risks of the proxy group of seven water companies and proxy group of eight utilities selected on the basis of least relative distance, respectively. The first proxy group of eighteen non-utility companies is listed on page 1 of Exhibit No. 7, Schedule 17 while the second is listed on page 2. The criteria used in the selection of these proxy companies were that they be domestic non-utility companies and have a rate of return on net worth, common equity or partners' capital reported in Value Line (Standard Edition) less than 20.0% for each of the five years ended 1998, or projected for 2000-2004. Value Line betas were used as a measure of systematic risk. The residual standard error, or the standard error of the estimate from the regression equation from which each company's beta was derived, was used as a measure of each firm's specific, i.e., unsystematic risk. The residual standard error reflects the extent to which events specific to a company's operations will affect its stock price and, therefore, is a measure of diversifiable, unsystematic, company-specific risk. *In essence, companies which have similar betas and residual standard errors, have similar investment risk, i.e., the sum of systematic (market) risk as reflected by beta and unsystematic (business and financial) risk, as reflected by the residual standard error, respectively. Those statistics are derived from regression analyses using market prices which, under the EMH reflect all relevant risks. The application of these criteria results in proxy groups of non-price regulated firms similar in risk to the average company in each of my proxy groups.*

The two proxy groups of eighteen non-price regulated companies were chosen based upon ranges of unadjusted beta and residual standard error. The ranges were based upon the average standard deviations of the unadjusted beta and the average residual standard error for the proxy group of seven water companies and the proxy group of eight utilities, respectively.

The seven water companies have an average unadjusted beta of 0.24 whose standard deviation is 0.0948 as of December 15, 1999, as shown in Note 4, page 3 of Exhibit No. 7, Schedule 17. The average residual standard error from the regression equations which derived the proxy group's average unadjusted beta is 2.6879 as shown on Schedule 17, page 1 with a

standard deviation of 0.1181 as derived in Note 5, page 3 of Exhibit No. 7, Schedule 17. Ranges of unadjusted betas from (0.04) to 0.52 and of residual standard errors from 2.3336 to 3.0422 were used to select the proxy group of eighteen domestic non-utility companies comparable to the profile of the proxy group of seven water companies as can be gleaned from page 1 and explained in Note 1 on page 3 of Schedule 17. These ranges are based upon the proxy group's average unadjusted beta of 0.24 and average residual standard error of 2.6879 plus or minus three standard deviations of beta (0.0948 x 3 = 0.2844) and residual standard errors (0.1181 x 3 = 0.3543). The use of three standard deviations assures capturing 99.73% of the distribution of unadjusted betas and standard errors, assuring comparability.

Likewise, the eight utilities selected on the basis of least relative distance have an average unadjusted beta of 0.30 whose standard deviation is 0.0864 as of December 15, 1999, as shown in Note 8, page 4 of Exhibit No. 7, Schedule 17. The average residual standard error from the regression equations which derived the proxy group's average unadjusted beta is 2.4366 as shown on Schedule 17, page 2 with a standard deviation of 0.1071 as derived in Note 9, page 4 of Exhibit No. 7, Schedule 17. Ranges of unadjusted betas from 0.04 to 0.56 and of residual standard errors from 2.1153 to 2.7579 were used to select the proxy group of eighteen domestic non-utility companies comparable to the profile of the proxy group of eight utilities as can be gleaned from page 2 and explained in Note 7 on pages 3 and 4 of Schedule 17. These ranges are based upon the proxy group's average unadjusted beta of 0.30 and average residual standard error of 2.4366 plus or minus three standard deviations of beta (0.0864 x 3 = 0.2592) and residual standard errors (0.1071 x 3 = 0.3213). Again, the use of three standard deviations assures capturing 99.73% of the distribution of unadjusted betas and standard errors, assuring comparability.

I believe that this methodology for selecting non-price regulated firms of similar total risk (i.e., non-diversifiable systematic and diversifiable non-systematic risk) is meaningful and effectively responds to the criticisms normally associated with the selection of firms presumed to

be comparable in total risk. This is because the selection of non-price regulated companies comparable in total risk is based upon regression analyses of market prices which reflect investors' assessment of all risks, diversifiable and non-diversifiable. Thus, the empirical selection process results in companies comparable in both systematic and unsystematic risks, i.e., total risk.

Once proxy groups of non-price regulated companies are selected, it is then necessary to derive returns on book common equity, net worth or partners' capital for the companies in the groups. I have measured these returns using the rate of return on net worth, common equity or partners' capital reported by Value Line (Standard Edition). It is reasonable to measure these returns over both the most recent historical five-year period as well as those projected over the ensuing five-year period.

3. Conclusion of CEM Cost Rates

Q. What are your conclusion of CEM cost rates?

A. My conclusions of CEM cost rates are 11.6% for the proxy group of seven water companies and 11.4% for the proxy group of eight utilities selected on the basis of least relative distance and is shown in Exhibit No. 7 Schedule 17, pages 1 and 2. There are eighteen non-utility companies comparable to both the proxy group of seven water companies and the proxy groups of eight utilities. My CEM conclusions, based upon the average of the historical and projected median returns on net worth, common equity or partners' capital, are 11.6% for the seven water companies as shown on page 1 and 11.4% for the eight utilities as shown on page 2 of Schedule 17.

IX. CONCLUSION OF COMMON EQUITY COST RATE

Q. What is your recommended common equity cost rate?

A. Although the Company's filing is based upon a requested common equity cost rate of 11.00%, my recommendation is 11.85% based upon common equity cost rates resulting from all four cost of common equity models consistent with the EMH which logically mandates the use of multiple cost of common equity models. My recommended common equity cost rate also recognizes that the DCF model understates the required return on book common equity for the reasons previously discussed. The results of the four cost of common equity models applied to the proxy group of seven water companies and the proxy group of eight utilities are shown on Exhibit No. 7, Schedule 1, page 2 and summarized below:

Table 4

	Proxy Group of Seven Water Companies	Proxy Group of Eight Utilities Selected on the Basis of Least Relative Distance
Discounted Cash Flow Model	9.0%	10.5%
Risk Premium Model	13.0	13.0
Capital Asset Pricing Model	12.1	11.9
Comparable Earnings Model	11.6	11.4

Based upon the common equity cost rate results shown in Table 4 above, I conclude that a common equity cost rate of 11.6% before adjustment for Consumers IL's greater relative business risk is indicated for the proxy group of seven water companies and 11.7% before adjustment for Consumers IL's greater relative business risk is indicated for the proxy group of eight utilities as shown on Line No. 5, page 2 of Schedule 1 of Exhibit No. 7. As discussed previously, Consumers IL experiences greater relative business risk compared with that of the proxy group of seven water companies due to its significantly smaller size. Although the financial literature supports a small size premium on the order of approximately 220 basis points, I have made a modest specific adjustment of 0.20% to reflect the greater relative business risk of Consumers IL vis-a-vis the companies in both proxy groups. Therefore, based upon the

foregoing, my recommended common equity cost rate of 11.85% and the resultant overall rate of return of 10.165% are both reasonable and conservative for Consumers IL , which experiences greater relative business risk vis-a-vis the companies in either the proxy group of seven water companies or the proxy group of eight utilities. Hence, I recommend that the ICC authorize the Company the opportunity to earn a common equity return rate of 11.85% in view of the Company's greater business risk vis-a-vis the two proxy groups.

X. CHECK ON THE REASONABLENESS OF THE INDICATED COMMON EQUITY COST RATE

A. Interest Coverage

Q. How does interest coverage affect the cost rate of common equity capital?

A. Interest coverage is defined as the number of times annual interest on debt has been earned before income taxes. It is the relationship between the income available to pay interest charges and total interest charges. Earnings available for common equity and income taxes provide the margin by which fixed charges are covered more than one time. Investors use coverage as a tool to measure the relative safety of their investment.

Rating agencies such as S&P place greater emphasis on pretax interest coverage than on after-tax coverage as it levels financial risk differences between enterprises, reflects the fact that interest reduces income taxes, and more accurately reflects the availability of cash from operations from which interest charges can be paid. Major bond rating agencies, and hence investors, review interest coverage trends in conjunction with current developments.

Q. What is the implicit opportunity to the Company to earn pretax interest coverage based on a calculated overall cost of capital of 10.165% employing an 11.85% common equity cost rate relative to its 50.85% common equity ratio?

A. My recommendation affords the Company an opportunity to cover interest charges 3.60 times before income taxes as shown on Schedule 1, page 1 of Exhibit No. 7. An opportunity for pretax interest coverage of 3.60 times is before the impact of attrition. After the impact of attrition, such an opportunity, in my opinion, would result in an achieved pretax interest coverage lower than 3.60 times.

Q. Please discuss the Company's opportunity for pretax interest coverage of 3.60 times.

A. An opportunity for pretax interest coverage of 3.60 times is reasonable for the Company based upon S&P's revised utility financial target benchmarks shown on Schedule 2, page 12 of Exhibit No. 7. The proxy group of seven water companies have an average S&P bond rating of A+ and average business position of 3.0 (2.7 rounded to 3.0) as summarized on page 2 of Schedule 15 of Exhibit No. 7. The proxy group of eight utilities has an average S&P bond rating of A- and a business position of 4.0 (4.2 rounded to 4.0) as also summarized on page 2 of Schedule 15. However, as discussed previously, the average company in both proxy groups is significantly larger, by approximately 12 and 73 times, respectively, than Consumers IL. Moreover, in addition to large size, three of the companies, American Water Works Co., Inc., Philadelphia Suburban Corp., and United Water Resources, Inc. enjoy greater geographic and regulatory diversity which decreases their business risk vis-a-vis smaller, less geographically diverse water companies such as Consumers IL. Because S&P's revised utility financial targets are now applicable to all utilities, i.e., electric, gas and water, the business position assigned by S&P is more important than ever. In my opinion, if the Company's debt were rated and a business position/ profile assigned by S&P, it would likely have a debt rating in the A category and an average business position/ profile of "4". As shown on page 12 of Schedule 2, an A bond rating with a business position/ profile of "4" requires a range of achieved pretax interest coverage of 3.3 to 4.0 times. An opportunity for

pretax coverage of 3.60 times falls near the midpoint of this range.

In view of the foregoing, then, an opportunity to earn pretax coverage of 3.60 times is conservatively appropriate, thus affirms the reasonableness of my recommended common equity cost rate of 11.85% and conservativeness of the Company's requested common equity cost rate of 11.00%.

Q. Does that conclude your direct testimony?

A. Yes.