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Issues: Cost of Capital
Witness: *ROBERTA A. McKIDDY*
Sponsoring Party: *MoPSC Staff*
Type of Exhibit: *Direct Testimony*
Case Nos.: *WR-2000-281 and SR-2000-282*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

DIRECT TESTIMONY

OF

ROBERTA A. McKIDDY

MISSOURI-AMERICAN WATER COMPANY

CASE NOS. WR-2000-281 and SR-2000-282

Jefferson City, Missouri
March, 2000

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DIRECT TESTIMONY

OF

ROBERTA A. MCKIDDY

MISSOURI-AMERICAN WATER COMPANY

CASE NOS. WR-2000-281 AND SR-2000-282

Q. Please state your name.

A. My name is Roberta A. McKiddy.

Q. Please state your business address.

A. My business address is P.O. Box 360, Jefferson City, Missouri, 65102.

Q. What is your present occupation?

A. I am employed as a Financial Analyst for the Missouri Public Service Commission (Commission). I accepted this position in May 1998. It should be noted that prior to my appointment to the Financial Analysis Department, I served in an administrative support position with the Utility Services Division, Accounting Department.

Q. Were you employed before you joined the Commission's staff (Staff)?

A. Yes, I was employed by the State Emergency Management Agency for the state of Missouri. I also have previous experience in the areas of accounting, insurance, real estate lending and consumer protection.

Q. What is your educational background?

A. In July 1997 I earned a Bachelor of Science degree in Business Administration with an emphasis in Finance from Columbia College. In October 1998, I

began pursuing a Master of Business Administration degree with William Woods University in Jefferson City. My projected graduation date is June 2000.

Q. What is the purpose of your testimony in this case?

A. My testimony is presented to provide a recommendation to the Commission as to a fair and reasonable rate of return for the Missouri jurisdictional water and sewer utility rate base for Missouri-American Water Company (Company or MAWC).

Q. Have you prepared any schedules to your analysis of the cost of capital for MAWC?

A. Yes. I am sponsoring a study entitled "An Analysis of the Cost of Capital for Missouri-American Water Company, Case Nos. WR-2000-281 and SR-2000-282," consisting of 30 schedules which are attached to this direct testimony (see Schedule 1).

Q. What do you conclude is the cost of capital for MAWC?

A. My analysis leads me to conclude that the current cost of capital for MAWC is in the range of 8.05 to 8.43 percent.

Economic and Legal Rationale for Regulation

Q. Why are the prices charged to customers by utilities such as MAWC regulated?

A. A primary purpose of price regulation is to restrain the exercise of monopoly power. Monopoly power represents the ability to charge excessive or unduly discriminatory prices. Monopoly power may arise from the presence of economies of scale and/or from the granting of a monopoly franchise.

For services that operate efficiently and have the ability to achieve economies of scale, a monopoly is the most efficient form of market organization. Utility companies can supply service at lower costs if the duplication of facilities by competitors is avoided. This

allows the use of larger and more efficient equipment and results in lower per unit costs. For instance, it may cost more to have two or more competing companies maintaining duplicate water treatment and distribution systems and providing competing residential services to one household. This situation could result in price wars and lead to unsatisfactory and perhaps irregular service. For these reasons, exclusive rights may be granted to a single utility to provide service to a given territory. This also creates a more stable environment for operating the utility company. Utility regulation acts as a substitute for the economic control of market competition and allows the consumer to receive adequate utility service at a reasonable price.

Water and sewer utility companies, such as MAWC, provide water and sewer services essentially under a monopoly franchise. Therefore, it is clear that MAWC has monopoly power.

Another purpose of price regulation is to provide the utility company with an opportunity to earn a fair return on its capital, particularly on investments made as a result of a monopoly franchise.

Q. Please discuss the legal basis for determining a fair and reasonable return for a public utility.

A. Several landmark decisions by the U.S. Supreme Court provide the legal framework for regulation and for what constitutes a fair and reasonable rate of return for a public utility. Listed below are some of the cases:

1. Munn v. People of Illinois Case (1877);

2. Bluefield Water Works and Improvement Company Case (1923);

3. Natural Gas Pipeline Company of America Case (1942); and

4. Hope Natural Gas Company Case (1944).

In the case of Munn v. People of Illinois, 94 U.S. 113 (1877), the Court found that:

> . . . when private property is "affected with a public interest, it ceases to be *juris privati* only" . . . . Property does become clothed with a public interest when used in a manner to make it of public consequence, and affect the community at large. When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created. Id. at 126.

The Munn decision is important because it states the basis for regulation of both utility and non-utility industries.

In the case of Bluefield Water Works and Improvement Company v. Public Service Commission of the State of West Virginia, 262 U.S. 679 (1923), the Supreme Court ruled that a fair return would be:

1. A return "generally being made at the same time";

2. A return achieved by other companies with "corresponding risks and uncertainties"; and

3. A return "sufficient to assure confidence in the financial soundness of the utility".

The Court specifically stated:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market and business conditions generally. Id. at 692-3.

In Federal Power Commission et al. v. Natural Gas Pipeline Company of America, 315 U.S. 575 (1942), the Court decided that:

> The Constitution does not bind rate-making bodies to the service of any single formula or combination of formulas . . . . If the Commission's order, as applied to the facts before it and viewed in its entirety, produces no arbitrary result, our inquiry is at an end. Id. at 586.

The U.S. Supreme Court also discussed the reasonableness of a return for a utility in the case of Federal Power Commission et al. v. Hope Natural Gas Company, 320 U.S. 591 (1944). The Court stated that:

> The rate-making process . . . , i.e., the fixing of "just and reasonable" rates, involves a balancing of the investor and the consumer interests. Thus we stated . . . that "regulation does not insure that the business shall produce net revenues" . . . it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock . . . . By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital. Id. at 603.

The Hope case restates the concept of comparable returns to include those achieved by any other enterprises that have "corresponding risks". The Supreme Court also noted in this case that regulation does not guarantee profits to a utility company.

A more recent case heard by the Supreme Court of Pennsylvania extends the Hope case decision beyond balancing the interests of the investors and the consumers. The Supreme Court of Pennsylvania stated that:

> We do not believe, however, . . . that the end result of a rate-making body's adjudication *must* be the setting of rates at a level that will, in any given case, guarantee the continued financial integrity of the utility concerned . . . . In cases where the balancing of consumer interests against the interests of investors causes rates to be set at a "just and reasonable" level which is insufficient to ensure the continued financial integrity of the utility, it may simply be said that the utility has

> encountered one of the risks that imperil any business enterprise, namely the risk of financial failure. Pennsylvania Electric Company, v. Pennsylvania Public Utility Commission, 502 A.2d 130, 133-34 (1985), cert. denied, 476 U.S. 1137 (1986).

The Pennsylvania Electric Company case is included in my testimony to illustrate a point which is simply this: captive ratepayers of public utilities should not be forced to bear the brunt of wrongful management which results in unnecessarily higher costs. It should be noted that I do not believe that utility companies should be casually subjected to risk of financial failure in a rate case proceeding. However, in a case of extremely poor management, I do not believe it would always be appropriate for a regulatory agency to provide sufficient funds to continue operations no matter what the costs are to the ratepayers.

Through these and other court decisions, it has generally been recognized that public utilities can operate more efficiently when they operate as monopolies. It has also been recognized that regulation is required to offset the lack of competition and maintain prices at a reasonable level. It is the regulatory agency's duty to determine a fair rate of return and the appropriate revenue requirement for the utility, while maintaining reasonable prices for the public consumer.

The courts today still believe that a fair return on common equity should be similar to the return for a business with similar risks, but not as high as a highly profitable or speculative venture requires. The authorized return should provide a fair and reasonable return to the investors of the company, while ensuring that excessive earnings do not result from the utility's monopolistic powers. However, this fair and reasonable rate does not necessarily guarantee revenues or the continued financial integrity of the utility.

It should be noted that the courts have determined that a reasonable return may vary over time as economic and business conditions change. Therefore, the past, present and

projected economic and business conditions must be analyzed in order to calculate a fair and reasonable rate of return.

Historical Economic Conditions

Q. Please discuss the relevant historical economic conditions in which MAWC has operated.

A. One of the most commonly accepted indicators of economic conditions is the discount rate set by the Federal Reserve Board (Federal Reserve). The Federal Reserve tries to achieve its monetary policy objectives by controlling the discount rate (the interest rate charged by the Federal Reserve for loans of reserves to depository institutions) and the Fed Funds Rate (the overnight lending rate between banks). At the end of 1982, the U.S. economy was in the early stages of an economic expansion, following the longest post-World War II recession. This economic expansion began when the Federal Reserve reduced the discount rate seven times in the second half of 1982 in an attempt to stimulate the economy (see Schedule 2). This reduction in the discount rate led to a reduction in the prime interest rate (the rate charged by banks on short-term loans to borrowers with high credit ratings) from 16.50 percent in June 1982, to 11.50 percent in December 1982. The economic expansion continued for approximately eight years until July 1990, when the economy entered into a recession.

In December 1990, the Federal Reserve responded to the slumping economy by lowering the discount rate to 6.50 percent. Over the next year-and-a-half, the Federal Reserve lowered the discount rate another six times to a low of 3.00 percent, which had the effect of lowering the prime interest rate to 6.00 percent. (See Schedule 3)

In 1993, newly elected President Clinton implemented a plan to raise additional revenues by increasing certain corporate and personal income tax rates, but perhaps the most important factor for the U.S. economy in 1993 was the passage of the North American Free Trade Agreement (NAFTA). NAFTA created a free trade zone consisting of the United States, Canada and Mexico. The rate of economic growth for the fourth quarter of 1993, was one the Federal Reserve believed could not be sustained without experiencing higher inflation. In the first quarter of 1994, the Federal Reserve took steps to try to restrict the economy by increasing interest rates. As a result, on March 24, 1994, the prime interest rate increased to 6.25 percent. On April 18, 1994, the Federal Reserve announced its intention to raise its targeted interest rates, which resulted in the prime interest rate being increased to 6.75 percent. The Federal Reserve took action on May 17, 1994, by raising the discount rate to 3.5 percent. Three additional restrictive monetary actions were taken by the Federal Reserve with the last occurring on February 1, 1995. These actions raised the discount rate to 5.25 percent, and in turn banks raised the prime interest rate to 9.00 percent.

The Federal Reserve then reversed its policy in late 1995 by lowering its target for the Fed Funds Rate 0.25 percentage points on two different occasions. This had the effect of lowering the prime interest rate to 8.50 percent. On January 31, 1996, the Federal Reserve lowered the discount rate to a rate of 4.50 percent.

The actions of the Federal Reserve over the last five years have been primarily focused at keeping the level of inflation under control, and they have been successful. The inflation rate, as measured by the Consumer Price Index (CPI), was at 3.30 percent in January 1993, and it has not exceeded 3.30 percent since then (see Schedule 4-1). The increase in CPI stood at 2.7 percent for the period ending December 31, 1999. What is

significant about the low inflation rate is that while inflation has been at historically low levels, the unemployment rate has also dropped to historically low levels. In January 1993, the unemployment rate stood at 7.3 percent and gradually dropped to its current level of 4.1 percent for the period ending December 31, 1999 (see Schedule 7).

The combination of low inflation and low unemployment has led to a prosperous economy as evidenced by the real gross domestic product of the United States. Over the time period of 1993 through the present, real GDP has increased every quarter. Another indicator of the strength of the economy is the run-up of the stock market. The stock market, as measured by the Dow Jones Composite Index, has increased by 104.74 percent between December 30, 1993, and February 24, 2000, while the Dow Jones Industrial Index has increased by 167.29 percent over that same time frame. The stock market has increased 34.78 percent as measured by The Value Line Geometric Averages Composite Index from December 30, 1993 through February 24, 2000. It should be noted that the Value Line Composite Index is an equally weighted geometric average of 1628 companies as compared to the Dow Jones Composite Index, which is a price-weighted arithmetic average of 65 companies.

During the past ten years, high-tech manufacturing output has been growing about 40 percent per year while other manufacturers have been growing at less than 3 percent. The recent slowdown in the Nasdaq and increase in the Dow industrials suggests that investors believe that old-line firms have been oversold. However, Wall Street believes that the future still belongs to the technology upstarts.

For the past three years, rapid growth, low oil prices and easy credit has contributed to an increase in personal wealth. More recently, oil prices are three times as high as one

year ago and the Organization of Petroleum Exporting Countries (OPEC) is reluctant to offer any relief in the near future. OPEC will hold its next meeting on March 27, 2000 to decide whether to extend current production cuts or increase supply. In the March 15, 2000 issue of The Outlook, a Standard & Poor's publication, analysts stated that they believe OPEC "will boost output by 1.5 million barrels a day."

The Department of Labor indicated that the CPI for the past three months implies an annual rate of inflation of 3.9 percent. February's gains were driven by increases in energy prices. Energy prices rose 4.6 percent in February, its strongest gain since April 1999 when energy prices increased over 6.0 percent. Likewise, gasoline prices increased 6.3 percent in February making an increase of 41.2 percent over the past twelve months. This level has not been seen since the Gulf War crisis in November 1990. These higher fuel prices have already impacted the airline industry and they are expected to impact other sectors of the economy if the trend continues.

Current economic topics seem to revolve around the speculation about the Federal Reserve's next move on interest rates. On March 21, 2000, the Federal Reserve raised the federal funds rate from 5.75 percent to 6.00 percent. (The federal funds rate is the interest rate that banks charge each other for overnight lending.) This is the fifth time that the Federal Reserve has raised the federal funds rate since mid-1999. The Federal Reserve also increased the discount rate on direct loans to banks from 5.25 percent to 5.50 percent. (The discount rate is the rate at which member banks borrow directly from the Federal Reserve.) The main reason for these increases has been the Federal Reserve's desire to slow economic

growth to a more manageable pace while keeping inflation under control. The table below provides a brief history of the federal funds rate and discount rate since June 1999:

Date	Federal Funds Rate	Discount Rate
6/30/99	5.00%	4.50%
8/24/99	5.25%	4.75%
11/66/99	5.50%	5.00%
2/2/00	5.75%	5.25%
3/21/00	6.00%	5.50%

The Federal Reserve's attempts to slow the economy have failed thus far as well as failed to deter consumer spending, which accounts for two-thirds of all economic activity. Another key interest rate that has been impacted by the increases in the federal funds rate and discount rate is the prime interest rate. The prime interest rate is a key benchmark for real estate lending, home equity loans and credit card balances, as well as short-term loans for small businesses.

As of March 2000, the economy has been growing at a record-breaking pace for the past 108 months. The economy grew at a rate of 6.9 percent for the final three months of 1999 and many economists believe growth in the current quarter will be around 5 percent. However, the Federal Reserve would like to keep growth around the 3.5 percent mark, so this could imply further adjustments to both the short-term interest rates and the discount rate. On March 21, 2000, the 30-year Treasury bond yielded 5.96 percent. This is the lowest yield recorded in the last six months.

These economic changes have resulted in cost of capital changes for utilities and are closely reflected in the yields on public utility bonds and yields of Thirty-Year U.S. Treasury Bonds (see Schedule 5-1 and 5-2). Schedule 5-3 shows how closely the Moody's "Public Utility Bond Yields" have followed the yields of Thirty-Year U.S. Treasury Bonds during the

period from 1983 to the present. The average spread for this time period between these two composite indices has been 129 basis points, with the spread ranging from a low of 80 basis points to a high of 283 basis points (see Schedule 5-4). These spread parameters can be utilized with numerous published forecasts of Thirty-Year U.S. Treasury Bond yields to estimate future long-term debt costs for utility companies. Moody's "Public Utility Bond Yields" are also graphically compared to both Standard & Poor's "Utilities Stock Yields" and Standard & Poor's "Industrials Stock Yields" (see Schedule 6).

Economic Projections

Q. What are the inflationary expectations for the remainder of 2000 and beyond?

A. The latest inflation rate, as measured by the *Consumer Price Index-All Urban Consumers* (CPI), was 2.7 percent for the 12 months ended December 31, 1999. *The Value Line Investment Survey: Selection & Opinion*, March 3, 2000, predicts inflation to be 2.1 percent for 1999, 2.5 percent for 2000 and 2.3 percent for 2001. One of the major fears of the Federal Reserve is that the United States will experience a severe labor shortage that will eventually drive up wages and cause an inflationary spiral.

Q. What are interest rate forecasts for 1999, 2000 and 2001?

A. Short-term interest rates, those measured by Three-Month U.S. Treasury Bills, were approximately 4.6 percent in 1999 and are expected to be 5.7 percent in 2000, and 5.4 percent in 2001 according to Value Line's predictions. Value Line expects long-term interest rates, those measured by the Thirty-Year U.S. Treasury Bond, to average from 5.9 percent in 1999 to 6.2 percent in 2000 and 5.8 percent in 2001.

The current rates for the period ending December 31, 1999 are 5.23 percent for 3-month T-Bills and 6.35 percent for 30-year T-Bonds, as noted on the Federal Reserve

website. On March 22, 2000, The Wall-Street Journal quoted the yield on the 30-year Treasury bond at 5.96 percent. The Wall Street Journal also reported that the Treasury yield curve is now "inverted," with the 2-year Treasury note yielding more than the 30-year Treasury bond. This means that on March 22, 2000, the yield for the 30-year Treasury bond was 53 basis points below the 6.49 percent yield reported for the 2-year Treasury note on that same date. This inversion began in January of this year and is "the widest such inversion in more than a decade" according to the Wall Street Journal.

Q. What are the growth expectations for real Gross Domestic Product (GDP) in the future?

A. GDP is a benchmark utilized by the Commerce Department to measure economic growth within the United States' borders. Real GDP is measured by the actual Gross Domestic Product adjusted for inflation. During 1999, real GDP increased by 2.3 percent in the fourth quarter and 1.7 percent in the third quarter. Value Line stated that real GDP growth increased by 4.1 percent in 1999, and expects real GDP to increase by 3.6 percent in 2000, and by 3.0 percent in 2001. Salomon Smith Barney stated that real GDP increased by 3.7 percent in 1999 and expects real GDP to increase by 2.1 percent in 2000. (see Schedule 7)

Q. Please summarize the expectations of the economic conditions for the next few years.

A. In summary, when combining the previously mentioned sources, inflation is expected to be in the range of 2.1 to 2.7 percent, increase in real GDP in the range of 2.1 to 4.1 percent and long-term interest rates are expected to range from 5.8 to 6.2 percent. *The Value Line Investment Survey: Selection & Opinion*, March 10, 2000, states that:

We think the U.S. economy will grow at around a 4% pace during the current quarter. That would be a lesser rate of improvement than was recorded in the prior three months, but it would be a stronger rate of GDP growth than the Federal Reserve is comfortable with. (The Fed fears that continuing strong growth will produce the labor and raw materials shortages that often precede a sharp increase in inflationary pressures.)

Some key reports being issued at this time describe an economy that continues to be in overdrive. For example, the U.S. manufacturing sector is gaining strength; personal income levels are rising strongly; and consumer spending is still increasing at a healthy clip.

But there are other indicators that point to a gradual deceleration in the pace of GDP growth. These barometers include a report showing a much slower-than-expected rise in non-farm payrolls last month and data detailing a drop in new home sales.

The Federal Reserve will pay close attention to the reports being issued over the next week or two, so it can ascertain whether these early signs of a possible slowing in growth will become more widespread. Key releases over the next week will include data on retail spending and producer and consumer inflation. The Fed will look at this data to determine whether, and by how much it will lift interest rates when it meets on March 21st. We still believe the bank will raise rates by another one quarter of a percentage point at that time.

Meanwhile, the stock market has settled down following a selloff that saw the Dow Jones Industrial Average briefly fall below 10,000. Investors, it would seem, might now expect the Fed to raise interest rates only once or twice more this year. Such a measured response would not be enough, in our opinion, to disrupt the long-running business expansion.

S&P states the following in the February 16, 2000, issue of *The Outlook*:

The S&P 500 index, despite its 31% technology weighting, has held in a narrow range. However, S&P chief technical analyst Mark Arbeter sees the sideways movement of the "500" as part of an inverted head-and-shoulders pattern, a formation that often leads to a fairly sharp rally.

Bond yields moved upward last week after a sharp drop on supply-tightness concerns, but they are still well below their mid-January peaks. With the Fed likely to increase the fed funds target another quarter percentage point next month and probably the same in May and with politicians busy proposing ways to spend the still-embryonic budget surplus, bond yield may rise further.

S&P also stated in the February 23, 2000 issue of *The Outlook*:

> Inflation and interest-rate worries are increasing as the economy barrels along, and technology is viewed as a good place to be in the circumstances. Tech companies can readily absorb higher debt-service charges in their fast-rising earnings. And many of them will benefit if corporations further step up efforts to increase productivity to offset wage pressures.
>
> S&P chief economist David Wyss sees scant evidence so far of accelerating inflation. But he believes the Federal Reserve, aware that all postwar U.S. expansions have ended in a period of rising inflation, will exercise extreme caution. "Killing inflation is not enough," he says. "The Fed wants to put a stake firmly in its heart and hold it there."

In addition, S&P stated in the March 8, 2000 issue of *The Outlook*:

> S&P chief economist David Wyss now expects three more hikes in the fed funds target to 6.5% by summer. After that, he believes the Fed will be on hold at least through the elections.

Experts on Wall Street believe these increases will occur in March, May and June 2000. William Dudley, chief economist at investment bank Goldman Sachs "expects the Fed to push the funds rate up by a half a point this year and another point next year." If the Federal Reserve does increase the federal funds rate as projected, this will be the highest the rate has been since January 1991. Beyond June 2000, analysts believe the Federal Reserve will take a "wait and see attitude" to determine how the economy reacts during the summer and fall presidential campaign.

Dr. Jeremy J. Siegel, Professor of Finance - the Wharton School of the University of Pennsylvania, gives the following example of another time when the economy entered "uncharted waters" in his book *Stocks for the Long Run*:

> In the summer of 1958, an event of great significance took place for those who followed long-standing indicators of stock market value. For the first time in history, the interest rate on long-term government bonds exceeded the dividend yield on common stocks.

> *Business Week* noted this event in an August 1958 article entitled "An Evil Omen Returns," warning investors that when yields on stocks approached those on bonds, a major market decline was in the offing. The stock market crash of 1929 occurred in a year when stock dividend yields fell to the level of bond yields. The stock crashes of 1907 and 1891 also followed episodes when the yield on bonds came within one percent of the dividend yield on stocks.
>
> Prior to 1958, the dividend yield on stocks had always been higher than long-term interest rates, and most analysts thought that this was the way it was supposed to be. Stocks were riskier than bonds and therefore should command a higher yield in the market. Under this reasoning, whenever stock prices went too high and brought dividend yields down to that of bonds, it was time to sell.
>
> But things did not work that way in 1958. Stocks returned over 30 percent in the 12 months after dividend yields fell below bond yields, and continued to soar into the early 1960s. There were good economic reasons why this famous benchmark fell by the wayside. Inflation increased the yield on bonds to compensate lenders for rising prices, while investors regarded stocks as the best investment to protect against the eroding value of money. As early as September 1958, *Business Week* noted that "the relationship between stock and bond yields was clearly posting a warning signal, but investors still believe inflation is inevitable and stocks are the only hedge against it."

Yet many on Wall Street were still puzzled by the "great yield reversal." Nicholas Molodovsky, Vice President of White, Weld & Co. and editor of the *Financial Analysts Journal*, observed:

> Some financial analysts called 'the reversal of bond and stock yields' a financial revolution brought about by many complex causes. Others, on the contrary, made no attempt to explain the unexplainable. They showed readiness to accept it as a manifestation of providence in the financial universe.
>
> Imagine the value-oriented investor who pulled all his money out of the stock market in August of 1958 and put it into bonds, vowing never to buy stocks again unless dividend yields rose above those on high-quality bonds. Such an investor would still be waiting to get back into stocks. After 1958, stock dividend yields never again exceeded those of bonds. Yet, from August 1958 onward, overall stock returns overwhelmed the returns on fixed-income securities for any holding period.

> Benchmarks for valuation are valid only as long as the economic institutions of the economy do not change. The chronic postwar inflation, resulting from a switch to a paper money standard, changed forever the way investors judged the yields on stocks and bonds.

Business Operations of MAWC

Q. Please describe MAWC's business operations.

A. MAWC has provided water service to a diverse customer base in the communities and surrounding areas of Joplin and St. Joseph, Missouri for several years. On August 31, 1993, MAWC acquired the common stock of Missouri Cities Water Company (Missouri Cities) for approximately $15.9 million. In acquiring the common stock of Missouri Cities, MAWC acquired water operations in the communities and adjacent areas of Brunswick, Mexico, Platte County, Warrensburg and St. Charles, Missouri. MAWC also acquired approximately 100 sewer customers in Platte County, Missouri.

On January 1, 1995, Missouri Cities' operations and assets were merged into those of MAWC, with MAWC being the surviving company. MAWC is a wholly-owned subsidiary of American Water Works Company, Inc. (AWWC). The following excerpts are taken from AWWC's 1998 Stockholders Annual Report and provides a general description of the holding company's strategies and operations:

> American Water Works is the parent company of 23 wholly owned utility subsidiaries serving more than 7 million people in 879 communities in 22 states. That scope, and annual revenues exceeding $1 billion, makes American Water Works by far the largest investor-owned company in the nation's water utility industry
>
> American Water Works Company is dedicated to providing the best possible water service at a reasonable cost consistent with adequate compensation for investors and reasonable wages and benefits for its personnel.

> During 1998, we continued our efforts to acquire water and wastewater systems. That quest is strategic because broadening the scope and geographic diversity of the investments we make allows us to improve service, become more cost efficient, and increase earnings. We completed 22 transactions during the year. In total, those transactions expanded the population served by more than 77,000 people. We also expanded our service territory, establishing operations in the state of Hawaii for the first time.

AWWC's total consolidated operating revenues were $1,017,812,000 for the year ended December 31, 1998, of which only 2.87 percent ($29,223,000) were accounted for by its Missouri jurisdictional water and sewer utility operations. These revenues resulted in an overall net income of $131,048,000. These revenues and net incomes were generated from a net utility plant in service of $4,041,819,000 at December 31, 1998. These figures were taken from AWWC's 1998 Stockholders Annual Report.

Q. Please describe the credit ratings of MAWC.

A. To the best of my knowledge, Moody's Investor Service Inc. and Standard and Poor's Corporation have not assigned a credit rating to MAWC or to AWWC. However, as of June 30, 1999, Standard and Poor's Corporation had assigned an "A+" rating to the senior secured debt of New Jersey-American Water Company and as of June 30, 1999, Standard & Poor's Corporation had assigned an "A" rating to the senior secured debt of Pennsylvania-American Water Company. As of June 30, 1999, Standard and Poor's Corporation has also assigned an "A" rating to the newly acquired St. Louis County Water Company. All three companies are subsidiaries of AWWC. An "A" rating indicates that a Company has a strong capacity to meet its financial commitments, but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than Companies in higher-rated categories such as "AA" and "AAA."

Q. Please provide some historical financial information for MAWC.

A. Schedules 8 and 9 present historical capital structures and selected financial ratios from 1994 to 1998 for MAWC. MAWC's common equity ratio has remained rather steady from 1995 though 1998 with the exception of 1994 when MAWC's common equity ratio jumped to 44.72 percent.

MAWC's dividend-payout ratio has varied from a high of 94.31 percent in 1994 to a low of 69.97 percent in 1998. MAWC's dividend-payout ratio has averaged 75 percent over the last two years. MAWC's return on year-end common equity (ROE) steadily increased from 7.95 percent in 1994 to 11.18 percent in 1996, with a decline to 9.40 percent by 1998. MAWC's 1998 ROE of 9.40 percent was below the average of 10.4 percent earned by other water utilities according to The Value Line Investment Survey: Ratings & Reports, February 4, 2000. Value Line also estimates that the water utility industry will earn an 11.0 percent return on equity for both 1999 and 2000.

MAWC's pre-tax interest coverage ratio for 1998 was 2.21 times, which is below the industry average of 3.12 times as reported by Edward Jones & Company's Financial & Common Stock Information - Water Utility Industry, June 30, 1999.

Determination of the Cost of Capital

Q. Please describe the cost of capital approach for determining a utility company's cost of capital.

A. The total dollars of capital for the utility company are determined for a specific point in time. This total dollar amount is proportioned into each specific capital component. A weighted cost for each capital component is determined by multiplying each capital component ratio by the appropriate embedded cost or the estimated cost of common equity component. The individual weighted costs are summed to arrive at a total weighted cost of

capital. This total weighted cost of capital is synonymous with the fair rate of return for the utility company.

Q. Why is a total weighted cost of capital synonymous with a fair rate of return?

A. From a financial viewpoint, a company employs different forms of capital to support or fund the assets of the company. These funds are invested proportionately to support each dollar of the company's assets. Each different form of capital has a cost and these costs are weighted proportionately to fund each dollar invested in the assets.

Assuming that the various forms of capital are within a reasonable balance and are costed correctly, the resulting total weighted cost of capital, when applied to rate base, will provide the funds necessary to service the various forms of capital. Thus, the total weighted cost of capital corresponds to a fair rate of return for the utility company.

Capital Structure and Embedded Costs

Q. What capital structure have you employed in developing a weighted cost of capital for MAWC?

A. I have employed the capital structure that existed as of September 30, 1999 for MAWC. Schedule 10 presents MAWC's capital structure and associated capital ratios. The resulting capital structure consists of 41.29 percent common stock equity, 2.39 percent preferred stock, 56.32 percent long-term debt and 0.00 percent short-term debt. For purposes of this analysis, short-term debt will not be considered a component of capital structure for the period ending September 30, 1999 since the 12-month average balance for Construction Work in Progress (CWIP) exceeds the 12-month average outstanding balance for short-term debt at September 30, 1999.

The amount of preferred stock outstanding at September 30, 1999, was reduced by $41,048 for the net balance associated with the unamortized premium and issuance expense. The amount of long-term debt outstanding at September 30, 1999, includes current maturities due within one year and was reduced by $2,740,126 for the net balance associated with the unamortized premium or discount expense and debt issuance expense.

Q. What was the embedded cost of long-term debt for MAWC at September 30, 1999?

A. I determined the embedded cost of long-term debt at September 30, 1999, for MAWC to be 6.94 percent (see Schedule 11-1).

Q. What was the embedded cost of preferred stock for MAWC at September 30, 1999?

A. I determined the embedded cost of preferred stock at September 30, 1999, for MAWC to be 9.00 percent (see Schedule 12).

Cost of Equity

Q. How do you propose to analyze those factors by which the cost of equity for MAWC may be determined?

A. I have selected the discounted cash flow (DCF) model as the primary tool to determine the cost of equity for MAWC.

The DCF Model

Q. Please describe the DCF model.

A. The DCF model is a market-oriented approach for deriving the cost of equity. The return on equity calculated from the DCF model is inherently capable of attracting

capital. This results from the theory that security prices adjust continually over time, so that an equilibrium price exists and the stock is neither under-valued nor over-valued. It can also be stated that stock prices continually fluctuate to reflect the required and expected return for the investor.

The continuous growth form of the DCF model was used in this analysis. This model relies upon the fact that a company's common stock price is dependent upon the expected cash dividends and upon cash flows received through capital gains or losses that result from stock price changes. The rate which discounts the sum of the future expected cash flows to the current market price of the common stock is the calculated cost of equity. This can be expressed algebraically as:

$$\text{Present Price} = \underset{\text{Discounted by k}}{\text{Expected Dividends}} + \underset{\text{Discounted by k}}{\text{Expected Price in 1 year}} \qquad (1)$$

Since the expected price of a stock in one year is equal to the present price multiplied by one plus the growth rate, equation (1) can be restated as:

$$\text{Present Price} = \frac{\text{Expected Dividends}}{(1+k)} + \frac{\text{Present Price}\,(1+g)}{(1+k)} \qquad (2)$$

where g equals the growth rate and k equals the cost of equity. Letting the present price equal P_0 and expected dividends equal D_1, the equation appears as:

$$P_0 = \frac{D_1}{(1+k)} + \frac{P_0(1+g)}{(1+k)} \qquad (3)$$

The cost of equity equation may also be algebraically represented as:

$$k = \frac{D_1}{P_0} + g \qquad (4)$$

Thus, the cost of common stock equity, k, is equal to the expected dividend yield (D_1/P_0) plus the expected growth in dividends (g) continuously summed into the future. The growth in dividends and implied growth in earnings will be reflected in the current price. Therefore, this model also recognizes the potential of capital gains or losses associated with owning a share of common stock.

The discounted cash flow method is a continuous stock valuation model. The DCF theory is based on the following assumptions:

1. Market equilibrium;
2. Perpetual life of the company;
3. Constant payout ratio;
4. Payout of less than 100% earnings;
5. Constant price/earnings ratio;
6. Constant growth in cash dividends;
7. Stability in interest rates over time;
8. Stability in required rates of return over time; and
9. Stability in earned returns over time.

Flowing from these, it is further assumed that an investor's growth horizon is unlimited and that earnings, book values and market prices grow hand-in-hand. Even though the entire list of above assumptions is rarely met, the DCF model is a reasonable working model describing an actual investor's expectations and resulting behaviors.

Q. Can you directly analyze the cost of equity for MAWC?

A. No. In order to arrive at a company-specific DCF result, the company must have common stock that is market-traded and it must pay dividends. MAWC's stock is not publicly traded. All of MAWC's stock is owned by its parent, AWWC. AWWC's stock is publicly traded on the New York Stock Exchange under the ticker symbol of "AWK" and AWWC has paid cash dividends each year since 1948. Therefore, I have decided to determine the cost of equity for AWWC and apply that to MAWC as its cost of equity.

Q. Please explain how you determined a value range for the growth term of the DCF formula for AWWC.

A. I reviewed AWWC's actual dividends per share (DPS), earnings per share (EPS) and book values per share (BVPS), as well as projected growth rates for AWWC. Schedule 13 lists annual compound growth rates and trend line growth rates calculated for DPS, EPS and BVPS for the periods of 1988 through 1998 and 1993 through 1998. Schedule 14 presents the five and ten-year historical DPS, EPS and BVPS growth rates, as well as the projected growth rates for AWWC. The projected growth rates were obtained from three outside sources. I/B/E/S Inc.'s Institutional Brokers Estimate System, December 1999, projects a five-year growth forecast of 3.50 percent for AWWC. Standard & Poor's Corporation's Earnings Guide, December 1999, projects a five-year EPS growth rate of 6.00 percent for AWWC. Value Line Investment Survey: Ratings and Reports, December 1999, projects the compound annual rate of growth for EPS during the next three to five years will be 8.00 percent for AWWC. The average of the three outside sources produces a projected growth rate of 5.83 percent. Combining the historical DPS, EPS and BVPS growth rates with the projected growth rates produces a reasonable growth rate range of 6.25 to 7.50

percent. This range of growth (g) is the range that I used in the DCF model to calculate a cost of common equity for AWWC.

Q. Please explain how you determined the yield term of the DCF formula for AWWC.

A. The expected yield term (D_1/P_0) of the DCF model is calculated by dividing the amount of common dividends per share expected to be paid over the next twelve months (D_1) by the current market price per share of the firm's common stock (P_0). Even though the model requires the use of a current spot market price, I have chosen to use a monthly high / low average market price of AWWC's common stock for the period of September 1, 1999, through December 1, 1999. This averaging technique is an attempt to minimize the effects on the dividend yield that can occur due to daily volatility in the stock market.

Schedule 15 presents the monthly high / low average stock market prices from September 1, 1999 through December 31, 1999, for AWWC. AWWC's common stock price has ranged from a low of $20.500 per share to a high of $30.313 per share for the above mentioned time period. This has produced a range for the monthly average high / low market price of $29.219 to $23.032 per share and reflects the most recent market conditions for the price term (P_0) in the DCF model.

The Value Line Investment Survey: Ratings & Reports, February 4, 2000, is estimating that AWWC's common dividend declared per share will be $0.86 for the 12-months ended December 1999. Therefore, I have chosen to use the value of $0.86 for the amount of common dividends per share (D_1) expected to be paid by AWWC over the period ending December 1999.

Combining the expected dividend of $0.86 per share and a market price range of $29.219 to $23.032 per share produces an approximate expected dividend yield range of 2.94 to 3.73 percent with an average of 3.20 percent. I have chosen to round this to the nearest quarter of a percent, 3.25 percent for purposes of this analysis.

Q. Please summarize the results of your expected dividend yield and growth rate analysis for the DCF return on equity for AWWC.

A. The summarized DCF cost of equity estimate for AWWC is presented as follows:

Yield (D_1/P_0)	+	Growth Rate (g)	=	Cost of Equity (k)
3.25%	+	6.25%	=	9.50%
3.25%	+	7.50%	=	10.75%

This range of return on common equity of 9.50 to 10.75 percent is the company specific cost of equity range for AWWC. (see Schedule 16)

Reasonableness of DCF Returns for AWWC

Q. What analysis was performed to determine the reasonableness of the return on common equity for AWWC derived from your DCF model analysis?

A. I performed a risk premium cost of equity analysis for AWWC. The risk premium concept implies that the required return on equity is found by adding an explicit premium for risk to a current interest rate. Schedule 16 shows the average risk premium above the yield of "A" rated Moody's Public Utility Bonds for AWWC's expected return on common equity. This analysis shows, on average, AWWC's expected return on equity, as reported by The Value Line Investment Survey: Ratings & Reports, is 256 basis points higher than the average yield on "A" rated Moody's Public Utility Bonds for the period of

January 1988 to December 1999 (see Schedule 17) and is 280 basis points for the period January 1995 to December 1999.

Moody's Bond Record, January 2000, reports the average yield for "A" rated utility bonds for December 1999 was 8.14 percent. Adding 256 basis points to this "A" yield produces an estimated cost of equity of 10.70 percent and adding 280 basis points to this "A" yield produces an estimated cost of equity of 10.94 (see Schedule 18). This range supports the high end of my DCF cost of equity estimate for AWWC.

Q. Did you perform the Capital Asset Pricing Model (CAPM) analysis to check the reasonableness of the return on common equity for AWWC derived from your DCF model analysis?

A. Yes. I performed a CAPM cost of equity analysis for AWWC. The CAPM describes the relationship between a security's investment risk and its market rate of return. This relationship identifies the rate of return which investors expect a security to earn so that its market return is comparable with the market returns earned by other securities that have similar risk. The general form of the CAPM is as follows:

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

where:

k = the expected return on equity for a specific security;

R_f = the risk free rate;

β = beta; and

$R_m - R_f$ = the market risk premium.

The first term of the CAPM is the risk free rate (R_f). The risk free rate reflects the level of return which can be achieved without accepting any risk. In reality, there is no such risk free asset, but it is generally represented by U.S. Treasury securities. For purposes of this analysis, the risk free rate was represented by the yield on 30-Year U.S. Treasury Bonds. The appropriate rate was determined to be the high / low range of 5.55 to 6.07 percent for the six-month period ending September 30, 1999, as published on the Federal Reserve website, http://www.stls.frb.org/fred/data/irates/gs30.

The second term of the CAPM is beta (β). Beta is an indicator of a security's investment risk. It represents the relative movement and relative risk between a particular security and the market as a whole (where beta for the market equals 1.00). Securities with betas greater than 1.00 exhibit greater volatility than do securities with betas less than 1.00. This causes a higher beta security to be less desirable and therefore requires a higher return in order to attract investor capital away from a lower beta security. For purposes of this analysis, the appropriate beta for AWWC was determined to be 0.50 as published in The Value Line Investment Survey: Ratings & Reports, February 4, 2000.

The final term of the CAPM is the market risk premium ($R_m - R_f$). The market risk premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. For purposes of this analysis, the appropriate market risk premium was determined to be 7.50 percent as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 1999 Yearbook.

Schedule 19 presents the CAPM analysis with regard to AWWC. The CAPM analysis produces an estimated cost of equity range of 9.30 to 9.82 percent for AWWC. It should be noted that recent debate has somewhat diminished the reliability of CAPM as a

cost of equity evaluation tool. As a result, I do not believe that CAPM analysis should be given equal weight to DCF cost of equity. However, I believe as does the financial community at large believes that the CAPM analysis is still a valuable tool in testing the reasonableness of the results derived from the use of the DCF model. The CAPM range in my analysis does support the low end of my DCF cost of equity estimate for AWWC.

Q. Based on your analysis of the DCF, risk premium and CAPM cost of equity results, what is your return on equity estimate for AWWC?

A. Based on my DCF, risk premium and CAPM analysis, I believe that my DCF cost of equity range of 9.50 to 10.75 percent is appropriate for AWWC.

Q. Do you believe that it is appropriate to apply AWWC's cost of equity to MAWC?

A. Yes. MAWC and AWWC are in the same general line of business and MAWC and AWWC (consolidated basis) both have comparable capital structures; therefore, I do not believe that there is a need to make any adjustments to AWWC's cost of equity before applying it to MAWC. I have made numerous checks to the validity of the results for AWWC to ensure that it is appropriate to be applied to MAWC. The Financial Analysis Department of the Commission Staff believes that, whenever possible, actual market data should be used to determine the cost of equity for a company. Investors in AWWC are investing in the consolidated company of AWWC, which includes MAWC, and there seems to be minimal risk differences to justify an adjustment up or down to the investors required ROE. As a result, I believe that it is reasonable to apply the required ROE of AWWC on a consolidated basis as a reasonable authorized ROE for MAWC.

Q. Did you perform an analysis on MAWC's resulting pre-tax interest coverage ratios?

A. Yes. A pro forma pre-tax interest coverage calculation was completed for MAWC (see Schedule 20). It reveals that the return on equity range of 9.50 to 10.75 percent would yield a pre-tax interest coverage ratio in the range of 2.79 to 3.02 times. This interest coverage range is in line with Standard & Poor's "A" rating and "Average" business position water utilities benchmark of 2.95 times.

Additionally, the low end of the return on equity range allows enough earnings power for MAWC to meet its Net Earnings Requirement of one and one-half times the amount of the annual interest requirements pursuant to provisions of its Supplemental Indenture. Thus, the pro forma pre-tax interest coverage test shows that there will be enough earnings potential for MAWC to meet its capital costs based upon the above referenced return on equity range for MAWC.

Q. Did you perform any cost of equity analysis on other utility companies?

A. Yes. I have selected a group of water utility companies to analyze for determining the reasonableness of the company-specific DCF results for AWWC. Schedule 21 presents a list of fifteen market-traded water utility companies monitored by Edward Jones and Company, of which AWWC is one. This list was reviewed for the following criteria:

1. Monthly trading volume greater than 25,000 shares: This criterion eliminated four companies;

2. Pre-Tax Interest Coverage ratio greater than 2.00 times: This criterion eliminated one company;

3. Common equity to total capital ratio greater than 30 percent: This criterion did not eliminate any companies;

4. Total capital greater than $100 million: This criterion eliminated two additional companies;

5. Positive Dividends Per Share Annual Compound Growth Rate for the period of 1994 through 1998: This criterion eliminated one additional company; and

6. No Missouri Operations: This criterion eliminated AWWC and United Water Resources, Inc.

On average, this final group of six publicly traded water utility companies (comparable water utility companies) is comparable to AWWC because of similar business operations and financial position. The six comparable water utility companies are listed on Schedule 22.

Q. Please explain how you approached the determination of the cost of equity for the comparable water utility companies.

A. I have calculated a DCF cost of equity for each of the six comparable water utility companies. The first step was to calculate a growth rate. Basically, I used the same approach of obtaining a growth rate estimate for the six water utility companies as I used in calculating a growth rate for AWWC. I utilized the average of the historical DPS, EPS and BVPS growth rates, as well as projected growth rates (see Schedules 23 and 24). The water utility companies' average historical growth rates ranged from 1.19 to 7.12 percent. I then averaged all of the positive growth rates to get an average of 2.96 percent for the group. The projected growth rates ranged from 3.00 to 8.62 percent with an average of 5.13 percent. Taking into account the projected and historical growth rates, a proposed range of growth of 3.95 to 5.10 percent was used in the DCF calculation for the comparable companies.

The next step was to calculate an expected dividend yield for each of the six water utility companies. Schedule 25 presents the average high / low stock price for the period of September 1, 1999 through December 31, 1999 for each water utility company. Column 3 of Schedule 26 shows that the proposed dividend yields ranged from 3.17 to 3.84 percent for the

six water utility companies with the average at 3.65 percent. A proposed dividend yield of 3.65 percent was used in the DCF calculation for the comparable companies.

The estimated growth rates and projected dividend yields were then added together to reach an estimated DCF cost of equity for each of the six water utility companies (see Column 5 of Schedule 26). These estimates produced a DCF cost of equity ranging from 7.60 to 8.75 percent for the comparable water utility companies with an average of 8.175 percent. It was determined that the DCF analysis of the six comparable water utility companies would not be useful in this analysis due to the obvious difference in growth rate used for the comparable water utility companies in comparison to that used for AWWC, 3.95-5.10 percent vs. 6.25-7.50 percent, respectively.

Q. Do you have any evidence as to the reasonableness of your DCF model derived return on common equity for the comparable water utility companies?

A. Yes, I performed a CAPM cost of equity analysis for the six comparable companies, detailed in Schedule 27. The CAPM describes the relationship between a security's investment risk and its market rate of return. This relationship identifies the rate of return which investors expect a security to earn so that its market return is comparable with the market returns earned by other securities that have similar risk. The general form of the CAPM is as follows:

$$k = R_f + ß\,(R_m - R_f)$$

where:

k = the expected return on equity for a specific security;

R_f = the risk free rate;

$ß$ = beta; and

$R_m - R_f$ = the market risk premium.

The first term of the CAPM is the risk-free rate (R_f). The risk-free rate reflects the level of return that can be achieved without accepting any risk. In reality, there is no such risk free asset, but it is generally represented by U.S. Treasury securities. For purposes of this analysis, the risk-free rate was represented by the yield on 30-Year U.S. Treasury Bonds. The appropriate rate was determined to be the high / low range of 6.07 percent to 5.55 percent for the six-month period ending September 30, 1999 as published on the Federal Reserve website, http://www.stls.frb.org/fred/data/irates/gs30.

The second term of the CAPM is beta (ß). Beta is an indicator of a security's investment risk. It represents the relative movement and relative risk between a particular security and the market as a whole (where beta equals 1.00). Securities with high betas exhibit greater volatility than do securities with lower betas. This causes a higher beta security to be less desirable and therefore requires a higher return in order to attract investor capital away from a lower beta security. The appropriate beta for each comparable company is as published in *The Value Line Investment Survey: Ratings & Reports*, February 4, 2000.

The final term of the CAPM is the market risk premium (R_m - R_f). The market risk premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk-free investment. The appropriate market risk premium was determined to be a 7.50 percent as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 1999 Yearbook.

The CAPM analysis of the six comparable companies produced an estimated cost of equity range of 9.49 to 10.01 percent, with a mid-point of 9.75 percent. This supports the low end of my DCF cost of equity estimate for AWWC.

Q. What additional analysis was performed to determine the reasonableness of the returns for the comparable water utility companies derived from your DCF model analysis?

A. An analysis was performed on the reported returns on equity. These figures were compared to the market-to-book ratios to provide some insight into the DCF cost of equity results.

Q. Please describe the analysis completed on the reported returns on equity and market-to-book values for the six comparable water utility companies.

A. The market-to-book ratio is an important valuation ratio. It indicates the value that the financial markets attach to the management and organization of the company. It also measures, from an investor's viewpoint, the potential earnings power of a company. A well, run company with strong management and an organization that functions efficiently should have a market value at least equal to the book value of its physical assets. Market-to-book ratios having values greater than 1.0 times are one indication that investors are satisfied with the potential returns and that the investors believe the company's expected earnings will be more than its cost of capital. It is difficult to predict future values for market-to-book ratios because they are affected by the overall market conditions and factors that determine stock prices.

Schedule 28 reports market-to-book values for the six comparable water utility companies, along with projected returns on common equity for 1999. The comparable companies had projected returns on common equity ranging from 9.10 to 12.50 percent and my recommended return on common equity for MAWC in this case is 9.50 to 10.75 percent. The six comparable companies had market-to-book ratios ranging from 1.87 times to 3.58 times. This suggests that, all things remaining the same, a return on equity of at least 9.50

percent for MAWC should still produce a market-to-book value of over 1.0 times if it were market traded, which indicates favorable valuation from the market.

Q. Do you have any other evidence as to the reasonableness of your recommended cost of equity figure for the water utility industry?

A. Yes. The Value Line Investment Survey: Ratings & Reports, February 4, 2000, predicts the water utility industry will earn 11.0 percent on common equity in 1999 and 2000.

Rate of Return for MAWC

Q. Please explain how the returns developed for each capital component are used in the ratemaking approach you have adopted to be applied to MAWC's water and sewer utility operations.

A. The cost of service ratemaking method was adopted in this case. This approach develops the public utility's revenue requirement. The cost of service (revenue requirement) is based on the following components: prudent operation costs, rate base and a return allowed on the rate base (see Schedule 29).

It is my responsibility to calculate and recommend a rate of return that should be authorized on the water and sewer utility rate base for MAWC. Under the cost of service ratemaking approach, a weighted cost of capital in the range of 8.05 to 8.43 percent was developed for MAWC's water and sewer utility operations (see Schedule 30). This rate was calculated by applying an embedded cost of long-term debt of 6.94 percent, an embedded cost of preferred stock of 9.00 percent and a return on common equity range of 9.50 to 10.75 percent to a capital structure consisting of 0.00 percent short-term debt, 56.32 percent long-term debt, 2.39 percent preferred stock and 41.29 percent common equity. Therefore,

as I suggested earlier, I am recommending that MAWC's water and sewer utility operations be allowed to earn a return on its original cost rate base in the range of 8.04 to 8.56 percent.

Through my analysis, I believe that I have developed a fair and reasonable return and when applied to MAWC's water and sewer utility rate base will allow MAWC the opportunity to earn the revenue requirement developed in this rate case.

True-up Audit

Q. Is the Staff proposing a true-up audit in this case?

A. Yes. MAWC has requested a true-up audit in its direct case because it has a significant amount of new plant due to come on-line. Therefore, I am recommending a true-up audit be performed for the purpose of updating the capital structure and associated embedded costs through April 30, 2000. This would be in conjunction with those items recommended for true-up by Staff witness Doyle Gibbs of the Accounting Department in his direct testimony.

Q. Does this conclude your prepared direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Missouri-American Water Company's Tariff Sheets designed to implement general rate increases for water and sewer service provided to customers in the Missouri area of the company.	)))))	Case No. WR-2000-281
In the Matter of Missouri-American Water Company for a general sewer rate increase.	))	Case No. SR-2000-282

AFFIDAVIT OF ROBERTA A. MCKIDDY

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Roberta A. McKiddy, of lawful age, on her oath states: that she has participated in the preparation of the foregoing Direct Testimony in question and answer form, consisting of 36 pages to be presented in the above case; that the answers in the foregoing Direct Testimony were given by her; that she has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of her knowledge and belief.

Roberta A. McKiddy

Roberta A. McKiddy

Subscribed and sworn to before me this 31st day of March, 2000.

TONI M. WILLMENO NOTARY SEAL NOTARY PUBLIC STATE OF MISSOURI

Toni M. Willmeno
Notary Public, State of Missouri
County of Callaway
My Commission Expires June 24, 2000

AN ANALYSIS OF THE COST OF CAPITAL

FOR

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2000-281/SR-2000-282

SCHEDULES

BY

ROBERTA MCKIDDY

UTILITY SERVICES DIVISION

MISSOURI PUBLIC SERVICE COMMISSION

MARCH 2000

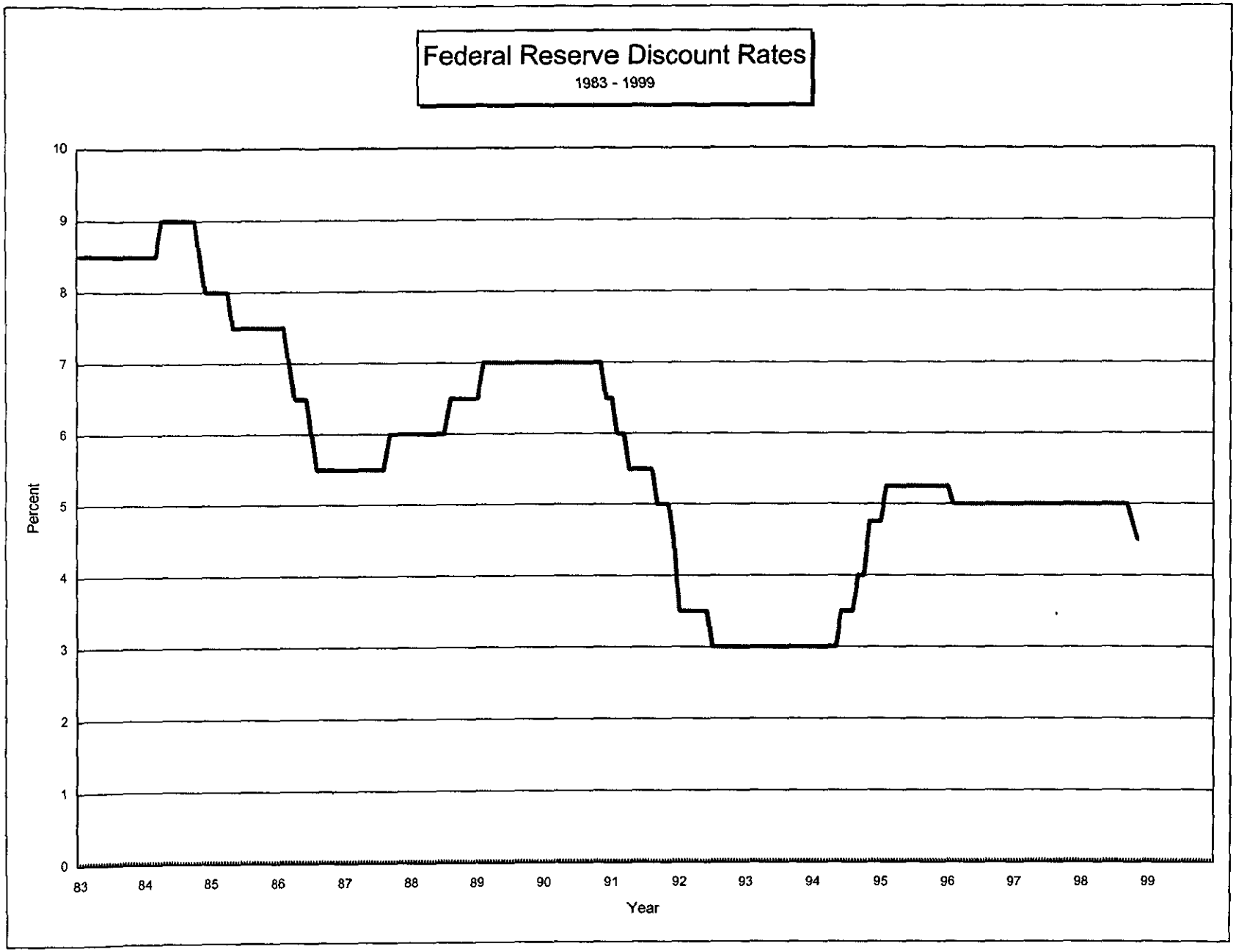
List of Schedules

MISSOURI-AMERICAN WATER COMPANY
CASE NOS. WR-2000-281/SR-2000-282

Federal Reserve Discount Rate Changes

Date	Discount Rate
01/01/83	8.50%
12/31	8.50%
04/09/84	9.00%
11/21	8.50%
12/24	8.00%
05/20/85	7.50%
03/07/86	7.00%
04/21	6.50%
07/11	6.00%
08/21	5.50%
09/04/87	6.00%
08/09/88	6.50%
02/24/89	7.00%
12/19/90	6.50%
02/01/91	6.00%
04/30	5.50%
09/13	5.00%
11/06	4.50%
12/20	3.50%
07/02/92	3.00%
01/01/93	3.00%
12/31	3.00%
05/17/94	3.50%
08/16	4.00%
11/15	4.75%
02/01/95	5.25%
01/31/96	5.00%
12/12/97	5.00%
01/09/98	5.00%
03/06/98	5.00%
10/15/98	4.75%
11/17/98	4.50%
03/12/99	4.50%
08/24/99	4.75%
12/10/99	5.00%
01/14/00	5.00%

Sources: Federal Reserve Bulletin & The Wall Street Journal.


Federal Reserve Discount Rates
1983 - 1999
Percent
10
9
8
7
6
5
4
3
2
1
0
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
Year

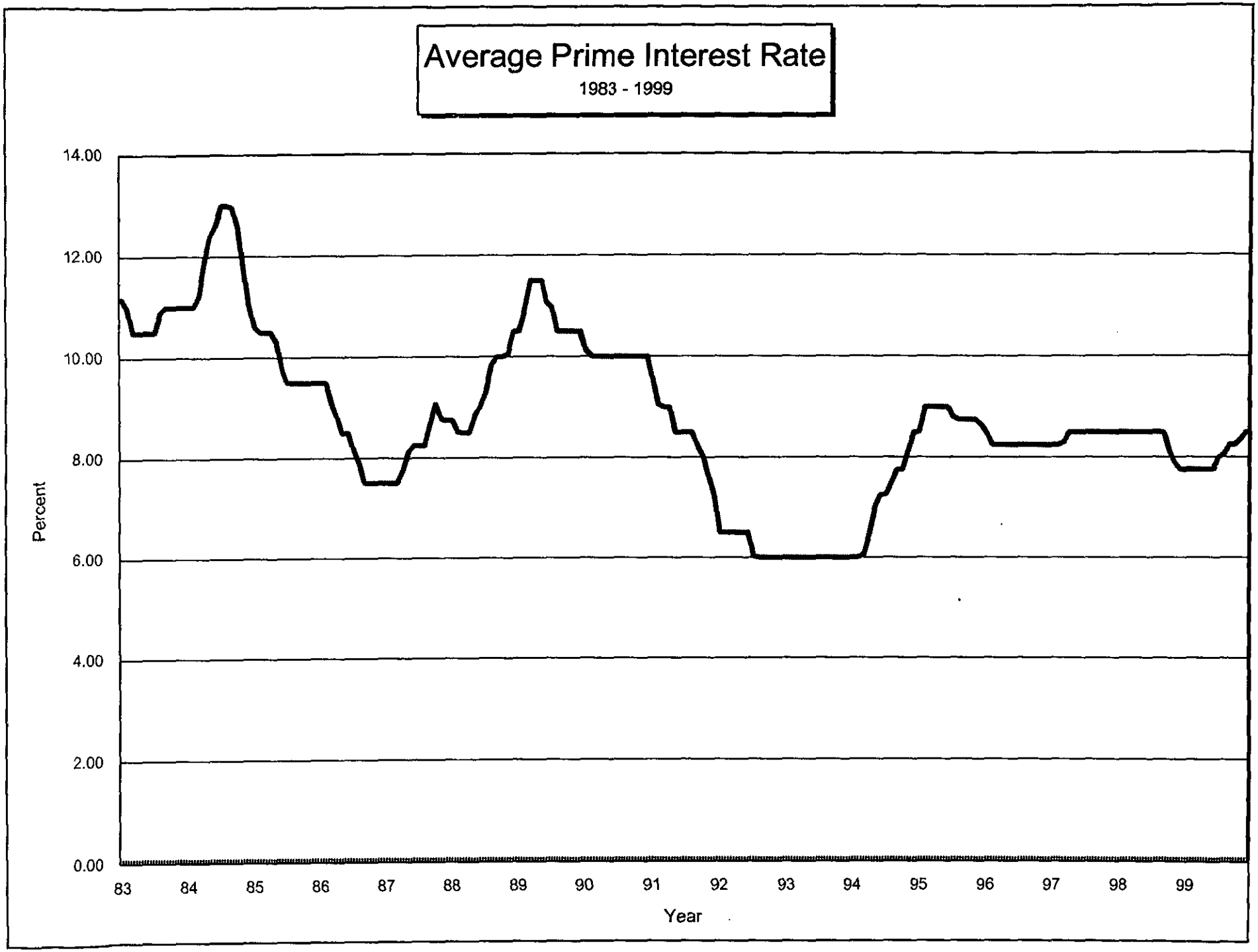
Schedule 2-2

MISSOURI-AMERICAN WATER COMPANY
CASE NOS. WR-2000-281/SR-2000-282

Average Prime Interest Rates

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1984	11.00	Jan 1988	8.75	Jan 1992	6.50	Jan 1996	8.50
Feb	11.00	Feb	8.51	Feb	6.50	Feb	8.25
Mar	11.21	Mar	8.50	Mar	6.50	Mar	8.25
Apr	11.93	Apr	8.50	Apr	6.50	Apr	8.25
May	12.39	May	8.84	May	6.50	May	8.25
Jun	12.60	Jun	9.00	Jun	6.50	Jun	8.25
Jul	13.00	Jul	9.29	Jul	6.02	Jul	8.25
Aug	13.00	Aug	9.84	Aug	6.00	Aug	8.25
Sep	12.97	Sep	10.00	Sep	6.00	Sep	8.25
Oct	12.58	Oct	10.00	Oct	6.00	Oct	8.25
Nov	11.77	Nov	10.05	Nov	6.00	Nov	8.25
Dec	11.06	Dec	10.50	Dec	6.00	Dec	8.25
Jan 1985	10.61	Jan 1989	10.50	Jan 1993	6.00	Jan 1997	8.26
Feb	10.50	Feb	10.93	Feb	6.00	Feb	8.25
Mar	10.50	Mar	11.50	Mar	6.00	Mar	8.30
Apr	10.50	Apr	11.50	Apr	6.00	Apr	8.50
May	10.31	May	11.50	May	6.00	May	8.50
Jun	9.78	Jun	11.07	Jun	6.00	Jun	8.50
Jul	9.50	Jul	10.98	Jul	6.00	Jul	8.50
Aug	9.50	Aug	10.50	Aug	6.00	Aug	8.50
Sep	9.50	Sep	10.50	Sep	6.00	Sep	8.50
Oct	9.50	Oct	10.50	Oct	6.00	Oct	8.50
Nov	9.50	Nov	10.50	Nov	6.00	Nov	8.50
Dec	9.50	Dec	10.50	Dec	6.00	Dec	8.50
Jan 1986	9.50	Jan 1990	10.11	Jan 1994	6.00	Jan 1998	8.50
Feb	9.50	Feb	10.00	Feb	6.00	Feb	8.50
Mar	9.10	Mar	10.00	Mar	6.06	Mar	8.50
Apr	8.83	Apr	10.00	Apr	6.45	Apr	8.50
May	8.50	May	10.00	May	6.99	May	8.50
Jun	8.50	Jun	10.00	Jun	7.25	Jun	8.50
Jul	8.16	Jul	10.00	Jul	7.25	Jul	8.50
Aug	7.90	Aug	10.00	Aug	7.51	Aug	8.50
Sep	7.50	Sep	10.00	Sep	7.75	Sep	8.49
Oct	7.50	Oct	10.00	Oct	7.75	Oct	8.12
Nov	7.50	Nov	10.00	Nov	8.15	Nov	7.89
Dec	7.50	Dec	10.00	Dec	8.50	Dec	7.75
Jan 1987	7.50	Jan 1991	9.52	Jan 1995	8.50	Jan 1999	7.75
Feb	7.50	Feb	9.05	Feb	9.00	Feb	7.75
Mar	7.50	Mar	9.00	Mar	9.00	Mar	7.75
Apr	7.75	Apr	9.00	Apr	9.00	Apr	7.75
May	8.14	May	8.50	May	9.00	May	7.75
Jun	8.25	Jun	8.50	Jun	9.00	Jun	7.75
Jul	8.25	Jul	8.50	Jul	8.80	Jul	8.00
Aug	8.25	Aug	8.50	Aug	8.75	Aug	8.06
Sep	8.70	Sep	8.20	Sep	8.75	Sep	8.25
Oct	9.07	Oct	8.00	Oct	8.75	Oct	8.25
Nov	8.78	Nov	7.58	Nov	8.75	Nov	8.37
Dec	8.75	Dec	7.21	Dec	8.65	Dec	8.50

Sources: Federal Reserve Bulletin & The Wall Street Journal.


Average Prime Interest Rate
1983 - 1999
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Percent
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
Year

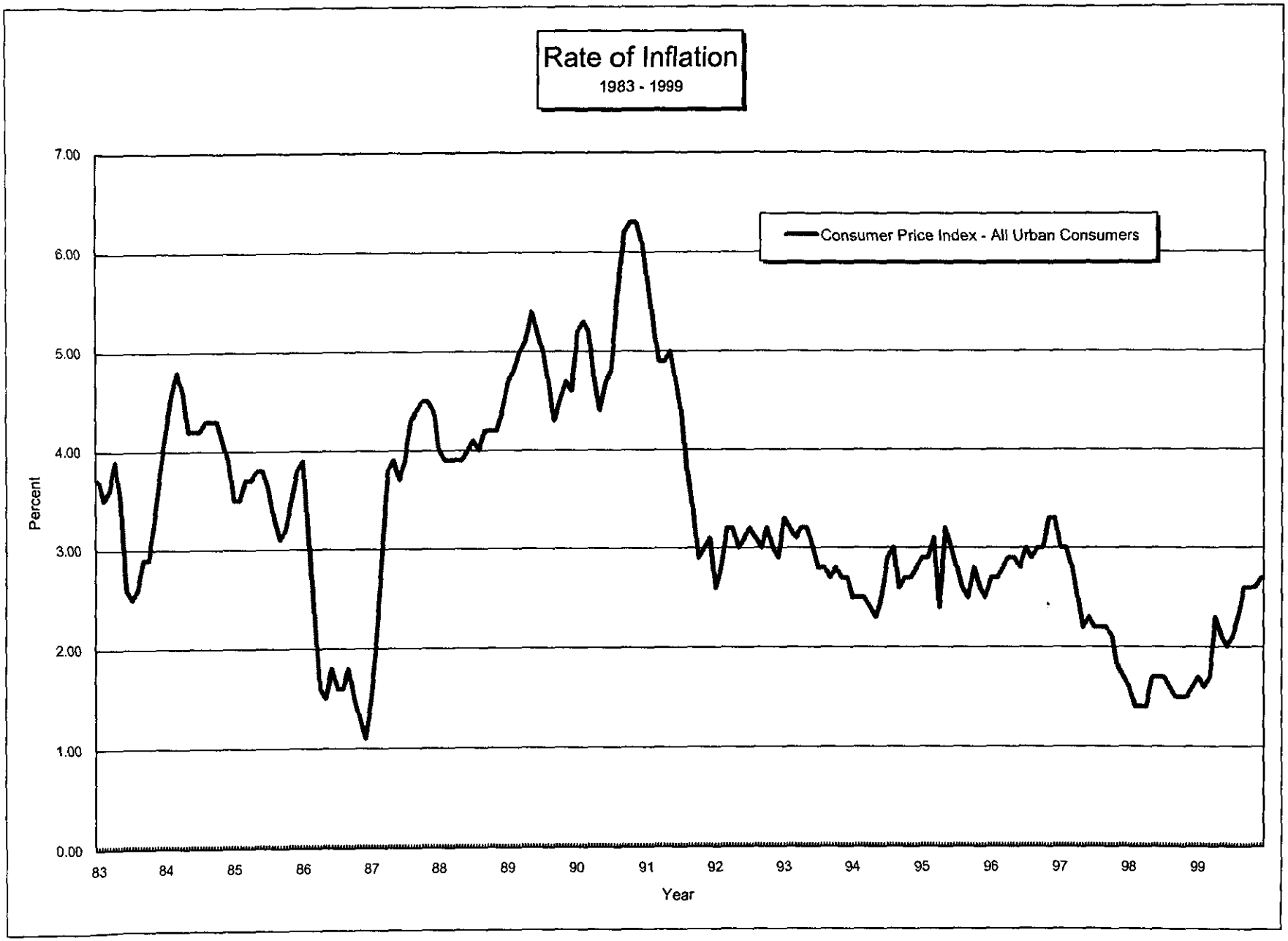
Schedule 3-2

MISSOURI-AMERICAN WATER COMPANY
CASE NOS. WR-2000-281/SR-2000-282

Rate of Inflation

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1984	4.20	Jan 1988	4.00	Jan 1992	2.60	Jan 1996	2.70
Feb	4.60	Feb	3.90	Feb	2.80	Feb	2.70
Mar	4.80	Mar	3.90	Mar	3.20	Mar	2.80
Apr	4.60	Apr	3.90	Apr	3.20	Apr	2.90
May	4.20	May	3.90	May	3.00	May	2.90
Jun	4.20	Jun	4.00	Jun	3.10	Jun	2.80
Jul	4.20	Jul	4.10	Jul	3.20	Jul	3.00
Aug	4.30	Aug	4.00	Aug	3.10	Aug	2.90
Sep	4.30	Sep	4.20	Sep	3.00	Sep	3.00
Oct	4.30	Oct	4.20	Oct	3.20	Oct	3.00
Nov	4.10	Nov	4.20	Nov	3.00	Nov	3.30
Dec	3.90	Dec	4.40	Dec	2.90	Dec	3.30
Jan 1985	3.50	Jan 1989	4.70	Jan 1993	3.30	Jan 1997	3.00
Feb	3.50	Feb	4.80	Feb	3.20	Feb	3.00
Mar	3.70	Mar	5.00	Mar	3.10	Mar	2.80
Apr	3.70	Apr	5.10	Apr	3.20	Apr	2.50
May	3.80	May	5.40	May	3.20	May	2.20
Jun	3.80	Jun	5.20	Jun	3.00	Jun	2.30
Jul	3.60	Jul	5.00	Jul	2.80	Jul	2.20
Aug	3.30	Aug	4.70	Aug	2.80	Aug	2.20
Sep	3.10	Sep	4.30	Sep	2.70	Sep	2.20
Oct	3.20	Oct	4.50	Oct	2.80	Oct	2.10
Nov	3.50	Nov	4.70	Nov	2.70	Nov	1.80
Dec	3.80	Dec	4.60	Dec	2.70	Dec	1.70
Jan 1986	3.90	Jan 1990	5.20	Jan 1994	2.50	Jan 1998	1.60
Feb	3.10	Feb	5.30	Feb	2.50	Feb	1.40
Mar	2.30	Mar	5.20	Mar	2.50	Mar	1.40
Apr	1.60	Apr	4.70	Apr	2.40	Apr	1.40
May	1.50	May	4.40	May	2.30	May	1.70
Jun	1.80	Jun	4.70	Jun	2.50	Jun	1.70
Jul	1.60	Jul	4.80	Jul	2.90	Jul	1.70
Aug	1.60	Aug	5.60	Aug	3.00	Aug	1.60
Sep	1.80	Sep	6.20	Sep	2.60	Sep	1.50
Oct	1.50	Oct	6.30	Oct	2.70	Oct	1.50
Nov	1.30	Nov	6.30	Nov	2.70	Nov	1.50
Dec	1.10	Dec	6.10	Dec	2.80	Dec	1.60
Jan 1987	1.50	Jan 1991	5.70	Jan 1995	2.90	Jan 1999	1.70
Feb	2.10	Feb	5.30	Feb	2.90	Feb	1.60
Mar	3.00	Mar	4.90	Mar	3.10	Mar	1.70
Apr	3.80	Apr	4.90	Apr	2.40	Apr	2.30
May	3.90	May	5.00	May	3.20	May	2.10
Jun	3.70	Jun	4.70	Jun	3.00	Jun	2.00
Jul	3.90	Jul	4.40	Jul	2.80	Jul	2.10
Aug	4.30	Aug	3.80	Aug	2.60	Aug	2.30
Sep	4.40	Sep	3.40	Sep	2.50	Sep	2.60
Oct	4.50	Oct	2.90	Oct	2.80	Oct	2.60
Nov	4.50	Nov	3.00	Nov	2.60	Nov	2.60
Dec	4.40	Dec	3.10	Dec	2.50	Dec	2.70

Source: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, Change for 12-Month Period, Bureau of Labor Statistics Website and Wall Street Journal.


Rate of Inflation
1983 - 1999
Consumer Price Index - All Urban Consumers
Percent
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
83
84
85
86
87
88
89
90
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92
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96
97
98
99
Year

Schedule 4-2

MISSOURI-AMERICAN WATER COMPANY
CASE NOS. WR-2000-281/SR-2000-282

Average Yields on Moody's Public Utility Bonds

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1984	13.40	Jan 1988	10.75	Jan 1992	8.67	Jan 1996	7.20
Feb	13.50	Feb	10.11	Feb	8.77	Feb	7.37
Mar	14.03	Mar	10.11	Mar	8.84	Mar	7.72
Apr	14.30	Apr	10.53	Apr	8.79	Apr	7.88
May	14.95	May	10.75	May	8.72	May	7.99
Jun	15.16	Jun	10.71	Jun	8.64	Jun	8.07
Jul	14.92	Jul	10.96	Jul	8.46	Jul	8.02
Aug	14.29	Aug	11.09	Aug	8.34	Aug	7.84
Sep	14.04	Sep	10.56	Sep	8.32	Sep	8.01
Oct	13.68	Oct	9.92	Oct	8.44	Oct	7.76
Nov	13.15	Nov	9.89	Nov	8.53	Nov	7.48
Dec	12.96	Dec	10.02	Dec	8.36	Dec	7.58
Jan 1985	12.68	Jan 1989	10.02	Jan 1993	8.23	Jan 1997	7.79
Feb	13.00	Feb	10.02	Feb	8.00	Feb	7.68
Mar	13.66	Mar	10.16	Mar	7.85	Mar	7.92
Apr	13.42	Apr	10.14	Apr	7.76	Apr	8.08
May	12.89	May	9.92	May	7.78	May	7.94
Jun	11.91	Jun	9.49	Jun	7.68	Jun	7.77
Jul	11.88	Jul	9.34	Jul	7.53	Jul	7.52
Aug	11.93	Aug	9.37	Aug	7.21	Aug	7.57
Sep	11.95	Sep	9.43	Sep	7.01	Sep	7.50
Oct	11.84	Oct	9.37	Oct	6.99	Oct	7.37
Nov	11.33	Nov	9.33	Nov	7.30	Nov	7.24
Dec	10.82	Dec	9.31	Dec	7.33	Dec	7.16
Jan 1986	10.66	Jan 1990	9.44	Jan 1994	7.31	Jan 1998	7.03
Feb	10.16	Feb	9.66	Feb	7.44	Feb	7.09
Mar	9.33	Mar	9.75	Mar	7.83	Mar	7.13
Apr	9.02	Apr	9.87	Apr	8.20	Apr	7.12
May	9.52	May	9.89	May	8.32	May	7.11
Jun	9.51	Jun	9.69	Jun	8.31	Jun	6.99
Jul	9.19	Jul	9.66	Jul	8.47	Jul	6.99
Aug	9.15	Aug	9.84	Aug	8.41	Aug	6.96
Sep	9.42	Sep	10.01	Sep	8.65	Sep	6.88
Oct	9.39	Oct	9.94	Oct	8.88	Oct	6.88
Nov	9.15	Nov	9.76	Nov	9.00	Nov	6.96
Dec	8.96	Dec	9.57	Dec	8.79	Dec	6.84
Jan 1987	8.77	Jan 1991	9.56	Jan 1995	8.77	Jan 1999	6.87
Feb	8.81	Feb	9.31	Feb	8.56	Feb	7.00
Mar	8.75	Mar	9.39	Mar	8.41	Mar	7.18
Apr	9.30	Apr	9.30	Apr	8.30	Apr	7.16
May	9.82	May	9.29	May	7.93	May	7.42
Jun	9.87	Jun	9.44	Jun	7.62	Jun	7.70
Jul	10.01	Jul	9.40	Jul	7.73	Jul	7.66
Aug	10.33	Aug	9.16	Aug	7.86	Aug	7.86
Sep	11.00	Sep	9.03	Sep	7.62	Sep	7.87
Oct	11.32	Oct	8.99	Oct	7.46	Oct	8.02
Nov	10.82	Nov	8.93	Nov	7.40	Nov	7.86
Dec	10.99	Dec	8.76	Dec	7.21	Dec	8.04

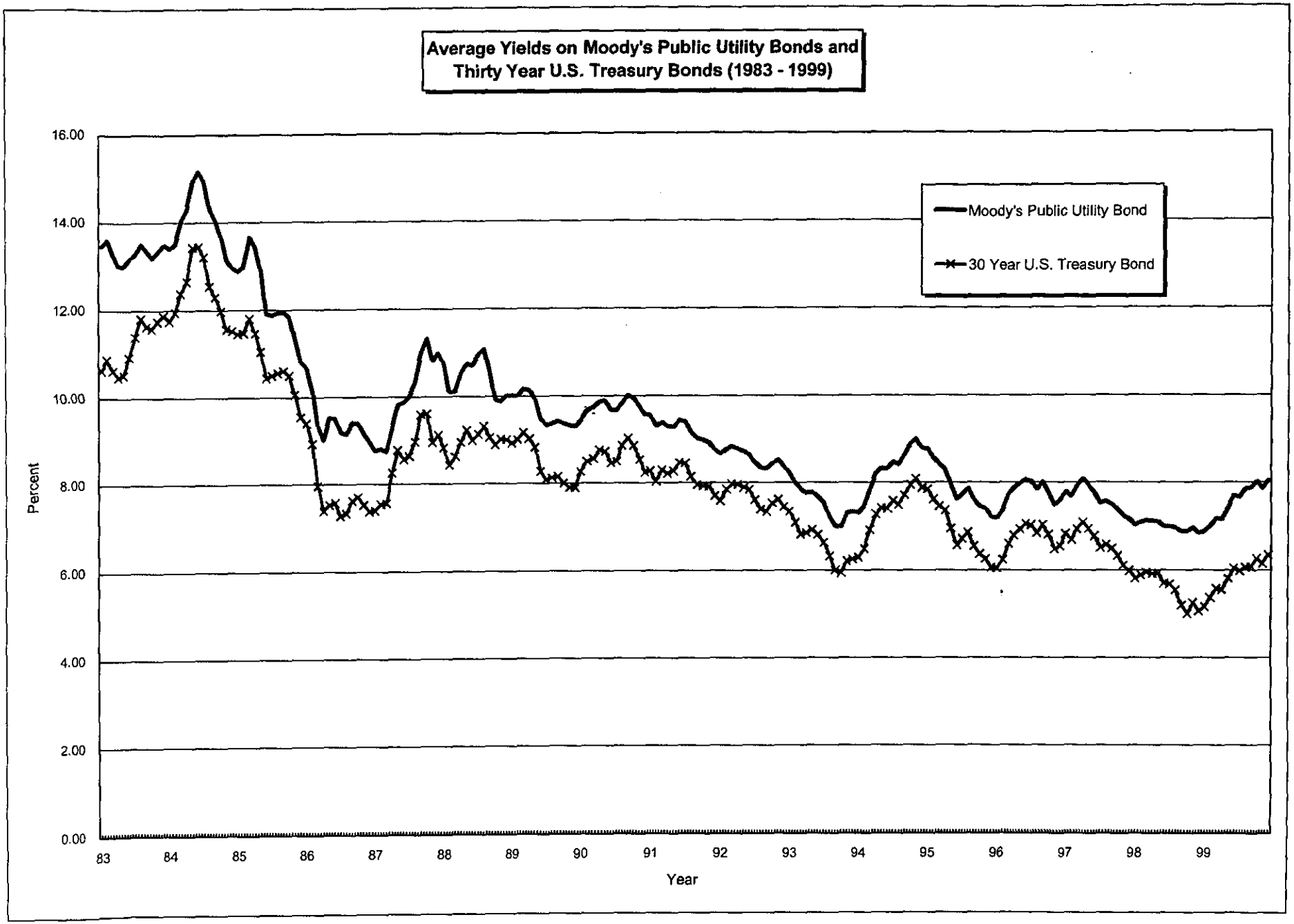
Source: Moody's Bond Record.

MISSOURI-AMERICAN WATER COMPANY
CASE NOS. WR-2000-281/SR-2000-282

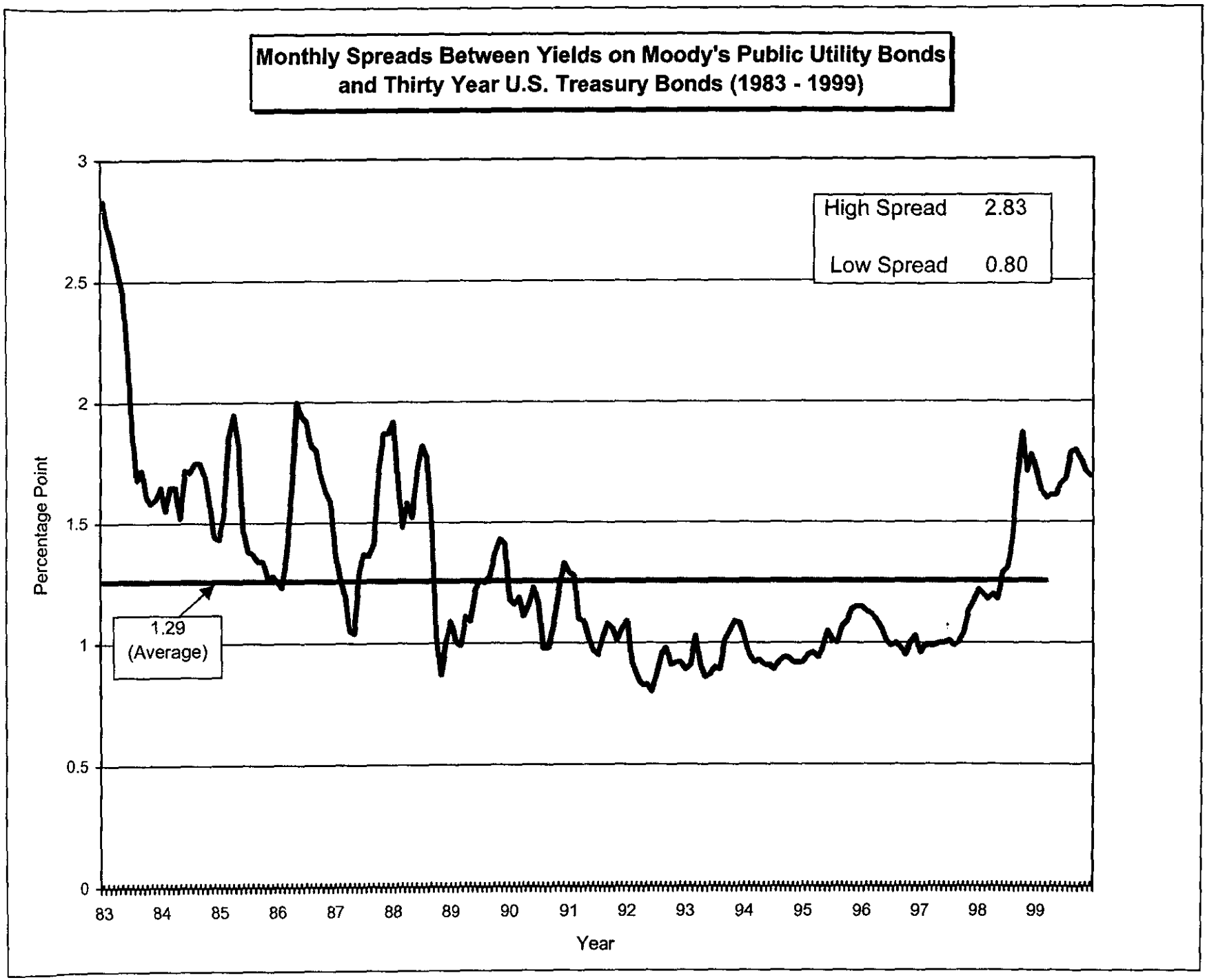
Average Yields on Thirty Year U.S. Treasury Bonds

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1984	11.75	Jan 1988	8.83	Jan 1992	7.58	Jan 1996	6.05
Feb	11.95	Feb	8.43	Feb	7.85	Feb	6.24
Mar	12.38	Mar	8.63	Mar	7.97	Mar	6.60
Apr	12.65	Apr	8.95	Apr	7.96	Apr	6.79
May	13.43	May	9.23	May	7.89	May	6.93
Jun	13.44	Jun	9.00	Jun	7.84	Jun	7.06
Jul	13.21	Jul	9.14	Jul	7.60	Jul	7.03
Aug	12.54	Aug	9.32	Aug	7.39	Aug	6.84
Sep	12.29	Sep	9.06	Sep	7.34	Sep	7.03
Oct	11.98	Oct	8.89	Oct	7.53	Oct	6.81
Nov	11.56	Nov	9.02	Nov	7.61	Nov	6.48
Dec	11.52	Dec	9.01	Dec	7.44	Dec	6.55
Jan 1985	11.45	Jan 1989	8.93	Jan 1993	7.34	Jan 1997	6.83
Feb	11.47	Feb	9.01	Feb	7.09	Feb	6.69
Mar	11.81	Mar	9.17	Mar	6.82	Mar	6.93
Apr	11.47	Apr	9.03	Apr	6.85	Apr	7.09
May	11.05	May	8.83	May	6.92	May	6.94
Jun	10.44	Jun	8.27	Jun	6.81	Jun	6.77
Jul	10.50	Jul	8.08	Jul	6.63	Jul	6.51
Aug	10.56	Aug	8.12	Aug	6.32	Aug	6.58
Sep	10.61	Sep	8.15	Sep	6.00	Sep	6.50
Oct	10.50	Oct	8.00	Oct	5.94	Oct	6.33
Nov	10.06	Nov	7.90	Nov	6.21	Nov	6.11
Dec	9.54	Dec	7.90	Dec	6.25	Dec	5.99
Jan 1986	9.40	Jan 1990	8.26	Jan 1994	6.29	Jan 1998	5.81
Feb	8.93	Feb	8.50	Feb	6.49	Feb	5.89
Mar	7.96	Mar	8.56	Mar	6.91	Mar	5.95
Apr	7.39	Apr	8.76	Apr	7.27	Apr	5.92
May	7.52	May	8.73	May	7.41	May	5.93
Jun	7.57	Jun	8.46	Jun	7.40	Jun	5.70
Jul	7.27	Jul	8.50	Jul	7.58	Jul	5.68
Aug	7.33	Aug	8.86	Aug	7.49	Aug	5.54
Sep	7.62	Sep	9.03	Sep	7.71	Sep	5.20
Oct	7.70	Oct	8.86	Oct	7.94	Oct	5.01
Nov	7.52	Nov	8.54	Nov	8.08	Nov	5.25
Dec	7.37	Dec	8.24	Dec	7.87	Dec	5.06
Jan 1987	7.39	Jan 1991	8.27	Jan 1995	7.85	Jan 1999	5.16
Feb	7.54	Feb	8.03	Feb	7.61	Feb	5.37
Mar	7.55	Mar	8.29	Mar	7.45	Mar	5.58
Apr	8.25	Apr	8.21	Apr	7.36	Apr	5.55
May	8.78	May	8.27	May	6.95	May	5.81
Jun	8.57	Jun	8.47	Jun	6.57	Jun	6.04
Jul	8.64	Jul	8.45	Jul	6.72	Jul	5.98
Aug	8.97	Aug	8.14	Aug	6.86	Aug	6.07
Sep	9.59	Sep	7.95	Sep	6.55	Sep	6.07
Oct	9.61	Oct	7.93	Oct	6.37	Oct	6.26
Nov	8.95	Nov	7.92	Nov	6.26	Nov	6.15
Dec	9.12	Dec	7.70	Dec	6.06	Dec	6.35

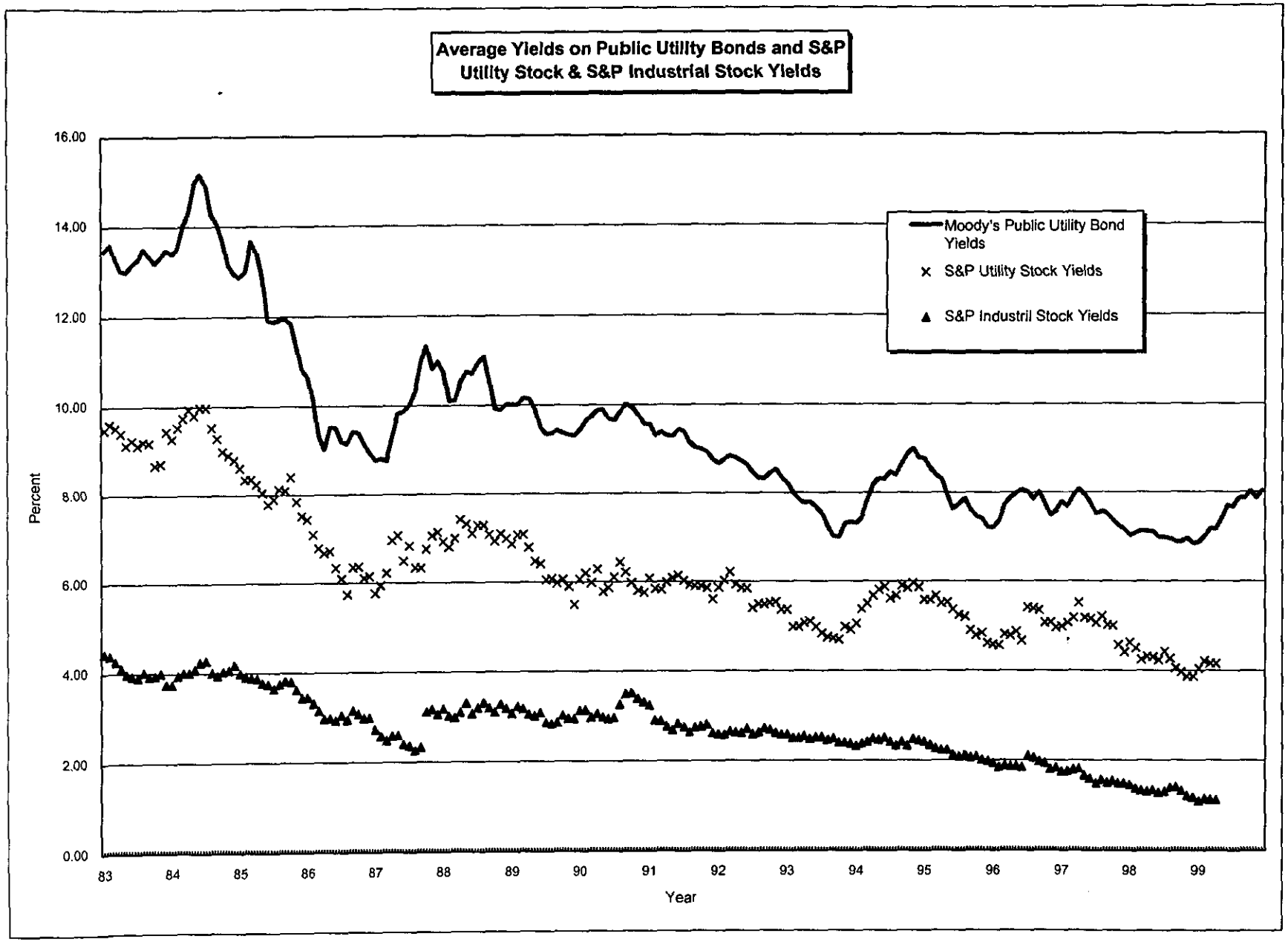
Source: Federal Reserve Bulletin and Federal Reserve Website: http://www.stls.frb.org/fred/data/irates/gs30


Average Yields on Moody's Public Utility Bonds and Thirty Year U.S. Treasury Bonds (1983 - 1999)
Moody's Public Utility Bond
30 Year U.S. Treasury Bond
Percent
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
Year

Schedule 5-3


Monthly Spreads Between Yields on Moody's Public Utility Bonds and Thirty Year U.S. Treasury Bonds (1983 - 1999)
High Spread 2.83
Low Spread 0.80
1.29
(Average)
Percentage Point
Year
3
2.5
2
1.5
1
0.5
0
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99

Schedule 5-4


Average Yields on Public Utility Bonds and S&P Utility Stock & S&P Industrial Stock Yields
Moody's Public Utility Bond Yields
S&P Utility Stock Yields
S&P Industril Stock Yields
Percent
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
83
84
85
86
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97
98
99
Year

Schedule 6

Economic Estimates and Projections, 1999 - 2001

	Inflation Rate			Real GDP			Unemployment			3-Mo. T-Bill Rate			30-Yr. T-Bond Rate		
Source	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001
Value Line *Investment Survey* (3/3/00)	2.10%	2.50%	2.30%	4.10%	3.60%	3.00%	4.20%	4.10%	4.20%	4.60%	5.70%	5.40%	5.90%	6.20%	5.80%
Salomon Smith Barney *Market and Economic Outlook* (12/98)	1.60%	1.90%	N.A.	3.70%	2.10%	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Current rate (12/31/99)	2.7%			4.10%			4.10%			5.23%			6.35%		

Notes: N.A. = Not Available.

Sources of Current Rates:

The Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, 12-Month Period Ending December 31, 1999
Federal Reserve website, http://www.stls.frb.org/fred/data/irates.html, for the 12-month period ending December 31, 1999
U.S. Department of Commerce, Bureau of Economic Analysis, for the 12-month period ending December 31, 1999.
Telescan, Wall Street City, March 14, 2000

Schedule 7

Historical Consolidated Capital Structures for Missouri-American Water Company

Capital Components	1994	1995	1996	1997	1998
Common Equity	$24,105.4	$26,893.0	$31,355.0	$37,689.0	$48,455.0
Preferred Stock	2,594.0	2,846.0	2,820.0	2,794.0	2,768.0
Long-Term Debt	27,200.0	34,352.9	39,815.5	47,206.0	65,010.0
Short-Term Debt	0.0	630.0	4,415.0	589.0	466.0
Total	$53,899.4	$64,721.9	$78,405.5	$88,278.0	$116,699.0

Capital Structure	1994	1995	1996	1997	1998
Common Equity	44.72%	41.55%	39.99%	42.69%	41.52%
Preferred Stock	4.81%	4.40%	3.60%	3.17%	2.37%
Long-Term Debt	50.46%	53.08%	50.78%	53.47%	55.71%
Short-Term Debt	0.00%	0.97%	5.63%	0.67%	0.40%
Total	100.00%	100.00%	100.00%	100.00%	100.00%

Note: The amount identified as Short-term Debt represents Current Maturies on Long-term Debt.

Source: Missouri American Water Company's Annual Reports filed with the MoPSC for Periods Ending December 31, 1994 - 1998.

Schedule 8

Selected Financial Ratios for Missouri-American Water Company

Financial Ratios	1994	1995	1996	1997	1998
Return on Year-End Common Equity	7.95%	8.39%	11.18%	9.71%	9.40%
Common Dividend Payout Ratio	94.31%	78.43%	72.66%	81.19%	69.97%
Pre-Tax Interest Coverage Ratio	2.63 x	1.93 x	2.41 x	2.06 x	2.21 x
Senior Debt Rating	N.A.	N.A.	N.A.	N.A.	N.A.

Notes:

Return on Year-End Common Equity = Net Income Available for Common Stock / Year-End Common Shareholders' Equity.

Common Dividend Payout Ratio = Common Dividends Paid / Net Income Available for Common Stock.

Year-End Market to Book Ratio = Year-End Market Price Per Common Share / Year-End Book Value Per Common Share.

Pre-Tax Interest Coverage Ratio = Net Income + Income Taxes + Total Interest Expense / Total Interest Expense.

Sources: Missouri-American Water Company's Annual Reports on file with the Missouri Public Service Commission for the years ending December 31, 1994 - 1998.

Schedule 9

MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2000-281/SR-2000/282

Capital Structure as of September 30, 1999
for Missouri-American Water Company

Capital Component	Amount in Dollars	Percentage of Capital
Common Stock Equity	$47,660,529	41.29%
Preferred Stock	2,754,000	2.39%
Long-Term Debt	65,010,000	56.32%
Short-Term Debt	0	0.00%
Total Capitalization	**$115,424,529**	**100.00%**

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

Standard & Poor's Corporation's Utility Rating Service, Financial Statistics for the 12-months ended June 30, 1999 (median)	Lower Quartile	Median	Upper Quartile
	A	**A**	**A**
	50%	55%	57%

Note: See Schedule 11-1 for the amount of Long-Term Debt at 9/30/99.
See Schedule 12 for the amount of Preferred Stock outstanding at 9/30/99.

For purposes of this analysis, the amount of Short-term Debt outstanding at September 30, 1999 was set at zero. This results from the fact that the amount of Construction Work in Progress ($36,211,276) is greater than the actual amount of Short-term Debt outstanding ($8,257,417). This is based on information faxed to Staff by the Company on 2/9/2000.

Source: Missouri-American Water Company's response to Staff's Data Information Request No. 3801.

Embedded Cost of Long-Term Debt as of September 30, 1999 for Missouri-American Water Company

Long-Term Debt	(1) Interest Rate	(2) Prinicipal Amount Outstanding (09/30/99)	(3) Annualized Cost to Company (1 * 2)
General Mortgage Bonds:			
5.85% Series due July 1, 2026	5.850%	$6,000,000	$351,000
9.01% Series due February 15, 2005	9.010%	5,700,000	513,570
5.50% Series due January 1, 2023	5.500%	4,950,000	272,250
7.14% Series due March 1, 2034	7.140%	12,500,000	892,500
8.58% Series due March 1, 2025	8.580%	3,000,000	257,400
7.79% Series due June 1, 2027	7.79%	8,000,000	623,200
10.00% Series due October 15, 2002	10.000%	1,360,000	136,000
5.00% Series A due February 1, 2028	5.000%	4,500,000	225,000
5.00% Series B due November 1, 2028	5.000%	19,000,000	950,000
Less: Unamortized Debt Issuance Expense		(2,740,126)	
Less: Unamortized Losses on Reacquired Debt		0	
Add: Annual Amortized Debt Issuance Expense			100,115
Add: Annual Amortized Losses on Reacquired Debt Expense			0
Total		$62,269,874	$4,321,035

Embedded Cost of Long-Term Debt = $4,321,035 / $62,269,874

= **6.94%**

Notes:

See Schedule 11-2 for the amounts of the Unamortized Premium & Debt Discount and the Annual Amortized Debt Discount Expense.
No Unamortized Losses on Reacquired Debt or Annual Amortized Losses on Reacquired Debt Expense recorded in 1999.

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

Annual Amortization of Net Premium or Discount Expense and Debt Issuance Expense as of September 30, 1999 for Missouri-American Water Company

Long-Term Debt	Maturity Date	(1) Number of Months to Maturity (09/30/99)	(2) Unamortized Net Premium or Discount Expense and Debt Issuance Expense (09/30/99)	(3) Annual Amortization of Net Premium or Discount Expense and Debt Issuance Expense
General Mortgage Bonds:				
5.85% Series due July 1, 2026	(07/01/26)	325.7	$399,372	$14,714
9.01% Series due February 15, 2005	(02/01/05)	65.0	18,793	3,468
5.50% Series due January 1, 2023	(01/01/23)	283.1	301,801	12,791
7.14% Series due March 1, 2034	(03/01/34)	419.0	288,146	8,252
8.58% Series due March 1, 2025	(03/01/25)	309.5	65,947	2,557
7.79% Series due June 1, 2027	(06/01/27)	336.9	105,120	3,745
10.00% Series due October 15, 2002	(10/15/02)	37.0	4,820	1,562
5.00% Series A due February 1, 2028	(02/01/28)	345.0	335,204	11,658
5.00% Series B due November 1, 2028	(11/01/28)	354.2	1,220,923	41,368
Total			**$2,740,126**	**$100,115**

Notes:

(1) Column 3 = [(Column 2 / Column 1) * 12].

Source: Missouri-American Water Company's response to Staff's Data Request No. 3802

Embedded Cost of Preferred Stock as of September 30, 1999 for Missouri-American Water Company

Preferred Stock	(1) Dividend Rate	(2) Prinicipal Amount Outstanding (9/30/99)	(3) Annualized Cost to Company (1 * 2)
Not Subject to Mandatory Redemption: Stated Value of $10 Per Share			
Series A	4.250%	$14,000	$595
C.P.S.	9.180%	$2,500,000	$229,500
C.P.S.	5.875%	$240,000	$14,100
Not Subject to Mandatory Redemption: Stated Value of $25 Per Share			0
Add: Premium			
Less: Unamortized Issuance Expense		(41,048)	
Total		$2,712,952	$244,195

Embedded Cost of Preferred Stock = $244,195 / $2,712,952 = **9.00%**

Note: The amount of Preferred Stock includes the amount redeemable within one year.

Source: Missouri-American Water Company's response to Staff's Data Request 3802.

MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2000-281/SR-2000-282

Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for American Water Works Company, Inc.

Year	Dividends Per Share	Earnings Per Share	Book Value Per Share
1988	$0.34	$0.92	$7.59
1989	$0.37	$0.78	$8.00
1990	$0.40	$0.93	$8.52
1991	$0.43	$1.14	$9.23
1992	$0.47	$1.04	$9.82
1993	$0.50	$1.15	$10.49
1994	$0.54	$1.17	$11.23
1995	$0.64	$1.26	$12.07
1996	$0.70	$1.31	$13.47
1997	$0.76	$1.45	$14.31
1998	$0.82	$1.58	$15.29

Annual Compound Growth Rates

	DPS	EPS	BVPS
1988 - 1998	9.20%	5.56%	7.25%
1993 - 1998	10.40%	6.56%	7.83%

Trend Line Growth Rates

	DPS	EPS	BVPS
1988 - 1998	9.41%	6.12%	7.42%
1993 - 1998	10.80%	6.70%	8.08%

	DPS	EPS	BVPS
Average of Historical Growth Rates	9.95%	6.23%	7.65%

NOTE: 1988 - 1998 values were used for DPS, EPS & BVPS because "actual" 1999 values were not available.

Source: Value Line Investment Survey, Ratings and Reports, February 4, 2000

Historical and Projected Growth Rates for American Water Works Company, Inc.

Historical Growth Rates	
Average DPS Compound & Trend Line Growth	9.95%
Average EPS Compound & Trend Line Growth	6.23%
Average BVPS Compound & Trend Line Growth	7.65%
Average of Historical Growth Rates	7.94%

Projected Growth Rates from Outside Sources	
5-Year Projected EPS Growth Rate Standard & Poor's Corporation's Stock Guide December 1999	6.00%
Average 3 - 5-Year Projected Growth Rate The Value Line Investment Survey December 1999	8.00%
5 Year Growth Forecast (Mean) I/B/E/S Inc.'s Institutional Brokers Estimate System December 1999	3.50%
Average of Projected Growth Rates	5.83%

Proposed Range of Growth for American Water Works Company, Inc.	**6.25% to 7.50%**

MISSOURI-AMERICAN WATER COMPANY
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Monthly High / Low Average Dividend Yields for American Water Works Company, Inc.

Month / Year	(1) High Stock Price	(2) Low Stock Price	(3) Average High / Low Price	(4) Expected Dividend 1999	(5) Projected Dividend Yield
September 1999	$30.313	$28.125	$29.219	$0.86	2.94%
October 1999	$30.000	$27.750	$28.875	$0.86	2.98%
November 1999	$30.313	$24.500	$27.407	$0.86	3.14%
December 1999	$25.563	$20.500	$23.032	$0.86	3.73%
Average					**3.20%**

Proposed Dividend Yield for American Water Works Company, Inc. **3.25%**

Notes: Column 3 = [(Column 1 + Column 2) / 2].

Column 4 = Estimated Dividends Declared per share represents the actual dividend for the 12-months ended December, 1999.

Column 5 = (Column 4 / Column 3).

Sources: Standard & Poor's Corporation's Security Owner's Stock Guide, Telescan's Wall Street City and The Value Line Investment Survey: Ratings & Reports, February 4, 2000.

MISSOURI-AMERICAN WATER COMPANY
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Discounted Cash Flow (DCF) Costs of Common Equity Estimates for American Water Works Company, Inc.

AWK's of Common Equity	=	Dividend Yield	+	Expected Growth
10.75%	=	3.25%	+	7.50%
9.50%	=	3.25%	+	6.25%

Discounted Cash Flow (DCF) Model Derivation

Present Price = Expected Dividends Discounted by k + Present Price (1 + g) Discounted by k

where: g = estimated growth rate and k = cost of common equity.

Letting: P0 = present price and D1 = expected dividends, then

$$P0 = \frac{D1}{(1+k)} + \frac{P0\,(1+g)}{(1+k)} \quad \text{or}$$

$$k = \frac{D1}{P0} + g$$

Thus:

Cost of Common Equity = Dividend Yield + Expected Growth

Notes: See Schedule 15 for calculation of proposed range of dividend yield for American Water Works Company Inc.

See Schedule 14 for calculation of proposed range of growth for American Water Works Company Inc.

Average Risk Premium Above the Yields of "A" Rated Moody's Public Utility Bonds for American Water Works Company Inc.'s Expected Returns on Common Equity

Mo/Year	AWK's Expected ROE	"A" Rated Bonds Yields	AWK's Risk Premium
Jan 1988	12.50%	10.76%	1.74%
Feb	12.50%	10.10%	2.40%
Mar	12.50%	10.09%	2.41%
Apr	12.50%	10.54%	1.96%
May	12.50%	10.81%	1.69%
Jun	12.50%	10.79%	1.71%
Jul	12.50%	11.04%	1.46%
Aug	12.50%	11.17%	1.33%
Sep	12.50%	10.61%	1.89%
Oct	12.00%	10.01%	1.99%
Nov	12.00%	9.90%	2.10%
Dec	12.00%	10.06%	1.94%
Jan 1989	12.00%	10.08%	1.92%
Feb	12.00%	10.07%	1.93%
Mar	12.00%	10.23%	1.77%
Apr	12.00%	10.18%	1.82%
May	12.00%	9.99%	2.01%
Jun	12.00%	9.64%	2.36%
Jul	11.00%	9.50%	1.50%
Aug	11.00%	9.52%	1.48%
Sep	11.00%	9.58%	1.42%
Oct	11.50%	9.54%	1.96%
Nov	11.50%	9.51%	1.99%
Dec	11.50%	9.44%	2.06%
Jan 1990	11.50%	9.56%	1.94%
Feb	11.50%	9.76%	1.74%
Mar	11.50%	9.85%	1.65%
Apr	11.00%	9.92%	1.08%
May	11.00%	10.00%	1.00%
Jun	11.00%	9.80%	1.20%
Jul	10.50%	9.75%	0.75%
Aug	10.50%	9.92%	0.58%
Sep	10.50%	10.12%	0.38%
Oct	10.50%	10.05%	0.45%
Nov	10.50%	9.90%	0.60%
Dec	10.50%	9.73%	0.77%
Jan 1991	11.00%	9.71%	1.29%
Feb	11.00%	9.47%	1.53%
Mar	11.00%	9.55%	1.45%
Apr	10.50%	9.46%	1.04%
May	10.50%	9.44%	1.06%
Jun	10.50%	9.59%	0.91%
Jul	11.00%	9.55%	1.45%
Aug	11.00%	9.29%	1.71%
Sep	11.00%	9.16%	1.84%
Oct	11.50%	9.12%	2.38%
Nov	11.50%	9.05%	2.45%
Dec	11.50%	8.88%	2.62%
Jan 1992	12.50%	8.84%	3.66%
Feb	12.50%	8.93%	3.57%
Mar	12.50%	8.97%	3.53%
Apr	12.00%	8.93%	3.07%
May	12.00%	8.87%	3.13%
Jun	12.00%	8.78%	3.22%
Jul	12.00%	8.57%	3.43%
Aug	12.00%	8.44%	3.56%
Sep	12.00%	8.40%	3.60%
Oct	12.00%	8.54%	3.46%
Nov	12.00%	8.63%	3.37%
Dec	12.00%	8.43%	3.57%
Jan 1993	11.50%	8.27%	3.23%
Feb	11.50%	8.04%	3.46%
Mar	11.50%	7.90%	3.60%
Apr	11.50%	7.81%	3.69%
May	11.50%	7.86%	3.64%
Jun	11.50%	7.75%	3.75%
Jul	11.50%	7.54%	3.96%
Aug	11.50%	7.25%	4.25%
Sep	11.50%	7.04%	4.46%
Oct	11.50%	7.03%	4.47%
Nov	11.50%	7.30%	4.20%
Dec	11.50%	7.34%	4.16%

Mo/Year	AWK's Expected ROE	"A" Rated Bonds Yields	AWK's Risk Premium
Jan 1994	12.00%	7.33%	4.67%
Feb	12.00%	7.42%	4.58%
Mar	12.00%	7.85%	4.15%
Apr	12.00%	8.22%	3.78%
May	11.00%	8.33%	2.67%
Jun	11.00%	8.31%	2.69%
Jul	11.00%	8.47%	2.53%
Aug	11.00%	8.41%	2.59%
Sep	11.00%	8.64%	2.36%
Oct	11.00%	8.86%	2.14%
Nov	10.50%	8.98%	1.52%
Dec	10.50%	8.76%	1.74%
Jan 1995	10.50%	8.73%	1.77%
Feb	10.50%	8.52%	1.98%
Mar	10.50%	8.37%	2.13%
Apr	10.50%	8.27%	2.23%
May	10.50%	7.91%	2.59%
Jun	10.50%	7.60%	2.90%
Jul	10.50%	7.70%	2.80%
Aug	10.00%	7.83%	2.17%
Sep	10.00%	7.62%	2.38%
Oct	10.00%	7.46%	2.54%
Nov	10.50%	7.43%	3.07%
Dec	10.50%	7.23%	3.27%
Jan 1996	10.50%	7.22%	3.28%
Feb	10.50%	7.37%	3.13%
Mar	10.50%	7.73%	2.77%
Apr	10.50%	7.89%	2.61%
May	10.00%	7.98%	2.02%
Jun	10.00%	8.06%	1.94%
Jul	10.00%	8.20%	1.80%
Aug	10.50%	7.84%	2.66%
Sep	10.50%	8.01%	2.49%
Oct	10.50%	7.77%	2.73%
Nov	10.50%	7.49%	3.01%
Dec	10.50%	7.59%	2.91%
Jan 1997	10.50%	7.77%	2.73%
Feb	9.50%	7.64%	1.86%
Mar	9.50%	7.87%	1.63%
Apr	9.50%	8.03%	1.47%
May	9.50%	7.89%	1.61%
Jun	9.50%	7.72%	1.78%
Jul	9.50%	7.48%	2.02%
Aug	9.50%	7.51%	1.99%
Sep	10.00%	7.47%	2.53%
Oct	10.00%	7.35%	2.65%
Nov	10.00%	7.25%	2.75%
Dec	10.00%	7.16%	2.84%
Jan 1998	10.00%	7.04%	2.96%
Feb	10.00%	7.12%	2.88%
Mar	10.00%	7.16%	2.84%
Apr	10.00%	7.16%	2.84%
May	10.70%	7.16%	3.54%
Jun	10.70%	7.03%	3.67%
Jul	10.70%	7.03%	3.67%
Aug	10.70%	7.00%	3.70%
Sep	10.70%	6.93%	3.77%
Oct	10.70%	6.96%	3.74%
Nov	10.50%	7.03%	3.47%
Dec	10.50%	6.91%	3.59%
Jan 1999	10.50%	6.97%	3.53%
Feb	11.00%	7.09%	3.91%
Mar	11.00%	7.26%	3.74%
Apr	11.00%	7.22%	3.78%
May	11.00%	7.47%	3.53%
Jun	11.00%	7.74%	3.26%
Jul	11.00%	7.71%	3.29%
Aug	11.00%	7.91%	3.09%
Sep	11.00%	7.93%	3.07%
Oct	11.00%	8.06%	2.94%
Nov	11.00%	7.94%	3.06%
Dec	11.00%	8.14%	2.86%

Sources: The Value Line Investment Survey: Ratings & Reports and Moody's Bond Record.

Note: Yields on 30-Year U.S. Treasury Bonds are on actively traded issues adjusted to constant maturities

Summary Information	(1988 - 1999)
Average Risk Premium: (Jan 1988 - December 1999)	**2.56%**
Average Risk Premium: (Jan 1995 - December 1999)	**2.80%**
High Risk Premium: (February 1999)	**3.91%**
Low Risk Premium: (April 1997)	**1.47%**

Schedule 17

Risk Premium Costs of Equity Estimates for American Water Works Company, Inc.

AWK's Cost of Common Equity	=	"A" Rated Long-Term Utility Bond Yields (Dec 1999)	+	Equity Risk Premium (1/88 - 12/99)	
10.70%	=	8.14%	+	2.56%	(1988-1999)
10.94%	=	8.14%	+	2.80%	(1995-1999)

Risk Premium Approach

The risk premium approach is based upon the proposition that common stocks are more risky than debt and, as a result, investors require a higher expected return on stocks than bonds. In this approach, the cost of common equity is computed by the following formula:

Cost of Common Equity = Current Cost of Debt + Equity Risk Premium

where:

The Current Cost of Debt is represented by the yield on long-term "A" rated Public Utility Bonds. The approriate rate was determined by using the average yield on "A" rated Public Utility Bonds from Moody's Bond Record, January 2000.

The Equity Risk Premium represents the difference between AWK's expected return on common equity (ROE) as projected in The Value Line Investment Survey and the average yield on "A" rated Moody's Public Utility Bonds. The appropriate range for the Equity Risk Premium was determined to be the average risk premium for the period of January 1988 through December 1999 and the average risk premium for the period January 1995 through December 1999. See Schedule 16 for the calculation of the Equity Risk Premiums for American Water Works Company, Inc.

Capital Asset Pricing Model (CAPM) Costs of Equity Estimates
American Water Works Company, Inc.

Cost of Common Equity	=	Risk Free Rate	+	UWR's Beta	*	Market Risk Premium	
9.30%	=	5.55%	+	0.5	*	7.50%	Low end of range
9.82%	=	6.07%	+	0.5	*	7.50%	High end of range

Capital Asset Pricing Model

The capital asset pricing model (CAPM) describes the relationship between a security's investment risk and its market rate of return. This relationship identifies the rate of return which investors expect a security to earn so that its market return is comparable with the market returns earned by other securities that have similar risk. The general form of the CAPM is as follows:

Cost of Common Equity = Risk Free Rate + [Beta * Market Risk Premium]

where:
The Risk Free Rate reflects the level of return which can be achieved without accepting any risk. The Risk Free Rate is represented by the yield on 30-Year U.S. Treasury Bonds. The appropriate rate was determined to be the high/low range of 6.07% to 5.55% for the six-month period ending September 30, 1999 as published on the Federal Reserve website, http://www.stls.frb.org/fred/data/irates/gs30.

The Beta represents the relative movement and relative risk between a particular stock and the market. The appropriate Beta for American Water Works Company Inc. was determined to be 0.50 as published in The Value Line Investment Survey: Ratings & Reports, February 4, 2000.

The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium Range was determined to be 7.50% as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills and Inflation: 1999 Yearbook for the period 1926 - 1998.

MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2000-281/SR-2000-282

Pro Forma Pre-Tax Interest Coverage Ratios for Missouri-American Water Company

	9.50%	10.125%	10.75%
1. Common Equity (Schedule 10)	$47,660,529	$47,660,529	$47,660,529
2. Earnings Allowed (ROE * [1])	$4,527,750	$4,825,629	$5,123,507
3. Preferred Dividends	$244,195	$244,195	$244,195
4. Net Income Available ([2] + [3])	$4,771,945	$5,069,824	$5,367,702
5. Tax Multiplier (1 / { 1 - Tax Rate })	1.6231	1.6231	1.6231
6. Pre-Tax Earnings ([4] * [5])	$7,745,344	$8,228,831	$8,712,317
7. Annual Interest Costs (Schedule 11-1)	$4,321,035	$4,321,035	$4,321,035
8. Avail. for Coverage ([6] + [7])	$12,066,379	$12,549,865	$13,033,351
9. **Pro Forma Pre-Tax Interest Coverage** ([8] / [7])	**2.79 x**	**2.90 x**	**3.02 x**

Water Utility Financial Medians - Pretax Interest Coverage (x)

Standard & Poor's Corporation's Utility Rating Service, for the 12-months ended June 30, 1999 - Water Utilities	Lower Quartile	Median	Upper Quartile
	A	A	A
	2.60	2.95	3.66

MISSOURI-AMERICAN WATER COMPANY
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Criteria for Selecting Comparable Water Utility Companies

Water Utility Companies	(1) Stock Publicly Traded & Followed By E. Jones & Company	(2) Monthly Trading Volume >25,000	(3) Pre-Tax Interest Coverage Ratio >2.00	(4) Common Equity to Total Capital Ratio >30%	(5) Total Capital >100 mil	(6) Positive DPS Annual Compound Growth Rate (1994-1998)	(7) No Missouri Operations	(8) Comparable Company
American States Water Company	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
American Water Works Company, Inc.	Yes	Yes	Yes	Yes	Yes	Yes	No	
Aquarion Company	Yes	Yes	Yes	Yes	Yes	No		
Artesian Resources Corporation	Yes	Yes	Yes	Yes	No			
California Water Service Group	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Connecticut Water Service Inc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dominguez Services Corporation	Yes	Yes	Yes	Yes	No			
E'Town Corporation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Middlesex Water Company	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pennichuch Corporation	Yes	Yes	Yes	Yes	No			
Philadelphia Suburan Corporation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SJW Corporation	Yes	Yes	Yes	Yes	No			
Southwest Water Company	Yes	Yes	Yes	Yes	No			
United Water Resources, Inc.	Yes	Yes	Yes	Yes	Yes	Yes	No	
York Water Company	Yes	No						

Sources: Columns 1,2,3, 4 & 5 = Edward Jones & Co.'s Financial & Common Stock Information - Water Utility Industry June 30, 1999

Column 6 = The Value Line Investment Survey, February 4, 2000

Schedule 21

Six Comparable Water Utility Companies
For American Water Works Company, Inc.

Number	Ticker Symbol	Company Name
1	AWR	American States Water Company
2	CWT	California Water Services Group
3	CTWS	Connecticut Water Services Inc.
4	ETW	E'Town Corporation
5	MSEX	Middlesex Water Company
6	PSC	Philadelphia Suburban Corporation

Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Six Comparable Water Utility Companies

	Dividends Per Share		Earnings Per Share		Book Value Per Share	
Company Name	1993	1998	1993	1998	1988	1998
American States Water Co.	$1.19	$1.26	$1.66	$1.62	$14.92	$17.23
California Water Services Group	$0.96	$1.07	$1.35	$1.45	$10.90	$13.38
Connecticut Water Services Inc.	$1.09	$1.17	$1.33	$1.53	$10.79	$12.78
E'Town Corporation	$2.01	$2.04	$2.38	$2.67	$22.67	$24.62
Middlesex Water Company	$1.01	$1.15	$1.33	$1.41	$10.77	$13.59
Philadelphia Suburban Corporation	$0.54	$0.67	$0.64	$1.03	$5.96	$8.35

	Annual Compound Growth Rates			
	DPS	EPS	BVPS	Average of 5 Year Annual Compound Growth Rates
Company Name	1993-1998	1993-1998	1993-1998	
American States Water Co.	1.15%	-0.49%	2.92%	1.19%
California Water Services Group	2.19%	1.44%	4.19%	2.61%
Connecticut Water Services Inc.	1.43%	2.84%	3.44%	2.57%
E'Town Corporation	0.30%	2.33%	1.66%	1.43%
Middlesex Water Company	2.63%	1.18%	4.76%	2.86%
Philadelphia Suburban Corporation	4.41%	9.98%	6.98%	7.12%
Average	**2.19%**	**3.55%**	**4.21%**	**2.96%**
Standard Deviation	1.30%	3.34%	1.65%	1.96%

NOTE: 1993 - 1998 period was used because 1988 and 1999 "actual" data was not available for all comparable companies.

Schedule 23

Historical and Projected Growth Rates for the Six Comparable Water Utility Companies

Company Name	(1) Average 5 Year Annual Compound	(2) Projected 5 Year Growth IBES (Mean)	(3) Projected 5 Year EPS Growth (S&P)	(4) Projected 3-5 Year EPS Growth (Value Line)	(5) Projected 5 Year Growth Zacks (Mean)	(6) Average Projected Growth	(7) Average of Historical & Projected Growth
American States Water Co.	1.19%	4.50%	5.00%	6.00%	5.00%	5.13%	3.16%
California Water Services Group	2.61%	N.A.	N.A.	6.00%	N.A.	6.00%	4.30%
Connecticut Water Services Inc.	2.57%	3.00%	3.00%	N.A.	3.00%	3.00%	2.79%
E'Town Corporation	1.43%	3.00%	3.00%	6.00%	3.50%	3.88%	2.65%
Middlesex Water Company	2.86%	3.00%	3.00%	N.A.	N.A.	3.00%	2.93%
Philadelphia Suburban Corporation	7.12%	9.73%	10.00%	9.00%	5.75%	8.62%	7.87%
Average	**2.96%**	**4.65%**	**4.80%**	**6.75%**	**4.31%**	**5.13%**	**3.95%**

Proposed Range of Growth: **3.95% - 5.10%**

Notes: Column 6 = [(Column 2 + Column 3 + Column 4 + Column 5) / 4].

Column 7 = [(Column 1 + Column 6) / 2].

A Projected 5 Year Growth Rate for California Water Services Group was not available from IBES, S&P or Zacks.
A Projected 5 Year Growth Rate for American States Water Co., Connecticut Water Services Inc. and Middlesex Water Company was not available from Value Line.
A Projected 5 Year Growth Rate for Middlesex Water Company was not available from Zacks.

Sources: Column 1 = Average of 10 Year Annual Compound Growth Rates from Schedule 22.

Column 2 = I/B/E/S Inc.'s Institutional Brokers Estimate System, February 17, 2000.

Column 3 = Standard & Poor's Corporation's Earnings Guide, February 2000.

Column 4 = The Value Line Ratings and Reports, February 4, 2000.

Column 5 = WallStreet City by Telescan Inc., Zacks II Earnings Estimates, March 16, 2000.

Schedule 24

MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2000-281/SR-2000-282

Average High / Low Stock Price for September 1999 through December 1999 for the Six Comparable Water Utility Companies

			(1)	(2)	(3)	(4)	(5)	(6)	(7)
	-- September 1999 --		-- October 1999 --		-- November 1999 --		-- December 1999 --		**Average High/Low Stock Price**
Company Name	High Stock Price	Low Stock Price	High Stock Price	Low Stock Price	High Stock Price	Low Stock Price	High Stock Price	Low Stock Price	**(9/99 - 12/99)**
American States Water Company	37.125	29.875	34.875	31.750	38.375	34.000	39.750	35.000	**35.094**
California Water Services Group	30.500	27.125	29.500	24.125	32.000	29.125	32.000	29.562	**29.242**
Connecticut Water Services Inc.	31.625	28.500	32.500	27.875	34.750	28.500	37.000	30.000	**31.344**
E'Town Corporation	53.125	46.187	49.375	43.187	63.375	45.500	62.875	61.500	**53.141**
Middlesex Water Company	34.437	29.875	32.000	29.500	35.875	30.250	35.250	30.500	**32.211**
Philadelphia Suburban Corporation	24.750	22.750	23.500	21.250	24.187	21.500	23.562	20.187	**22.711**

Notes:

Column 9 = [(Column 1 + Column 2 + Column 3 + Column 4 + Column 5 + Column 6 + Column 7 + Column 8) / 8].

Sources: Telescan's Wall Street City, March 16, 2000.

Schedule 25

MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2000-281/SR-2000-282

DCF Estimated Costs of Common Equity for the Six Comparable Water Utility Companies

	(1)	(2)	(3)	(4)	(5)
Company Name	Expected Annual Dividend	Average High/Low Stock Price	Projected Dividend Yield	Average of Historical & Projected Growth	Estimated Cost of Common Equity
American States Water Company	$1.30	$35.094	3.70%	3.16%	6.86%
California Water Services Group	$1.09	$29.242	3.73%	4.30%	8.03%
Connecticut Water Services Inc.	$1.18	$31.344	3.76%	2.79%	6.55%
E'Town Corporation	$2.04	$53.141	3.84%	2.65%	6.49%
Middlesex Water Company	$1.19	$32.211	3.69%	2.93%	6.62%
Philadelphia Suburban Corporation	$0.72	$22.711	3.17%	7.87%	11.04%
Average			**3.65%**	**3.95%**	**7.60%**

Proposed Dividend Yield: **3.65%**

Proposed Range of Growth: **3.95% - 5.10%**

Estimated Cost of Common Equity: **7.60% - 8.75%**

Notes: Column 1 = Estimated Dividends Declared per share represents the average projected dividends for 1999 and 2000.

Column 3 = (Column 1 / Column 2).

Column 5 = (Column 3 + Column 4).

Sources: Column 1 = The Value Line Investment Survey: Ratings & Reports, February 4, 2000.

Column 2 = Schedule 25.

Column 4 = Schedule 24.

Schedule 26

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Capital Asset Pricing Model (CAPM) Costs of Common Equity Estimates for the Six Comparable Water Utility Companies

Company Name	(1) Risk Free Rate (Low End)	(2) Risk Free Rate (High End)	(3) Company's Value Line Beta	(4) Market Risk Premium (1926-1998)	(5) CAPM Cost of Common Equity (Low End)	(6) CAPM Cost of Common Equity (High End)
American States Water Company	5.55%	6.07%	0.60	7.50%	10.05%	10.57%
California Water Services Group	5.55%	6.07%	0.55	7.50%	9.68%	10.20%
Connecticut Water Services Inc.	5.55%	6.07%	0.50	7.50%	9.30%	9.82%
E'Town Corporation	5.55%	6.07%	0.50	7.50%	9.30%	9.82%
Middlesex Water Company	5.55%	6.07%	0.45	7.50%	8.93%	9.45%
Philadelphia Suburban Corporation	5.55%	6.07%	0.55	7.50%	9.68%	10.20%
Average			**0.53**		**9.49%**	**10.01%**

Sources:

Column 1&2 = The Risk Free Rate of Interest reflects the level of return which can be achieved without accepting any risk. The Risk Free Rate is represented by the yield on 30-Year U.S. Treasury Bonds. The appropriate rate was determined to be the high/low range of 6.07% to 5.55% for the six-month period ending September 30, 1999 as published on the Federal Reserve website, http://www.stls.frb.org/fred/data/irates/gs30.

Column 3 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole as reported by the Value Line Investment Survey: Ratings & Reports, February 4, 2000.

Column 4 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium was determined to be 7.50% as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 1999 Yearbook, for the period 1926 - 1998.

Column 5 = (Column 1 + (Column 3 * Column 4)).

Column 6 = (Column 2 + (Column 3 * Column 4)).

Schedule 27

Selected Financial Ratios for the Six Comparable Water Utility Companies

Company Name	Date of Information	Common Equity to Total Capital Ratio	Preferred Stock Ratio	Long-Term Debt Ratio	Pre-Tax Interest Coverage Ratio (as of 3/31/99)	Market-to-Book Value (as of 12/31/98)	1999 Projected Return on Common Equity
American States Water Company	(6/30/99)	49.00%	1.00%	50.00%	3.32 x	2.35 x	10.50%
California Water Services Group	(6/30/99)	52.00%	1.00%	47.00%	3.42 x	2.35 x	11.50%
Connecticut Water Services Inc.	(6/30/99)	48.00%	1.00%	51.00%	3.74 x	2.12 x	11.90% *
E'Town Corporation	(6/30/99)	44.00%	2.00%	54.00%	3.14 x	1.87 x	10.00%
Middlesex Water Company	(6/30/99)	45.00%	3.00%	52.00%	3.03 x	1.95 x	9.10% *
Philadelphia Suburban Corporation	(6/30/99)	46.50%	0.00%	53.50%	3.12 x	3.58 x	12.50%
Average		**47.42%**	**1.33%**	**51.25%**	**3.30 x**	**2.37 x**	**10.92%**
Standard Deviation		2.91%	1.03%	2.56%			
American Water Works, Inc.	(9/30/99)	**41.29%**	**2.39%**	**56.32%**	**2.34 x**	**N.A.**	**11.00%**

Note: Date of information indicates the reporting date of the equity ratio.

* Return on Equity for Connecticut Water Services Inc. and Middlesex Water Company is based on the Return on Share Equity at December 31, 1998.

Sources: The Value Line Investment Survey: Ratings and Reports, February 4, 2000 and Edward Jones, Water Utility Industry Summary, June 30, 1999.

Schedule 28

Public Utility Revenue Requirement

or

Cost of Service

The formula for the revenue requirement of a public utility may be stated as follows :

Equation 1 : **Revenue Requirement = Cost of Service**

or

Equation 2 : **R R = O + (V - D) R**

The symbols in the second equation are represented by the following factors :

R R	=	Revenue Requirement
O	=	Prudent Operating Costs, including Depreciation and Taxes
V	=	Gross Valuation of the Property Serving the Public
D	=	Accumulated Depreciation
(V - D)	=	Rate Base (Net Valuation)
(V - D) R	=	Return Amount ($$) or Earnings Allowed on Rate Base
R	=	i L + d P + k E or Overall Rate of Return (%)
i	=	Embedded Cost of Debt
L	=	Proportion of Debt in the Capital Structure
d	=	Embedded Cost of Preferred Stock
P	=	Proportion of Preferred Stock in the Capital Structure
k	=	Required Return on Common Equity (ROE)
E	=	Proportion of Common Equity in the Capital Structure

Adjusted Weighted Cost of Capital as of September 30, 1999 for Missouri-American Water Company

Capital Component	Percentage of Capital	Embedded Cost	Weighted Cost of Capital Using Common Equity Return of: 9.50%	10.125%	10.75%
Common Stock Equity	41.29%	-----	3.92%	4.18%	4.44%
Preferred Stock	2.39%	9.00%	0.21%	0.21%	0.21%
Long-Term Debt	56.32%	6.94%	3.91%	3.91%	3.91%
Short-Term Debt	0.00%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**		**8.04%**	**8.30%**	**8.56%**

Notes:

See Schedule 10 for the Capital Structure Ratios.

See Schedule 11-1 for the Embedded Cost of Long-Term Debt.

See Schedule 12 for the Embedded Cost of Preferred Stock.