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MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

REBUTTAL TESTIMONY

OF

DAVID MURRAY

MISSOURI-AMERICAN WATER COMPANY

CASE NOS. WR-2003-0500 and WC-2004-0168

Jefferson City, Missouri
November 2003

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Q. Please state your name.

A. My name is David Murray.

Q. Are you the same David Murray who filed direct testimony in this proceeding for the Staff of the Missouri Public Service Commission (Staff)?

A. Yes, I am.

Q. In your direct testimony, did you recommend a fair and reasonable rate of return for the Missouri jurisdictional water utility rate base for Missouri-American Water Company (MAWC)?

A. Yes, I did.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to the direct testimony of Mr. Mark Burdette and Ms. Pauline Ahern. Mr. Burdette sponsored rate-of-return testimony on behalf of the Office of the Public Counsel (OPC). Ms. Ahern sponsored rate-of-return testimony on behalf of MAWC. I will address the issues of appropriate capital structure, embedded cost of long-term debt, embedded cost of preferred stock and the cost of common equity to be applied to MAWC for rate making purposes in this proceeding.

Cost of Common Equity, Capital Structure, Embedded Cost of Long-Term Debt, Embedded Cost of Preferred Stock and Average Cost of Short-Term Debt

Q. Is there agreement between OPC, Staff and MAWC on the embedded cost of preferred stock, the embedded cost of long-term debt and the average cost of short-term debt?

A. No. MAWC and OPC used MAWC's capital structure, which consists of allocated debt issuances and parent company equity infusions, where as I utilized American Water's consolidated capital structure. Because I utilized a consolidated capital structure, I also matched the corresponding consolidated embedded cost of long-term debt, embedded cost of preferred stock and average cost of short-term debt for the consolidated entity to this capital structure. MAWC and OPC's determinations of the embedded cost of long-term debt and embedded cost of preferred stock are based on the costs of issuances associated with MAWC. Therefore, the costs used by MAWC and OPC do not match those calculated by Staff. It is my understanding that this is the reason for the difference between Staff and OPC in the cost of short-term debt as well.

Q. Is there an agreement between Staff, MAWC and OPC on capital structure and cost of common equity for MAWC?

A. No. Mr. Burdette used MAWC's capital structure at December 31, 2002. Ms. Ahern used MAWC's estimated capital structure at November 30, 2003.

Mr. Burdette included short-term debt in his capital structure based on MAWC's average short-term debt balance less construction work in progress (CWIP) for the 2002 calendar year. I included American Water's consolidated short-term debt

balance less CWIP as of December 31, 2002. Ms. Ahern did not include any short-term debt in her capital structure.

Mr. Burdette recommends a cost of common equity of 9.50 to 10.00 percent where Staff recommends a cost of common equity of 8.26 to 9.26 percent. Ms. Ahern recommends a cost of common equity of 11.75 to 12.00 percent. However, the Company has chosen to utilize an 11.00 percent cost of common equity for purposes of its rate increase request.

Updated Capital Structure and Embedded Costs

Q. Have you updated the capital structure, embedded cost of long-term debt, embedded cost of preferred stock and average cost of short-term debt?

A. Yes I have. Schedules 9, 10, 11 and 24 of my direct testimony have all been updated and are attached to my rebuttal testimony. The updated embedded cost of long-term debt as of June 30, 2003 is 5.95 percent. The updated embedded cost of preferred stock as of June 30, 2003 is 5.94 percent. The updated average cost of short-term debt as of June 30, 2003 was 1.90 percent, as reported in MAWC's updated response to Staff Data Information Request 3803. The updated capital structure now consists of 35.28 percent common equity, 21.08 percent preferred stock, 41.25 percent long-term debt and 2.39 percent short-term debt.

Q. What has been the major cause for the change in capital structure and embedded cost of preferred stock between the test year and the update period?

A. American Water has issued $1.75 billion in preferred stock since December 31, 2002. This results in preferred stock representing 21.08 percent of total capital as of June 30, 2003 versus only .62 percent of total capital as of December 31,

2002. Additionally, the embedded cost of preferred stock has dropped to 5.94 percent as of June 30, 2003 versus 7.70 percent as of December 31, 2002 because almost all of the preferred stock outstanding now consists of preferred stock that has an embedded cost of 5.90 percent.

Q. Is the Staff planning to true-up its recommended capital structure and embedded costs through the November 30, 2003 cut-off date?

A. The Staff will examine data provided by the Company, regarding American Waters consolidated capital structure and embedded costs through November 30, 2003, to determine if any adjustments need to be made to its recommended capital structure in this case.

Ms. Ahern's and Mr. Burdette's Recommended Capital Structure for MAWC

Q. Please summarize Ms. Ahern's and Mr. Burdette's capital structure recommendations for MAWC.

A. Ms. Ahern and Mr. Burdette recommend the use of MAWC's capital structure. Ms. Ahern uses MAWC's estimated capital structure at November 30, 2003. This capital structure consists of 43.099 percent common equity, .521 percent preferred stock and 56.380 percent long-term debt.

Mr. Burdette uses MAWC's capital structure at December 31, 2002. This capital structure consists of 40.41 percent common equity, .52 percent preferred stock, 55.58 percent long-term debt and 3.50 percent short-term debt.

Q. Is it appropriate to include some level of short-term debt in the capital structure?

A. Yes. Although I disagree with Mr. Burdette's utilization of MAWC-specific information to arrive at his short-term debt balance, I do agree that some level of short-term debt should be included in the capital structure. As of December 31, 2002 American Water's consolidated short-term debt outstanding was $394,712,000. However, the consolidated amount of CWIP outstanding was $190,330,000. The amount of short-term debt reflected in American Water's consolidated capital structure for purposes of determining my recommended rate of return for MAWC was the amount of short-term debt outstanding less the amount of CWIP, which resulted in $204,382,000 of short-term debt included in the capital structure.

Q. Does the updated capital structure as of June 30, 2003 still warrant the inclusion of some level of short-term debt?

A. Yes. As of June 30, 2003, the short-term debt balance for American Water on a consolidated basis was $437,613,000 and the CWIP balance was $234,971,152. This results in a short-term debt balance in excess of CWIP of $202,641,848. This is the updated short-term debt amount reflected in the capital structure at June 30, 2003 and is shown in my updated Schedule 9.

Q. Why is it inappropriate to use MAWC's capital structure for ratemaking purposes in this case?

A. MAWC no longer issues all of its own debt. This change occurred when American Water created its financing subsidiary American Water Capital Corporation (AWCC). Although there are internal loan documents between MAWC and AWCC, AWCC is the entity that is actually issuing the debt on a consolidated basis for all of the subsidiaries of American Water. Additionally, AWCC is acting as the corporate

treasury for American Water, in that it also aggregates all of the cash receipts and disbursement functions for its subsidiaries.

Q. Has AWCC issued any debt for American Water and its subsidiaries to date?

A. To my knowledge, AWCC has executed two Note Purchase Agreements since its formation. The first occurred on November 6, 2001 in which it entered into an agreement with RWE to borrow up to $1.2 billion in senior unsecured notes at an interest rate of 4.92 percent. According to American Water's 2002 Annual Report, American Water and its subsidiaries "used the proceeds from the sale of notes to acquire the common stock of Azurix North America and Azurix Industrials, to fund the acquisition of the water and wastewater assets of Citizens Communications Company and to reduce outstanding short-term debt." On June 12, 2002, American Water and AWCC "executed a Note Purchase Agreement with RWE for $320,000,000 in senior unsecured notes." The agreement calls for up to $170,000,000 in notes at an interest rate of 5.65% and maturing on June 12, 2007, and $150,000,000 in notes at a floating interest rate based on LIBOR (London Interbank Offer Rate) rates plus 20 basis points maturing on June 26, 2003.

Q. Please describe how the financing arrangement with AWCC works in more detail.

A. As stated in Paragraph 13 of Missouri-American's Application filed in Case No. WF-2002-1096:

> Applicant [MAWC] proposes to implement some or all of the long-term debt portion of its financing program primarily through an affiliate, American Water Capital Corp. ("AWCC"). AWCC is a wholly-owned subsidiary of American Water Works Company, Inc., ("AWW") established for the purpose of providing financial services to AWW and its water and wastewater utility

> subsidiaries (including Applicant) by pooling the financing requirements of such companies (the "Participants"), thereby creating larger and more cost efficient debt issues at more attractive interest rates and lower transaction costs than would otherwise be available.

The Application goes on further to state in Paragraph 14.:

> In the past, Applicant, and its constituent predecessors in interest, provided for debt financing needs primarily through short-term bank borrowings and the sale by private placement of long-term bonds issued pursuant to mortgages on plant and property in this State including the Indenture of Mortgage and, when available, tax exempt bond issues. Changes in financial markets and federal securities regulation have made the public securities market an attractive alternative to the traditional, secured privately placed bonds and bank borrowings upon which Applicant has traditionally relied. However, borrowers can derive the benefits of the public market only if the amounts they borrow are large enough, and their credit rating high enough, to meet that market's significant entry level requirements. Standing alone, Applicant does not have the borrowing requirements large enough to finance in the public markets. However, by financing through AWCC, Applicant and its sister companies in other states have sufficient borrowing power to finance in the public market and thereby obtain the advantageous terms available therein.

Paragraph 15. goes on further to state:

> Generally, each year the Participants provide AWCC with an estimate of the borrowing requirements which they propose to finance through AWCC for the coming year and for one (1) to three (3) years in advance. On the basis of this information, AWCC arranges borrowing commitments and programs to provide the funds necessary to meet these requirements. All long-term debt incurred by AWCC and the corresponding long-term indebtedness of each Participant will be match-funded. That is to say, AWCC borrows long term funds only to meet specific borrowing needs of one or more participants.

Q. Do you have any evidence that indicates that the utilization of AWCC for the debt financing of its subsidiaries is a consolidation of financing needs for American Water and its subsidiaries?

A. Yes, in a transcribed telephone interview on September 10, 2003 with MAWC (James M. Jenkins and Edward Grubb) and American Water (Paul G. Foran and Joseph Hartnett, Jr.) personnel conducted by Staff (Ron Bible and David Murray) there was a question and answer between Ron Bible and Joseph Hartnett, Jr. The following exchange occurred:

> Mr. Bible:
>
> Q. This is Ron Bible. Just to try to summarize in my mind, basically the way I understand it, and you can tell me if I'm wrong, you formed American Water Capital Corp. to basically -- your operating entities were individually going to the capital markets at least to issue debt in the past and you formed American Water Capital Corporation to basically consolidate all of those, pull them together and get maybe a better interest rate, better cost and stuff like that. And going forward, that's how you intend to do your public financings with the exception of going through, like, a state program like the EIERA is that basically correct?
>
> Mr. Hartnett:
>
> A. That's, correct, American Water Capital Corp. will continue to be the source of capital, debt capital for its participants to regulate[d] utilities and the parent.

Q. Does this consolidation of financing needs through AWCC make MAWC's capital structure inappropriate for purposes of arriving at a recommended rate of return?

A. Yes, because AWCC is more or less acting like the treasury for American Water, the inflows and outflows of funds at AWCC become commingled with those funds that are being used for all sorts of purposes at American Water and its subsidiaries. For example, Staff discovered during the interviews that of the $1.2 billion of debt issued on November 6, 2001, American Water borrowed $450 million for equity infusions into its subsidiaries. If American Water's subsidiaries had truly independent capital

structures, then the debt incurred for this acquisition would have been carried at the subsidiary level. By carrying some of this debt at the parent company level rather than at the subsidiaries, American Water is able to produce subsidiary capital structures that are more heavily weighted in equity, which would not be the case otherwise. This lends credibility to my proposal to use a consolidated capital structure.

Q. Considering the fact that American Water's consolidated capital structure is more leveraged than MAWC's capital structure, do you think it is appropriate to utilize American Water's more leveraged capital structure?

A. Yes, because this is a more accurate reflection of how American Water and its subsidiaries are financed. If one were to use MAWC's capital structure, which contains equity infusions from the parent company and debt allocations from AWCC, then the analyst would be utilizing a capital structure that doesn't truly reflect how American Water's subsidiaries are financed. It is clear from a review of Schedule 7 in my direct testimony that American Water has consistently maintained a lower equity ratio on a consolidated basis than what it has maintained at MAWC. American Water's average equity ratio for the five years from 1998 through 2002 was 34.89 percent for American Water on a consolidated basis, whereas the equity ratio that MAWC is requesting at the subsidiary level is 43.099 percent. Because American Water's business operations consist primarily of regulated water operations, it is clear that American Water has determined that it can obtain a lower cost of capital by financing its operations with more debt and less equity, which is not reflected in MAWC's recommended capital structure. This financing arrangement provides support for utilizing American Water's

capital structure on a consolidated basis for the rate-of-return recommendation for MAWC.

Q. Was there anything said in the interview on September 10, 2003 that confirms that American Water holds debt at the parent company level in order to make equity infusions into its subsidiaries?

A. Yes. The following exchange occurred:

> Mr. Murray:
>
> Q. Why wouldn't you -- if your six subsidiaries, why wouldn't you have the debt put through to them in order to make the acquisition, if American Water owns those subsidiaries, then what's -- what does it matter whether or not American Water has the 450 million and the subsidiaries have the rest or American Water had all of it or the subsidiaries had all of it?
>
> Mr. Hartnett:
>
> A. The subsidiaries will look to Capital Corp. for their debt source of capital and will look to American Water Works Company for any equity needs they may have. So American Water Works Company has to look for its own source of capital, whether it be internally generated capital or external capital. So the subsidiaries could not necessarily carry all the debt in some of those states to enable that purchase of that -- of those water assets in those states.
>
> Mr. Murray:
>
> Q. So some of that 450 million that's held in American Water may be used as an equity infusion for the acquisition of Citizens?
>
> Mr. Hartnett:
>
> A. Yes, that's true. American water uses whatever source it can for capital, whether it's borrowing or accessing the equity markets.

Q. Is this type of financing scenario something that occurs more often with water utilities?

A. Yes. At least as far as electric and gas utility companies that are subject to the Public Utility Holding Company Act (PUHCA) are concerned. According to Dr. Morin in his book, Regulatory Finance: Utilities' Cost of Capital, 1994, PUHCA limits the amount of borrowing that companies subject to PUHCA can undertake.

Q. Is there anything else that you have discovered that calls into question the use of MAWC's capital structure rather than American Water's capital structure on a consolidated basis?

A. Yes. In American Water's 2002 Annual Report, the Company indicated that American Water has "fully and unconditionally guaranteed the securities of AWCC." Therefore, although there are internal loan documents between MAWC and AWCC, the ultimate responsibility for the payment of the debt service on the debt through AWCC rests with American Water. This calls into question whether it is appropriate to consider the debt received by MAWC from AWCC as truly MAWC debt. The subsidiary's use of debt financing that is backed by the parent supports the Staff's recommendation to use American Water's consolidated capital structure.

Mr. Burdette's Recommended Cost of Common Equity for MAWC

Q. Please summarize Mr. Burdette's recommended cost of common equity for MAWC.

A. Mr. Burdette applied the Discounted Cash Flow (DCF) model and the Capital Asset Pricing Model (CAPM) to five publicly traded water utilities in estimating the cost of common equity for MAWC. Although Mr. Burdette utilized the CAPM, it appears that his recommendation is based primarily on his use of the DCF model. This is similar to Staff's approach, in which the DCF model is the primary model used to arrive

at a recommended cost of common equity and the CAPM is used as a test of reasonableness for these results. Schedule MB-10 of Mr. Burdette's direct testimony indicates his recommended cost of common equity ranges from 9.50 percent to 10.00 percent. Mr. Burdette arrived at the low end of his estimate by calculating a 3.48 percent dividend yield for the three comparable companies in his comparable group that had expected dividend information for 2004, and then divided this expected dividend by the average stock price for these comparable companies for the six-week period from August 18, 2003 to September 25, 2003. He added this dividend yield to an expected growth rate estimate of 6 percent to arrive at the lower end of his range of 9.50 percent, which was rounded up from 9.48 percent (Burdette Direct, p. 17, ll. 16-19). Mr. Burdette arrived at the high end of his estimated cost of common equity range by adding the average dividend yield of his proxy group of 3.48 percent to an expected growth rate of his proxy group of 6.5 percent, which resulted in an indicated cost of common equity of 9.98 percent for his proxy group, which was rounded up to 10.00 percent for purposes of his recommendation.

Q. Did you notice any mistakes in Mr. Burdette's calculation of historical compound growth rates?

A. Yes. On page 2 of his Schedule MB-6, he calculated a 5-year average compound growth rate for earnings per share (EPS) based on a 3-year rolling period, which resulted in a 6.14 percent average according to his Schedule. However, he forgot to include the first 5-year period of 1996-2000, so his actual average should have been 5.15 percent, which would change his overall EPS historical compound growth rate on page 16, line 13 of his direct testimony to 4.70 percent from 5.19 percent, assuming that

excluding historical negative growth rates is appropriate, which apparently is Mr. Burdette's position in this case.

Q. Is it clear how Mr. Burdette arrived at the estimated growth rates he utilized to arrive at his recommended cost of common equity of 9.50 percent to 10.00 percent?

A. No. Mr. Burdette provides a summary of his growth rate calculations for his comparable companies on page 16, lines 7 through 19 of his direct testimony. However, it is not clear how he specifically arrives at his recommended growth rate of 6.00% to 6.50% indicated on lines 20 through 24 on the same page. He does indicate in his direct testimony that he emphasized the projected growth rates over the historical growth rates.

Q. In your experience, is Mr. Burdette's testimony regarding his estimated growth rates normally clear and understandable?

A. At times yes, but at other times no. For example, in the most recent Empire rate case, Case No. ER-2002-424, Mr. Burdette relied on fairly specific growth rates when arriving at Empire's recommended cost of common equity. Mr. Burdette provided the following explanation on page 19, lines 3 through 12:

> I recommend a return on common equity of 10.10% to 10.40% for Empire. This range is based primarily on my DCF analysis of Empire and the group of proxy companies. The 10.10% value essentially reflects the 10.11% result of my DCF analysis using Empire's actual dividend yield of 7.11% and estimated sustainable growth rate of 3.0%. The 10.40% value essentially reflects the DCF average dividend yield (5.81%) and average projected growth rate (4.58%) of the proxy group. Empire's DCF cost of equity of 10.20% resulting from the actual dividend yield of 7.11% and average projected growth rate of 3.10% falls within this range. Similarly, Empire's DCF cost of equity of 10.25% resulting from the actual dividend yield and projected retention growth rate of

> 3.14% falls within this range. These calculations and values are shown on Schedules MB-8 and MB-10.

As can be seen from the above explanation Mr. Burdette provided a much more specific explanation as to how he arrived at his estimated growth rates in the last Empire case.

He also provided a much more specific explanation of his recommended growth rate in the Union Electric complaint case, Case No. EC-2002-1. On page 14, lines 24 through 28, Mr. Burdette stated the following:

> I believe investors expect Ameren Corporation's sustainable growth rate to be, at most, 3.75%. This value is the third-highest value I calculated for Ameren, out of 11 growth rate calculations, and is the highest projected growth rate in my analysis. Only historical Value Line EPS and historical compound EPS were higher (although compound EPS was only slightly higher, at 3.80%).

Q. Are there any cases to your knowledge where Mr. Burdette has not been clear as to how he decided to choose his growth rate?

A. Yes. Actually, in the current Union Electric Gas case, Case No. GR-2003-0517, Mr. Burdette chose a growth rate range of 5.0 percent to 5.5 percent. His statement was simply "I believe a reasonable sustainable growth rate for AmerenUE is 5.0% to 5.5%." However, he really didn't explain how he arrived at that growth rate other than showing a summary of all of his growth rates on page 18 of his direct testimony. I must admit that at least in the instant case, Mr. Burdette indicated that he emphasized the projected growth rates over the historical growth rates.

Q. Do you have any concerns with Mr. Burdette's emphasis on the projected growth rates?

A. Yes. It is important to consider historical growth rates because, as stated on page 8-32 in David C. Parcell's book, The Cost of Capital - A Practitioner's Guide, 1997 "investors, as a group, do not utilize a single growth estimate when they price a utility's stock. Thus rate of return analysts should consider multiple growth estimates in order to better capture the growth embodied in a utility's stock price." It is important to note that Mr. Parcell emphasizes that analysts should consider **multiple** growth estimates. This applies to projected as well as historical growth rates. Additionally, Mr. Parcell states: "Analysts should recognize that individual investors have different expectations regarding growth and therefore no single indicator captures the growth expectations of all investors." Therefore, it is important to not only give weight to multiple projected growth rates, but to also give weight to historical growth rates because that is in fact what investors as a group will do.

Q. Is there anything that causes you to question Mr. Burdette's consistency in methodologies from case-to-case?

A. Yes, in this case, Mr. Burdette chose not to include negative growth rates in his overall averages, as stated on page 16, lines 10-11 of his direct testimony. However, in the recent Empire case, Case No. ER-2002-424, Mr. Burdette decided to include negative growth rates in his overall averages as shown on page 1 of his Schedule MB-6 in that case. He also included negative growth rates in the last Laclede case, Case No. GR-2002-356, as shown on page 1 of his Schedule MB-7 in that case. He also did so in the Union Electric complaint case, Case No. EC-2002-1, which I believe is the first case that he decided to include negative growth rates in his averages; but I don't recall seeing an explanation as to why he chose to start doing this in his testimony.

Q. Do you know why Mr. Burdette changed his methodology for arriving at his averages?

A. No, he didn't provide an explanation as to why he changed his methodology for this case versus the Empire case.

Q. What is the effect that not including negative growth rates will have on Mr. Burdette's overall average historical growth rates?

A. It increases them.

Q. Is there anything else that Mr. Burdette does that is inconsistent in this case versus previous cases?

A. Yes. I discussed this inconsistency in my rebuttal testimony in the last Empire case, Case No. ER-2002-424. Specifically, Mr. Burdette has changed his methodology when he utilizes the CAPM, and once again, he hasn't provided an explanation as to why he altered his methodology. However, at least part of his CAPM analysis in this case was similar to the way he executed the model in previous cases, in which he used large company stock returns to calculate his market risk premium.

In the rate case prior to Empire's last rate case, Case No. ER-2001-299, Mr. Burdette calculated his market risk premium for the CAPM by subtracting the long-term government bonds' arithmetic mean annual return from 1926-1999 from the large company stocks' arithmetic mean annual return from 1926-1999 to arrive at a market risk premium of 7.8 percent (Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 1999 Yearbook). However, in Empire's most recent rate case, Mr. Burdette chose to average the arithmetic means of market returns of large company stocks and small company stocks for the period of 1926-2001. This resulted in a market return of

15 percent. In the present case, Mr. Burdette decided to show both calculations. However, it should be noted that when he executed the CAPM using the average arithmetic means of market returns of large company stocks and small company stocks in the current case, he made mistakes in all of the calculations, but one. He calculated the CAPM correctly for California Water Service, but the rest of the calculations are incorrect. If Mr. Burdette had calculated the CAPM using the market return based upon the average of small and large company stocks, he would have arrived at an average CAPM cost of common equity of 11.15 percent instead of the 9.97 percent indicated on his Schedule MB-9.

Q. How did Mr. Burdette execute his CAPM analysis in the last MAWC rate case, Case Nos. WR-2000-281 and SR-2000-282?

A. In that case, Mr. Burdette executed the CAPM much like I executed the CAPM in this case. However, I can't determine from his direct testimony in the last MAWC rate case exactly how he calculated his market risk premium. He indicated that his calculated market risk premium of 7.2% in the last rate case was taken from Ibbotson and Associates. I assume that this market risk premium was calculated by taking the difference between the long-term return on long-term government bonds and the long-term return on large company stocks. I assume this is the case since Mr. Burdette calculated the market risk premium the same way in Empire Case No. ER-2001-299, which occurred after the previous Missouri-American Water Company case, but I cannot be sure of this because of the inconsistencies in Mr. Burdette's testimony over time.

Q. When appears to be the first time that Mr. Burdette changed his methodology for calculating the market risk premium for the CAPM?

A. It would appear that Mr. Burdette started to change his methodology beginning with the Empire rate case, Case No. ER-2002-424 because in the Laclede case, Case No. GR-2002-356, which was filed right before the Empire case, he calculated the market risk premium by subtracting the return on long-term government bonds (1926-2000) from the return on large company stocks (1926-2000).

Q. Did Mr. Burdette do anything else different in his application of the CAPM in this case versus the last MAWC rate case, Case Nos. WR-2000-281 and SR-2000-282?

A. Yes. In the current case Mr. Burdette utilized the long-term (1926-2002) return of 5.6 percent on Intermediate-Term Government Bonds for the first variable in the CAPM [$k = \mathbf{R_f} + \beta (R_m - R_f)$], where k = the cost of common equity, R_f = the risk-free rate, β = beta coefficient and $R_m - R_f$ = the market risk premium. In the last case, Mr. Burdette utilized a spot rate of 6.16 percent based on the 30-year U.S. Treasury bond as of March 16, 2000.

Q. Which approach is the more appropriate one to use?

A. The one he utilized in MAWC's last rate case. If an analyst is trying to estimate the cost of capital in the current interest rate environment then he/she would want to measure the market risk premium against some current interest rate. Otherwise the results of the model do not reflect the current economic environment. This approach is consistent with most of the valuations done in the textbook by Aswath Damodaran, INVESTMENT VALUATION: Tools and Techniques for Determining the Value of *Any* Asset, 1996, which is a textbook used in the curriculum for students seeking the Chartered Financial Analyst (CFA) designation.

Q. What would Mr. Burdette's results be if the current spot rate on an Intermediate-Term Government Bond were used?

A. The spot rate on an Intermediate-Term Government Bond (defined by Ibbotson to be a one-bond portfolio with a maturity near 5 years) according to the Wall Street Journal on October 29, 2003 was 3.10 percent. If this were used as the first variable, which is exactly how Mr. Burdette performed his calculation in Case Nos. WR-2000-281 and SR-2000-282, then he would have arrived at a cost of common equity of 7.19 percent for the CAPM for his comparable companies utilizing the market return based on large company stocks. He would have arrived at a cost of common equity of 8.65 percent for the CAPM for his comparable companies utilizing the market return based on the average of large and small company stocks.

Q. Did Mr. Burdette do anything else in the last MAWC rate case that causes you concern about his tendency to substitute his judgment for that of the capital markets and his propensity to increase his recommendations?

A. Yes. In the last rate case Mr. Burdette increased his recommendation by 25 basis points because of "likely interest rate increases." Mr. Burdette made this adjustment to his DCF results to arrive at a recommendation of a 9.92 percent allowed return on common equity.

Q. Does the DCF model reflect investors' expectations of the future economic and capital market environment?

A. Yes. If the model is executed properly, the DCF results will reflect investors' expectations about future economic and capital market environments.

Investors' expectations about the future are reflected in the price investors are willing to pay for the stock of the company.

Q. What has happened to the level of interest rates since Mr. Burdette wrote his testimony on April 3, 2000 in the last case?

A. They have come down. This is the very reason why analysts need to be careful about substituting their judgment for that of investors which should already be reflected in the results from the use of the DCF model.

Q. Do you have any evidence that the Office of the Public Counsel would not typically substitute its judgment for that of the capital markets?

A. Yes. In its Report and Order for Case No. ER-93-37, the Commission stated:

> The Commission finds that MoPub's proposed return on equity is not warranted. MoPub makes several upwards adjustments in order to arrive at its proposed figure of 13.50 percent, without adequately justifying the basis for the adjustments. The Commission agrees with the Public Counsel that MoPub wishes to substitute the judgment of its witnesses for that of the capital markets. Since no one can predict when interest rates will return to "normal," use of data showing the expectations of current investors is appropriate. The Commission also determines that the link between interest rates and utility stocks is included in the market's pricing of the stocks. In addition, an upward adjustment for flotation costs is not warranted since MoPub does not issue common stock. Likewise, an upward adjustment to reflect current market circumstances is also unnecessary since the DCF method is a forward-looking model.

Q. Should a witness have the flexibility to change his position in future cases?

A. Of course, but when a witness changes the way he performs his analysis he should fully explain why he changed his methodology. Even when given a chance to respond to my rebuttal in the last Empire rate case, Case No. ER-2002-424, about his

change in methodology in executing the CAPM, Mr. Burdette chose not to give an explanation as to why he made the change. Also, a witness should attempt to use a consistent methodology from case-to-case. It would appear to be acceptable to alter your methodology if you learn something new, or if there is some new compelling research that makes it necessary to change your methodology, but you would presume that the witness would be consistent with that change going forward.

Q. What has been the overall effect of Mr. Burdette's changes in methodology on the results of his models?

A. All of the changes that Mr. Burdette has made to his methodology over time have acted to increase the results of the cost of common equity models he uses when doing his analysis.

Ms. Ahern's Recommended Cost of Common Equity for MAWC

Q. Please summarize Ms. Ahern's recommended cost of common equity for MAWC.

A. Ms. Ahern utilized the Discounted Cash Flow (DCF) model, the Capital Asset Pricing Model (CAPM), the Risk Premium Model (RPM), and the Comparable Earnings Model (CEM) to estimate the cost of common equity for MAWC. Ms. Ahern applied the DCF, CAPM and RPM to a group of "comparable" companies. Ms. Ahern applied the CEM to a group of ninety-six non-price regulated companies. Ms. Ahern summarizes her results on page 5 of her direct testimony. The results range from a low of 10.0 percent utilizing the DCF model to a high of 13.6 percent using the CEM. After reviewing these results, Ms. Ahern arrived at a range of recommended cost of common

equity of 11.75 percent to 12.00 percent. However, as stated before, MAWC chose to utilize an 11.00 percent cost of common equity in its rate increase request.

Q. From page 16, line 29 through page 25, line 9 of Ms. Ahern's direct testimony, Ms. Ahern presents testimony that discusses the fact that the current market valuation of her proxy group results in market values that are well in excess of their book values. She maintains that because of this fact, the DCF model result should not be relied upon as heavily because it results in downward-biased estimates of the cost of common equity. Do you agree with this conclusion?

A. I do not. There has been much debate on the implications that market-to-book ratios should have on recommending a just and reasonable rate of return. Ms. Ahern's position is that if market-to-book ratios are in excess of one, then the DCF model will understate investors' required rate of return on common equity. She maintains that because the DCF model relies on the stock price of a given company to determine its required rate of return on common equity, this causes problems when applying this rate of return to the book value of common equity because the return applied to this book value will not generate the return expected by investors on the market value of common equity. Additionally, Ms. Ahern maintains that short-range forecasts of growth in accounting proxies, such as earnings per share (EPS) and dividends per share (DPS) "do not reflect the full measure of growth (market price appreciation) expected in per share market value." While this argument may have some intuitive appeal, it does not address the reason investors will expect the market-to-book ratio to remain significantly above one. If the cost of capital for a utility is at a certain level and it is still allowed to earn a return on common equity above this cost, then it is only natural

that investors will bid up the price of the stock to a point where the market-to-book ratio is above one. This is especially true in today's low interest rate environment. While an investor may expect some commissions to continue to allow a return on common equity that is above a company's cost of capital, I do not think it is prudent for this Commission to adjust the DCF results in order to maintain market-to-book ratios above one.

Q. Are there any other sources that support the position that if the market-to-book ratio is above one, then this means that a company is earning more than its cost of capital?

A. Yes. In the textbook by Aswath Damodaran, INVESTMENT VALUATION: Tools and Techniques for Determining the Value of *Any* Asset, 1996, there are many citations that indicate if a company is earning more than its cost of capital, then the market-to-book ratio for that company will be above one. Page 320 of this textbook states the following:

> The PBV [price/book value] ratio of a stable firm is determined by the differential between the return on equity and the required rate of return on its projects. If the return on equity exceeds the required rate of return, the price will exceed the book value of equity; if the return on equity is lower than the required rate of return, it will be lower than the book value of equity. The advantage of this formulation is that it can be used to estimate the PBV ratios for firms that do not pay out dividends.

Another quotation in the same book on page 326 reads as follows:

> The PBV ratio is also influenced by the required rate of return, with higher required rates of return leading to lower PBV ratios. The influence of the return on equity and the required rate of return can be consolidated in one measure by taking the difference between the two rates. The larger the return on equity relative to the required rate of return, the greater the PBV ratio…

One final quotation from this text discusses a firm's capacity to earn a higher than normal amount of profit. The following quotation is from page 328:

> The difference between return on equity and the required rate of return is a measure of a firm's capacity to earn super-normal profits in the business in which it operates. Corporate strategists have examined the determinants of the size and expected duration of these excess profits (and high return on equity) using a variety of frameworks. One of the better known is the "five forces of competition" framework developed by Porter (see Figure 15.5). In his approach, competition arises not only from established producers producing the same product but also from suppliers of substitutes and from potential new entrants into the market.
>
> In Porter's framework, firms are able to maintain a high return on equity because there are significant barriers to entry by new firms or by competitors. The analysis of the return on equity of a firm can be made richer and much more informative by examining the competitive environment in which it operates. There may also be clues in this analysis to the future direction of return on equity.

Q. Does Ms. Ahern's position in her direct testimony on page 20, lines 15 through 20, that the DCF model's growth rate should be adjusted upward because investors may expect the long-range market appreciation of a stock to be higher than the "short range" forecasts of growth in accounting proxies, i.e., EPS and DPS, make sense?

A. No. If investors expect market-to-book ratios to revert back to one, then it is very hard to fathom that investors will continue to bid the market price of utilities up to a point in which the growth in stock price will exceed the growth in underlying fundamental values that may be an indicator of the profitability of the company. If anything, one would expect the market price of these companies to grow at a slower pace than the accounting proxies that Ms. Ahern references. If one were to adjust the growth rates downward, then this would result in lower DCF results.

One of the sources that Ms. Ahern relies on to support her opinion that stocks will continue to climb in spite of the fundamental profitability, or lack thereof, of companies is an article from the Wall Street Journal. This article tries to explain why stock prices are not being driven by fundamentals. It maintains that stock prices will continue to be strong as long as investors continue to be willing to pay more for stocks than they used to. Although Ms. Ahern doesn't specify the date of this article in the body of her testimony, she does specify the date of the article in her footnote. I believe it is important to emphasize the date of this article since it occurred during the stock market boom of the late 1990's and early 2000. The date of the article was March 30, 1999. To rely on this article to discredit the use of the DCF model is tenuous at best because of what is now commonly considered as a "market bubble."

Q. Do Ms. Ahern's comments on page 26, lines 23 through 26 of her direct testimony, in which she explains that in her opinion "investors in water utilities would have little interest in historical growth rates beyond the most recent five years because an historical five-year period balances the five-year period for projected growth rates…" contradict any of her earlier statements?

A. Yes. Earlier in her direct testimony on page 20, lines 15 through 20, Ms. Ahern discusses why she believes that "short range" forecasts of growth such as EPS and DPS, do not reflect the long-range expectations of growth in market prices. If it is her opinion that short-term accounting proxies are not reflective of possible long-term market appreciation, then one would think that longer-term accounting proxies may be more reflective of possible future market appreciation.

Q. Do you have any support that may cause one to be cautious about the sustainability of market appreciation of stock over fundamental factors such as growth in earnings?

A. Yes. On December 20, 2001, in an interview on CNBC, Mr. Warren Buffett indicated that "returns in the stock market should come in around an average 7-8 percent over the next ten years." He also said that he's "not finding" undervalued companies in this market, indicating that he remains watchful of valuation levels for stocks.

A more recent article in *Fortune* magazine on June 16, 2003, "Can Stocks Defy Gravity? That's what Wall Street wants you to believe. Don't buy it. The best minds say the market will rise, but it won't soar," featured several well-respected academicians giving their opinions on the long-term prospects for stock market returns. The two main academicians that are featured in the article are Cliff Asness, University of Chicago Ph.D., who writes influential studies in academic journals while running the $5 billion hedge fund AQR Capital Management, and Jeremy Siegel of The Wharton School of the University of Pennsylvania, whose book, *Stocks for the Long Run*, helped mold academic thinking on how equities perform over long periods. Although these are the two main academicians featured in the article, Kenneth French of Dartmouth and Eugene Fama of the University of Chicago also urge caution when investing in today's market.

Specifically, Jeremy Siegel, speaking about total market returns, states: "Better-than-average earnings, if they happen, could get us perhaps 8%. But 10% assumes earnings growth that is just too big." It is obvious that these well respected

academicians are basing their predictions of future market returns on the need for good earnings growth, which is one of the fundamental growth factors that Ms. Ahern discounts when attempting to discredit the results using the DCF model. It is obvious that well-respected investors and academicians alike feel that market valuations are out of whack and if market prices don't come down, they will at least have to wait for earnings to catch up. This refutes Ms. Ahern's position that long-run market appreciation will exceed the earnings of companies.

Q. You indicated that there has been much debate on the implications of market-to-book ratios on the results of the DCF model. Can you provide some examples as to how this debate has not been conclusive?

A. Yes. Dr. Roger A. Morin's book, Regulatory Finance: Utilities' Cost of Capital, 1994, illustrates the confusion that has occurred regarding possible adjustments that should be made to the DCF model in various capital market situations. On page 123 of his book, Dr. Morin states the following:

> When a utility's stock price is below book value or when regulatory lag is present, it is reasonable to assume that investors expect future increases in the utility's market-to-book ratio through upward adjustments in the allowed rate of return. This is because proper regulation requires a market-to-book ratio of at least 1. The expected increase in market-to-book ratio would result in the rate of price appreciation that exceeds the growth in earnings, contrary to the standard DCF model's assumptions that firm's earnings per share grow at a constant rate forever and/or that the firm's price-to-earnings ratio is constant. Application of the standard DCF model would result in a downward-biased estimate of the cost of equity to a public utility whose current market-to-book ratio is less than 1 and that is expected to converge toward 1 by investors. It is not reasonable to postulate a growth in earnings that exceeds growth in book value forever, because earnings would eventually exceed book value on which such earnings are based. That is to say, it is unreasonable to expect a continued increase in earned ROE forever. It is possible, however, that investors expect a transitory

> change in earned returns, say over the next 5 years. If investors do expect a transitory change in earned return, projection of a declining or rising earned ROE is inconsistent with the use of a single growth rate or Standard DCF model.

On page 236, Dr. Morin states the following when explaining his reservation about the sole reliance on the DCF methodology:

> The third reason for caution and skepticism is that application of the DCF model produces estimates of common equity cost that are consistent with investors' expected return only when stock price and book value are reasonably similar, that is, when the M/B is close to unity. As shown below, application of the standard DCF model to utility stocks understates the investor's expected return when the market-to-book ratio of a given stock exceeds unity. This is particularly relevant in the capital market environment of the 1990s where utility stocks are trading at M/B ratios of well above unity. The converse is also true, that is, the DCF model overstates the investor's return when the stock's M/B ratio is less than unity. The reason for the distortion is that the DCF market return is applied to a book value rate base by the regulator, that is, a utility's earnings are limited to earnings on a book value rate base.

As can be derived from the above, quotes taken from the same textbook show there is much confusion as to when the standard DCF model understates or results in a downward-biased estimate of the return on common equity. While the first quote indicates that the DCF model will result in an understatement of the cost of common equity to the company when market-to-book ratios are below one, the second quote indicates that the DCF model would understate the cost of common equity if market-to-book ratios are greater than one. Therefore, the results are understated in both scenarios (market-to-book ratios above and below one), but apparently for different reasons. The key concept to grasp is whether it is appropriate for investors to continue to expect a higher rate of return when market-to-book ratios are above one in order for the currently higher market-to-book ratio to be sustained. If, as Dr. Morin states, it is

appropriate for investors to expect regulators to authorize higher allowed rates of return when the market-to-book ratio is less than one, then it would only be natural that investors would expect that regulators will recommend lower rates of return when market-to-book ratios are above one.

Q. Are you suggesting that your DCF result should be adjusted downward because they overestimate the cost of common equity?

A. No. I am not recommending, nor would I recommend, that my DCF results should be adjusted based on current market-to-book ratios.

Q. Why not?

A. This Commission, to my knowledge, has never taken a position that it should base its recommendations on any specific market-to-book ratio or to maintain a particular market-to-book ratio. In fact Dr. Morin indicates on page 247 of his book that "...regulators should largely remain unconcerned with such ratios because they are determined by exogenous market forces and are outside the direct control of regulators. M/B ratios are largely the end result of the regulatory process itself rather than its starting point." Therefore, I do not feel it is appropriate to make adjustments to my DCF analysis because of the level of current market-to-book ratios.

Q. Is there any empirical evidence that calls into question the need to adjust the DCF model results because it will be applied to the book value of equity rather than the market value of equity?

A. Yes, a review of Ms. Ahern's Schedule PMA-3 indicates that the rate of return on average book common equity for her comparable companies ranges from 10.4 percent to 11.5 percent with an average of 10.7 percent. During this same time

frame the market-to-book ratio for these comparable companies range from 175.4 to 218 with an average of 197.9. As has already been discussed, if the market-to-book ratio for a company is above one then this implies that the company is earning more than its cost of capital. If it were true that returns on book common equity in the 10.4 percent to 11.5 percent range did not allow a company to earn its cost of common equity, then following Ms. Ahern's position, one would expect that the market-to-book ratios would be below one. It is evident from this data that the cost of common equity applied to book value for Ms. Ahern's comparable companies should at least be less than 10.4 percent, if not much less than that, otherwise the market-to-book ratios for these companies would be closer to one. This supports my recommended cost of common equity range of 8.26 percent to 9.26 percent.

Q. Does your DCF analysis reflect the current value investors give to utility stocks?

A. Yes, it does. If investors bid the market price of a stock to some level above its book value, then it is obvious that investors value that stock because of the additional value the company has created by earning more than its cost of capital. This is where I agree with Ms. Ahern's opinion on page 18 of her direct testimony. Ms. Ahern states the following:

> I believe that the common stocks of utilities will continue to sell substantially above their book values, because many investors, especially individuals who traditionally committed less capital to the equity markets, will likely continue to commit a greater percentage of their available capital to common stocks in view of lower interest rate alternative investment opportunities and to provide for retirement. The recent past and current capital market environment is in stark contrast to the late 1970's and early 1980's when very high (by historical standards) yields on secured debt instruments in public utilities were available.

However, I disagree that this renders the results using the DCF model less credible. Because the DCF model utilizes stock prices in arriving at an estimated cost of common equity, it reflects the yield that investors require on that stock, since the dividend is divided by the stock price. If the level of interest rates have dropped, then it is only natural that investors will place more value on stocks, especially dividend-paying stocks, because they can't receive the same yield as they used to on debt instruments. This is why it is often stated, even by company witnesses, that the cost of common equity for utilities is closely tied to the level of interest rates. If interest rates are high, then the cost of capital in general and cost of common equity in particular tends to be high. If interest rates are low, then the cost of capital in general and cost of common equity in particular tends to be low. The environment we are in now and have been in over the last few years is low interest rates and low cost of capital.

Q. Have you come across any comments in popular financial media that indicate that utilities and investors should expect lower allowed returns in the future because of the lower level of interest rates?

A. Yes. In an article, "Utility Cutbacks Worried States Before Blackout: Rate Freezes Spurred by Deregulation Weighed on Staffing, Maintenance," on August 29, 2003, in the Wall Street Journal, there was a discussion about how frozen rates actually worked in favor of utilities. The article specifically stated that, "The frozen rates actually worked in the utilities' favor, by allowing them to get higher rates of return than would have been authorized in today's low-interest-rate environment. But with rates frozen, the easiest way to get dollars to the bottom line is by whacking expenses." It is only natural that utilities should expect to have a lower cost of capital in a low interest

rate environment, and this is reflected in the DCF model results and should be reflected in the rates that utility customers pay.

Q. Do you have any additional support for the premise that you should not make any adjustments to your DCF results?

A. Yes. As stated in A. Lawrence Kolbe, James A. Read, Jr. and George R. Hall's book The Cost of Capital: Estimating the Rate of Return for Public Utilities, the DCF model is a self-correcting model. This means that if the allowed returns are less than what the investors expect, then the stock price would be driven down and this would be reflected in the DCF analysis that is done in the next rate case. The converse would hold true that if the allowed return is higher than expected, then the stock price would be driven up and the DCF analysis in the next rate case would reflect this. On page 60 the authors specifically state:

> The problem is unlikely to be serious because the DCF method also relies on the market price of the stock, which would signal investors' surprise at the unexpectedly high allowed rate of return by jumping in value. Such a jump should lead to a lower dividend rate (the first part of the DCF formula) and a more cautious application of ROE forecasts at the next hearing. Thus the method tends to be self-correcting. Moreover, the entire problem is avoided if the DCF method is applied to a broad sample of firms in the same industry, instead of only to forecasts of values for firms being regulated.

Q. In light of the above discussion, does it make sense that Ms. Ahern's DCF cost of common equity results come in lower than her other results?

A. Yes, because these results are recognizing the lower cost of common equity that is reflected in the price investors are willing to pay for the shares of her proxy group of companies.

Q. Has this Commission to your knowledge consistently relied upon the DCF model in making its decisions regarding a fair and reasonable rate of return to apply to a utility's rate base?

A. Yes. I believe Staff has been relying on the DCF model for several years and the Commission has found it to be reasonable. In its Report and Order for Case No. WR-2000-844, the Commission stated:

> The Commission has for many years judged the DCF to be the most reliable for calculating a utility's cost of equity: The Commission has consistently found the Discounted Cash Flow (DCF) analysis to be appropriate for determining a rate of return on equity. …This is because it is relatively simple to apply and measures investor expectations for a specific company. …[T]he DCF analysis is consistently systematic and allows the Commission to treat all utilities it regulates in a consistent manner.[7]
>
> [7] In the Matter of the Joint Application of Missouri Cities Water Company, 26 Mo. P.S.C. (N.S.) 1, 26-27 (1983).

In addition, in its Report and Order for Case No. ER-2001-299, the Commission stated:

> Historically, the Commission has relied upon the Discounted Cash Flow ("DCF") Method of determining the appropriate return on equity ("ROE") for a regulated utility company.

According to the Report And Order in the last St. Louis County Water rate case, Case No. WR-2000-844 the Commission stated:

> The Commission concludes that the evidence in this case shows the DCF model to be the best approach. The Commission also concludes that, of the applications of the DCF model in this case, Staff's DCF analysis of AWK is the most pertinent to the determination of the Company's cost of capital. Staff's approach is the best because it is the purest application of the DCF model in the sense that it relies primarily on publicly reported data with little adjustment by the analyst. It is also the most appropriate because it uses the best proxy for the Company the Company's parent. The analysis performed by Public Counsel witness Burdette and Company witness Walker do not as accurately reflect the cost of equity for the Company because their proxy groups do not as

closely approximate the Company as does AWK. In addition, they both made significant adjustments to the results of their DCF analysis. Mr. Walker's use of electric utilities to determine the Company's ROE is a significant flaw.

Q. When was direct testimony filed in Case No. WR-2000-844?

A. It was filed on November 20, 2000.

Q. What was the average market-to-book ratio for Ms. Ahern's 7 comparable companies back in 2000 as indicated on page 5 of her Schedule PMA-8?

A. It was 193.27 percent.

Q. Did this Commission reject the DCF model in this case, even though market-to-book ratios were well above one?

A. No.

Q. Does the Comparable Earnings Model (CEM) analysis performed by Ms. Ahern necessarily reflect the cost of common equity capital to the companies in her study?

A. No. The use of the CEM is an analysis of past actual returns and future expected returns on common equity. It has nothing to do with the cost of common equity to the company. If earned returns remain above the cost of capital, then this will result in market-to-book ratios that are greater than one. If a company is earning more than its cost of capital, then the company is recovering more than its cost of service. The intent of rate of return/rate base regulation is to allow the utility to recover its cost of service. While reviewing what other companies may be earning may be informative in testing the reasonableness of a witness's DCF results, it should not be relied upon for the recommendation because of the above explanation.

Q. Have any other commissions rejected the CEM for basically the same reason that you cited above?

A. Yes. In a recent case involving AmerenUE, Docket No. 02-0798, 03-0008 and 03-0009 the Illinois Commerce Commission stated the following:

> Staff objects to Ameren's comparable earnings analysis because Staff believes the comparable earnings methodology is based on the erroneous assumption that earned returns on book equity are acceptable substitutes for investor-required returns. Staff claims there is no basis for this implication, since investor-required returns are only loosely related to accounting returns; they are not interchangeable. Staff asserts that the return on book value of common equity is unaffected by changes in the investor-required rate of return. Staff claims that in some circumstances investors could bid up the price of a stock, thereby reducing the implied required rate of return, but the anticipated return on book equity would not change.
>
> As Staff notes, the Commission has consistently and repeatedly rejected the comparable earnings methodology. In the Commission's view, Ameren has provided no new argument in favor of this flawed methodology. Stated simply, the Commission does not believe it is appropriate to estimate CIPS' and UE's forward looking cost of common equity by looking to historical earned returns on common equity earned by competitive industrial firms of similar risk. The constantly changing economic environment alone, which is well documented in the record, prevents the Commission from relying on historical earned returns to establish a forward looking return on common equity.
>
> As stated above, the objective of this proceeding is to establish a net original cost rate base and provide common equity investors the opportunity to earn the market required rate of return on the proportion of net original cost rate base financed by common equity investors. The comparable earnings test proposed by Ameren is inconsistent with this object[ive] and is rejected.

Q. Do you have any concerns with Ms. Ahern's Risk Premium Model?

A. Yes. On page 6 of Schedule PMA-9, line 4 indicates a forecasted 3-5 year total annual market return of 18.6 percent. Ms. Ahern's determination of this annual return is explained in note 1 on page 3 of Schedule PMA-10. I have concerns with the

reasonableness of this annual market return expectation. However, it should be noted that it appears that Ms. Ahern used an incorrect figure for her 12-month market appreciation potential. If this is corrected, I arrive at 3-5 year average total market appreciation of 80 percent, which converts into an annualized return of 17.98 percent when the dividend yield is added.

Regardless, I believe the reasonableness of this expectation has to be measured against the predictions of annual returns over the next ten years by such well-respected individuals as Warren Buffett and Jeremy Siegel. If these well-respected individuals are predicting annual returns of as little as 7 percent per year to only as high as 10 percent per year, then a 17.98 percent annualized return would appear to be high. This may have been an annualized return one would receive in the late 1990's to early 2000, but I believe the market correction that has occurred over the last three years has brought many investors back down to earth.

Another test of the reasonableness of a 17.98 annualized return is the historical long-term return indicated on line 1 on page 6 of Ms. Ahern's Schedule PMA-9. This shows an historical arithmetic mean total return of 12.2 percent. This is the mean total return that I used in the risk premium portion of my CAPM.

Q. What has happened to the spot forecasted 3-5 year total appreciation levels since Ms. Ahern wrote her testimony?

A. They have come down considerably. Actually, they just went below 50 percent for the first time since the late 1990s.

Q. What does this mean?

A. It means that Value Line is now projecting a lot less market appreciation potential over the next 3-5 years. This translates into a much lower expected annualized return over the next 3-5 years. The annualized return using the latest Value Line market appreciation amount of 45 percent is 11.88 percent (9.73 percent market appreciation plus 2.15 percent dividend yield).

Q. Is Ms. Ahern's use of a 3-5 year market price appreciation for her risk premium estimate consistent with her criticisms of the DCF model on page 17, lines 12-23 of her direct testimony?

A. No. Ms. Ahern indicates that the results derived by using the DCF model are less credible because the long-range market price growth potentials are not "fully reflected in analysts' shorter range forecasts of future growth for (EPS) and (DPS) accounting proxies." Her use of a short-term time frame (3-5 years) for her estimation of a market return contradicts her earlier comments. If she wanted to focus on longer-term market return potential, she would use lower returns such as those predicted by Warren Buffett and Jeremy Siegel.

Q. Do you have any concerns with Ms. Ahern's application of the CAPM?

A. Yes. I have some of the same primary concerns with Ms. Ahern's application of the CAPM as I did with her use of the RPM. Ms. Ahern relied on the same annual market return of 18.6 percent in arriving at her average market risk premium of 10.1 percent. I have already discussed my concerns with the use of this high annual return in order to calculate the risk premium. If Ms. Ahern had only used the historical market risk premium of 7.0 percent she would have arrived at a CAPM result of 9.83 percent.

Q. Is there anything else that concerns you about Ms. Ahern's execution of the CAPM?

A. Yes. For whatever reason, she chose not to calculate the CAPM results for Middlesex Water Company, SJW Corporation and York Water Company. The betas for these companies are available in the Expanded version of Value Line. The betas for these companies are .55, .50 and .65 respectively. If these had been included, then Ms. Ahern's CAPM results utilizing the 7.00 percent market risk premium would have been a 9.60% cost of common equity.

Summary and Conclusions

Q. Please summarize the conclusions of your rebuttal testimony.

A. My conclusions regarding the capital structure and cost of common equity are listed below.

1. The use of MAWC's capital structure as proposed by OPC and MAWC is inappropriate. It does not reflect American Water's actual support of the capital of its subsidiary, MAWC. In addition MAWC has failed to recognize any short-term debt in the capital structure. The calculation of the cost of capital for MAWC should be based on American Water's actual consolidated capital structure as of June 30, 2003, as shown my updated Schedule 9 attached to this rebuttal testimony;
2. My cost of common equity stated in the attached updated Schedule 24, which is 8.26 percent to 9.26 percent, would produce

a fair and reasonable rate of return of 6.67 percent to 7.03 percent for the Missouri jurisdictional water utility rate base for MAWC.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the General Rate Increase for Water and Sewer Service Provided by Missouri-American Water Company.	)))	Case No. WR-2003-0500
Staff of the Missouri Public Service Commission, Complainant, v. Missouri-American Water Company, Respondent.	)))))))))	Case No. WC-2004-0168

AFFIDAVIT OF DAVID MURRAY

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

David Murray, being of lawful age, on his oath states: that he has participated in the preparation of the foregoing Rebuttal Testimony in question and answer form, consisting of 39 pages to be presented in the above case; that the answers in the foregoing Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of him knowledge and belief.

David Murray

Subscribed and sworn to before me this 7th day of November 2003.

SUZIE MANKIN
Notary Public - Notary Seal
STATE OF MISSOURI
COLE COUNTY
MY COMMISSION EXP. JUNE 21,2004

MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2003-0500

Capital Structure as of June 30, 2003 for American Water

Capital Component	Amount in Dollars	Percentage of Capital
Common Stock Equity	$2,985,673,000	35.28%
Preferred Stock	1,784,012,552	21.08%
Long-Term Debt	3,491,706,706	41.25%
Short-Term Debt	202,641,848	2.39%
Total Capitalization	**$8,464,034,106**	**100.00%**

Water Utility Financial Ratio Benchmarks
Total Debt / Total Capital - Including Preferred Stock

Standard & Poor's RatingsDirect July 7, 2000	Lower Quartile **A**	Median **A**	Upper Quartile **A**
	53%	56%	61%

Note: See Updated Schedule 10 for the amount of Long-Term Debt at 06/30/03.
See Updated Schedule 11 for the amount of Preferred Stock outstanding at 06/30/03.

For purposes of this analysis, the amount of Short-term Debt outstanding at June 30, 2003 was set at $202,641,848. This results from the fact that the amount of Construction Work in Progress was $234,971,152 as indicated American Water's updated response to Staff's Data Information Request 3801. This amount was deducted from the short-term debt balance of $437,613,000 indicated in American Water's updated response to Staff's Data Information Request 3801.

Source: Missouri-American Water Company's updated response to Staff's Data Information Request Nos. 3801 and 3802.

Embedded Cost of Long-Term Debt as of June 30, 2003 for American Water and Subsidiary Companies

Total Annual Cost:	$207,795,902	
Total Carrying Value:	$3,491,706,706	
Embedded Cost = Total Annual Cost/Total Carrying Value		5.95%

Sources: Missouri-American Water Company's updated response to Staff's Data Information Requests No. 3802.

Embedded Cost of Preferred Stock as of June 30, 2003 for American Water and Subsidiary Companies

Total Annual Cost:	$105,920,803	
Total Carrying Value:	$1,784,012,552	
Embedded Cost = Total Annual Cost/Total Carrying Value		5.94%

Sources: Missouri-American Water Company's updated response to Staff's Data Information Request Nos. 3802.

Weighted Average Cost of Capital as of June 30, 2003 for Missouri-American Water Company

Capital Component	Percentage of Capital	Embedded Cost	Weighted Cost of Capital Using Common Equity Return of: 8.26%	8.76%	9.26%
Common Stock Equity	35.28%	-----	2.91%	3.09%	3.27%
Preferred Stock	21.08%	5.94%	1.25%	1.25%	1.25%
Long-Term Debt	41.25%	5.95%	2.46%	2.46%	2.46%
Short-Term Debt	2.39%	1.90%	0.05%	0.05%	0.05%
Total	**100.00%**		**6.67%**	**6.85%**	**7.03%**

Notes:

See Updated Schedule 9 for the Capital Structure Ratios.

See Updated Schedule 10 for the Embedded Cost of Long-Term Debt.

See Updated Schedule 11 for the Embedded Cost of Preferred Stock.