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Service Commission

DIRECT TESTIMONY

OF HAROLD WALKER, III

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

NOVEMBER 19, 1999

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, INC.

HARRISBURG, PENNSYLVANIA

DIRECT TESTIMONY
OF
HAROLD WALKER, III
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1   INTRODUCTION

2

3   Q.   PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

4   A.   My name is Harold Walker, III. My business address is P. O. Box 80794, Valley Forge,

5   Pennsylvania, 19484.

6

7   Q.   BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

8   A.   I am employed by Gannett Fleming Valuation and Rate Consultants, Inc. as Manager,

9   Financial Studies.

10

11 Q.   WHAT IS YOUR EDUCATIONAL BACKGROUND AND EMPLOYMENT

12   EXPERIENCE?

13 A.   My educational background, business experience and qualifications are provided in

14   Schedule HW-1.

15

16 SCOPE OF TESTIMONY

17

18 Q.   WHAT IS THE PURPOSE OF YOUR TESTIMONY?

19 A.   The purpose of my testimony is to recommend an appropriate overall rate of return

20   Missouri-American Water Company ("MAWC" or the "Company") should be afforded

21   an opportunity to earn on its utility service rate base. My testimony is supported by

22   Schedule HW-2, which is composed of 19 parts.

23

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1 SUMMARY OF RECOMMENDATION

2

3   Q.   WHAT IS YOUR RECOMMENDATION?

4   A.   I recommend an overall rate of return of 9.13% based upon the Company's pro forma

5   capital structure at April 30, 2000 including a 11.70% cost of common equity. My

6   recommended cost of common equity reflects MAWC's unique risk characteristics.

7

8   Q.   HOW DID YOU DETERMINE YOUR RECOMMENDED COMMON EQUITY

9   COST RATE?

10 A.   I used several models to help me in formulating my recommended common equity cost

11   rate including Discounted Cash Flow (DCF), Capital Asset Pricing Model (CAPM) and

12   Risk Premium (RP).

13

14 Q.   IS IT IMPORTANT TO USE MORE THAN ONE MARKET MODEL?

15 A.   Yes. I believe it is necessary to estimate common equity cost rates using a number of

16   different models. At any given time, a particular model may understate or overstate the

17   cost of equity. While any single investor may rely solely upon one model, different

18   investors rely on different models and many investors use many models. Therefore,

19   because the price of common stock reflects a number of valuation models, it is

20   appropriate to estimate the market-required common equity cost rate by applying a broad

21   range of analytical models.

22

1 Q. PLEASE SUMMARIZE YOUR COMMON EQUITY COST RATE

2   RECOMMENDATION.

3 A. Due to the lack of appropriate market data concerning MAWC's equity, I used a

4   comparable group of publicly traded water companies to estimate the common equity cost

5   rate. Based upon the results of my entire analysis, I conclude MAWC's current common

6   equity cost rate is 11.7%. The current range of common equity cost for MAWC is 10.8%

7   (DCF) to 12.7% (RP) with a mid-range estimate of 12.1% (CAPM). As a check on the

8   reasonableness of my common equity cost rate recommendation, I reviewed Value Line's

9   projected returns on common equity for my comparable group of water utilities for the

10   period 2002 to 2004. Value Line is relied upon by many investors and is the only

11   investment advisory service of which I am aware that projects return on equity. Value

12   Line's projected returns on common equity average 11.8% to 12.2%. The range of the

13   projected returns suggests that my recommendation of 11.7% for MAWC is reasonable,

14   if not conservative.

15

16 **PRINCIPLES OF RATE REGULATION AND FAIR RATE OF RETURN**

17

18 Q. **WHAT ARE THE PRINCIPLES GUIDING FAIR RATE OF RETURN IN THE**

19   **CONTEXT OF RATE REGULATION?**

20 A. In a capitalistic or free market system, competition determines the price for all goods and

21   services. Utilities are permitted to operate as monopolies or near monopolies as a trade-

22   off for a ceiling on the price of service because: (1) the services provided by utilities are

23   considered necessities by society; and (2) capital-intensive and long-lived facilities are

1	necessary to provide utility service. Generally, utilities are required to serve all
2	financially responsible customers in their service territory at reasonable rates determined
3	by regulators. As a result, regulators act as a substitute for a competitive-free market
4	system when they authorize a price for utility service.
5	
6	Although utilities operate in varying degrees as regulated monopolies, they must compete
7	with governmental bodies, non-regulated industries, and other utilities for labor,
8	materials, and capital. Capital is provided by investors who seek the highest return
9	commensurate with the perceived level of risk. The greater the perceived risk, the higher
10	the required return rate. In order for utilities to attract the capital required to provide
11	service, a fair rate of return should equal the investor-required, market-determined rate
12	of return.
13	
14	**Q. WHAT CONSTITUTES A FAIR RATE OF RETURN?**
15	A. Two noted Supreme Court cases define the benchmarks of a fair rate of return. In
16	*Bluefield*[1], a fair rate of return is defined as: (1) equal to the return on investments in
17	other business undertakings with the same level of risks (the comparable earnings
18	standard); (2) sufficient to assure confidence in the financial soundness of a utility (the
19	financial integrity standard); (3) will maintain and support its credit, enabling the utility
20	to raise or attract additional capital necessary to provide reliable service (the capital
21	attraction standard). The second case, *Hope*[2], determined a fair rate of return to be based

[1]Bluefield Water Works & Improvement Company v. P.S.C. of West Virginia, 262 U.S. 679 (1923).

[2]Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 391 (1944).

1   upon guidelines found in *Bluefield* as well as stating that: (1) allowed revenues must

2   cover capital costs including service on debt and dividends on stock; and (2) the

3   Commission was not bound to use any single formula or combination of formulae in

4   determining rates. Utilities are not entitled to a guaranteed return. However, the

5   regulatory-determined price for service must allow the utility a fair opportunity to recover

6   all costs associated with providing the service, including a fair rate of return for

7   investors.

8

9 **INVESTMENT RISK**

10

11 **Q. PREVIOUSLY, YOU REFERRED TO RISK. PLEASE DEFINE THE TERM**

12   **RISK.**

13 A. Risk is the uncertainty associated with a particular action. The greater the uncertainty of

14   a particular outcome, the greater the risk. Investors who invest in risky assets expose

15   themselves to investment risk particular to that investment. Investment risk is the sum

16   of business risk and financial risk. Business risk is the risk inherent in the operations of

17   a business. Assuming a Company is financed with 100% common equity, business risk

18   includes all operating factors that affect the probability of receiving expected future

19   income such as: sales volatility, management actions, availability of product substitutes,

20   technological obsolescence, regulation, raw materials, labor, size and growth of the

21   market served, diversity of the customer base, economic activity of the area served, and

22   other similar factors.

23

1 Q. WHAT IS FINANCIAL RISK?

2 A. Financial risk reflects the manner in which an enterprise is financed. Financial risk arises

3   from the use of fixed cost capital (leverage) such as debt and/or preferred stock because

4   of the contractual obligations associated with the use of such capital. Because the fixed

5   contractual obligations must be serviced before earnings are available for common

6   stockholders, the introduction of leverage increases the potential volatility of the earnings

7   available for common shareholders and therefore increases common shareholder risks.

8

9   Although financial risk and business risk are separate and distinct, they are interrelated.

10   In order for a company to maintain a given level of investment risk, business risk and

11   financial risk should complement one another to the extent possible. For example, two

12   firms may have similar investment risks, while having different levels of business risk if

13   the business risk differences are compensated for by using more or less leverage (financial

14   risk) thereby resulting in similar investment risk.

15

16 DESCRIPTION OF THE COMPANY

17

18   Q. PLEASE GIVE A BRIEF DESCRIPTION OF MAWC.

19   A. MAWC is an operating water and waste water company providing service to about

20   94,000 (1998) customers who are in its service territory in 32 communities located in 12

21   counties in the state of Missouri. The estimated population of the area served is 260,500

22   (1998). In 1998, MAWC's net utility plant, and utility revenue were $143,047,000 and

23       $29,223,000, respectively. MAWC is a wholly-owned subsidiary of American Water

1   Works Company, Inc. (AWK), as are other operating water companies in the American

2   system.

3

4   AWK is a holding and management company whose principal business is the ownership

5   of common stock of companies providing water service. AWK's service company

6   subsidiary, provides professional services as required to affiliated companies. These

7   services include accounting, engineering, finance, water quality, information systems,

8   human resource administration and training, purchasing, insurance placement, workplace

9   safety, and management services. AWK's 23 utility subsidiaries provide water and/or

10 wastewater service in 22 states, through 23 different companies servicing 879

11 communities, to a population of more than 7 million people. AWK also has several non-

12 regulated subsidiaries who provide related services to the water and wastewater industry.

13 In 1998, AWK's consolidated net utility plant totaled $4,153,206,000, and utility revenue

14 totaled $1,017,812,000.

15

16 **COMPARABLE GROUP**

17

18 Q. **HOW DO YOU ESTIMATE THE COST OF COMMON EQUITY FOR THE**

19   **COMPANY?**

20 A. Because MAWC's common stock is not actively traded, I employed a comparable group

21   of water enterprises with actively traded stock, to determine a market-required cost rate

22   of common equity capital. Since there are no perfectly comparable companies to

23   MAWC, it is reasonable to determine the market-required cost rate for a comparable

1   group of utility companies and adjust, to the extent necessary, for investment risk

2   differences between MAWC and the comparable group.

3

4 Q. WHAT COMPARABLE GROUP DID YOU USE TO DETERMINE THE COST OF

5   COMMON EQUITY FOR MAWC?

6 A. I used the Value Line Water Group (Water Group), based upon the criteria to include all

7   water utilities who are covered by Value Line Investment Survey. It should be noted that

8   the Water Group are also referred to throughout my testimony as the comparable group

9   and/or the comparable companies.

10

11 CAPITAL STRUCTURE

12

13 Q. WHAT IS REQUIRED TO DEVELOP AN OVERALL RATE OF RETURN?

14 A. The first step in developing an overall rate of return is the selection of capital structure

15   ratios to be employed. Next, the cost rate for each capital component is determined. The

16   overall rate of return is the product of weighting each capital component by its respective

17   capital cost rate. This procedure results in the Company's overall rate of return being

18   weighted proportionately to the amount of capital and cost of capital employed by each

19   class of investor.

20

21 Q. WHAT CAPITAL STRUCTURE RATIOS DO YOU RECOMMEND TO BE USED

22   TO DEVELOP THE COMPANY'S OVERALL RATE OF RETURN?

1   A. I recommend the adoption of the Company's pro forma ratemaking capital structure ratios

2   at April 30, 2000 shown in JES-1 that include 56.10% long-term debt, 1.64% preferred

3   and preference stock, 41.96% common equity and 0.03% investment tax credits as shown

4   on Schedule 3. These capital structure ratios are currently the best available estimates

5   of ratios likely to exist during the period that the proposed rates for water service will be

6   in effect.

7

8   Q. **WHAT IS THE COMPANY'S CAPITAL STRUCTURE GOAL AFTER 2000?**

9   A. After 2000, the Company expects, subject to adequate earnings, to maintain the pro forma

10   common equity ratio at April 30, 2000.

11

12   Q. **HOW DOES YOUR RECOMMENDED COMMON EQUITY RATIO COMPARE**

13   **WITH RATIOS EMPLOYED BY OTHER INVESTOR-OWNED WATER**

14   **COMPANIES?**

15   A. My recommended rate making capital structure reflects a conventionally computed

16   common equity ratio of 42.08%. This ratio is similar to ratios employed by other

17   investor-owned water companies shown on Schedule HW-2.4. Schedule HW-2.4 shows

18   the size and common equity ratios of all publicly traded water companies that have more

19   than $50.0 million in capitalization.

20

21   Q. **HOW DO YOUR RECOMMENDED CAPITAL STRUCTURE RATIOS COMPARE**

22   **WITH RATIOS EMPLOYED BY THE COMPARABLE COMPANIES?**

1 A. The Company's capital structure ratios are more highly leveraged than the capital

2   structure ratios currently employed by the comparable companies. This is evident by the

3   Company's common equity ratio being less than the 1999 (6/30/99) common equity ratios

4   employed by the comparable group shown below in Table 1. The comparable group is

5   forecasted to increase their common equity ratios during the period 2002-2004 by Value

6   Line Investment Survey. A comparison of the Company's capital structure ratios for

7   MAWC to those recently employed and forecasted to be employed by the comparable

8   companies is shown in Table 1.

9

10   TABLE 1

11   Capital Structure Ratios

12 13 14		MAWC	6/30/99 Water Group	Est. 2003 Water Group
15	Debt	56.3	52.7	49.3
16	Preferred Stock	1.6	1.1	1.6
17	Common Equity	42.1	46.2	49.1
18		100.0	100.0	100.0

19   The details of the Company's capitalization and are shown on Schedule HW-2.3.

20

21 Q. IS THE COMPANY'S TOTAL AMOUNT OF CAPITAL OUTSTANDING

22   EXPECTED TO INCREASE MUCH OVER THE NEXT SEVERAL YEARS?

23 A. Yes. Capital expenditures are estimated to be $29.917 million in 2000, $10.467 million

24   in 2001, $16.755 million in 2002 and $7.651 million in 2003. In total, the Company will

1	need to finance $64.790 million over the next four years (2000-2003), averaging about
2	$16.198 million annually.
3	
4	Historically, over the past five years (1994-1998), the Company's capital program has
5	averaged $13.352 million annually and aggregated $66.759 million. It is necessary that
6	the Company is allowed to present a favorable financial profile to attract the required
7	capital for their planned capital expenditures.
8	

9 **RECOMMENDED EMBEDDED COST RATES**

10

11 **Q. WHAT EMBEDDED COST RATES DO YOU RECOMMEND BE USED TO**
12 **CALCULATE THE COMPANY'S OVERALL RATE OF RETURN?**

13 A. Based upon cost rates provided by the Company in JES-1, I recommend using the

14 Company's embedded cost rates pro forma at April 30, 2000 of 7.22% for long-term debt

15 and 8.82% preferred and preference stock.

16

17 **FINANCIAL ANALYSIS**

18

19 **Q. HAVE YOU REVIEWED HISTORICAL FINANCIAL INFORMATION OF MAWC**
20 **AS PART OF YOUR ANALYSIS?**

21 A. Yes. On page 1 of Schedule HW-2.6, I developed a five-year analysis, ending 1998,

22 detailing various financial ratios for MAWC. On Schedule HW-2.7, I performed a

23 similar analysis for the Water Group. Schedule HW-2.8 reveals the results of operations

1   for a large broad-based group of utilities known as the S&P Utilities for the five years

2   ended 1998. This information is useful in determining relative risk differences between

3   different types of utilities.

4

5   Q. WHAT IS THE SIGNIFICANCE OF THE PERMANENT CAPITAL, REVENUE,

6   AND CONSTRUCTION INFORMATION SHOWN ON SCHEDULES HW-2.6,

7   HW-2.7, AND HW-2.8?

8   A. A comparison of those figures between MAWC and the other groups reveals many

9   important items that I summarize in Table 2. To begin with, a comparison of MAWC's

10   1998 permanent capital, revenue, and construction, show that MAWC is only about 14%

11   of the size of the Water Group, and about 1% of the S&P Utilities. Size is an indicator

12   of risk and is discussed later in my testimony in more detail.

13

14

15

	MAWC	Water Group	S&P Utilities
Permanent Capital	$113.973	$1,055.389	$10,474.312
Revenue	29.223	328.737	8,579.550
Construction	25.455	117.757	851.277
MAWC's Capital	--	10.8%	1.1%
MAWC's Revenue	--	8.9%	0.3%
MAWC's Constr.	--	21.6%	3.0%
% Chng in Capital	20.9%	10.1%	7.7%
% Chng in Revenue	26.2%	6.2%	18.4%
% Chng in Construction	60.5%	9.9%	11.3%
Construction/Capital	22.3%	11.2%	8.1%
Construction/Revenue	87.1%	35.8%	9.9%
Capital/Revenue	$3.90	$3.21	$1.22

TABLE 2

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

17   The average five-year percentage change in capital shows that MAWC's capital base has

18   grown faster than the comparable group. Similarly, MAWC's revenues and capital

19   expenditure program has grown faster than the Value Line Water Group.

20

21   The 1998 construction and capital intensity figures shown in Table 2 show that MAWC's

22   construction program, as a percentage of capital and/or revenue, is greater than the

23   comparable group. MAWC's high capital intensity is shown by comparing capital with

24   revenue. This ratio measures the amount of capital necessary to produce a dollar of

25   revenue. MAWC invests $3.90 of capital to produce each dollar of revenue while the

26   comparable group invest about $3.21 to produce a dollar of revenue. Capital intensity

27   is an indicator of MAWC's greater risk.

28

1   Q. WHAT OTHER INFORMATION IS SHOWN ON SCHEDULES HW-2.6, HW-2.7,

2   AND HW-2.8?

3   A. Comparing the coverage of fixed charges and the various cash flow coverages between

4   MAWC, the Water Group and the S&P Utilities show that the S&P Utilities have

5   experienced a much higher level of coverage than either MAWC, or the comparable

6   group. MAWC's coverages are lower than the comparable group.

7

8   Q. WHAT IS CONCLUDED FROM THE COMPARISON OF ALL THE

9   INFORMATION SHOWN ON SCHEDULES HW-2.6, HW-2.7, AND HW-2.8?

10   A. Taken together, these comparisons show that MAWC is exposed to similar but more risk

11   compared with the comparable group.

12

13   Q. WHAT INFORMATION IS SHOWN ON SCHEDULE HW-2.9?

14   A. Page 1 of Schedule HW-2.9 lists the names, senior debt ratings, common stock rankings,

15   betas and market values of the companies contained in the S&P Utilities and the

16   comparable group. Page 2 of Schedule HW-2.9 shows a comparison of S&P's financial

17   benchmark criteria necessary to obtain an A bond rating for different types of utilities.

18   As a generalization, the higher the perceived business risk, the more stringent the

19   financial criteria so the sum of the two, investment risk and bond rating, remains the

20   same.

21

22   The Water Group's average senior debt ratings and common stock rankings are about the

23   same as the S&P Utilities. The average beta, of the S&P Utilities, 0.58, is higher than

- 14 -

1   the average beta, 0.52, of the Water Group. Beta is a measure of market risk, the higher

2   the beta, the higher the market risk. The market values provide an indication of the

3   relative size of each group. As a generalization, the smaller the average size of a group,

4   the greater the risk.

5

6 **RISK ANALYSIS**

7

8   **Q. PLEASE EXPLAIN THE INFORMATION SHOWN ON SCHEDULE HW-2.10.**

9   A.   Schedule HW-2.10 details the large size difference between MAWC and the Water

10   Group. Company size is an indicator of business risk and is summarized in the Table 3.

11

12

TABLE 3	
Number of Times Smaller Than	
	Water Group
Capitalization	9.7
Revenues	12.3
Water Production	7.7
Customers	7.5

21   As shown in Table 3, MAWC is many times smaller than the Water Group. The size of

22   a company affects risk. A smaller company requires the employment of proportionately

23   less financial leverage (i.e., debt and preferred capital) than a larger company to balance

24   out investment risk.

25

26

1   Q. WHY IS SIZE SIGNIFICANT TO YOUR ANALYSIS?

2   A. The size of a company can be likened to ships on the ocean since a large ship has a much

3   better chance of weathering a storm than a small ship. The loss of a large customer

4   impacts a small company much more than a large company because a large customer of

5   a small company usually accounts for a larger percentage of the small company's sales.

6

7   Moreover, a larger company has a more diverse geographic operation than a smaller

8   company, which enables it to sustain earnings fluctuations caused by abnormal levels of

9   rainfall in one portion of its service territory. A larger company operating in more than

10   one regulatory jurisdiction enjoys "regulatory diversification" which makes it less

11   susceptible to adverse regulatory developments in any single jurisdiction. Further, a

12   larger company with a more diverse customer base is less susceptible to downturns

13   associated with regional economic conditions than a small company. For example, the

14   operations of AWK and United Water Resources, Inc. (UWR), both are part of the Value

15   Line Group, provide water service in 22 states for 1,942,000 customers and 13 states for

16   581,000 customers, respectively. The population of the communities served by AWK are

17   more than 7,000,000 people and 2,000,000 people for UWR. These wide ranging

18   operations provide AWK and UWR shareholders' substantial geographic, economic,

19   regulatory, weather and customer diversification. MAWC provides water service to a

20   population of about 260,000 people and to 94,000 customers.

21

22   The size of a company effecting access to capital markets is also called liquidity risk.

23   Investors require compensation for the lack of marketability and liquidity of their

1   investments. If no compensation is provided, then investors, or at least sophisticated

2   investors, shy away.

3

4   Size plays a role in the composition of investors, and hence liquidity. In 1998 only 30%

5   of the comparable group shares traded, while the larger companies comprising the S&P

6   Utilities had much higher trading volume of 69%. Due to small size and less interest by

7   financial institutions, fewer security analysts follow the comparable companies and none

8   follow MAWC.

9

10   The lack of trading activity may affect the cost of equity estimates for small companies

11   such as MAWC and the comparable group. When stock prices do not change because of

12   inactive trading activity, estimates of dividend yield for use in a dividend cash flow model

13   and beta estimates for use in the capital asset pricing model are effected. In a stock

14   market that is generally up, the beta estimates for the comparable group are understated

15   due to thin trading and the associated lack of stock price change. For example, the

16   monthly closing price for the Water Group remains unchanged about once every 24

17   months. For the larger and more liquid companies, the S&P Utilities, the monthly

18   closing price remains unchanged only about once every 41 months.

19

20   Q.   IS THE IMPACT OF SIZE COMMONLY RECOGNIZED?

1   A.   The National Association of Regulatory Utility Commissioners (NARUC) recognizes that

2   size affects relative business risk.

3   ...Size affects the business risk of water companies because small companies
4   generally have a narrow customer base and a limited geographic market. As
5   a result, smaller companies have less diversity in their markets and may be
6   more severely affected by economic or demographic changes in their service
7   areas. Also because of their relative size, small companies cannot take
8   advantage of certain economies of scale available to larger companies . . .
9   Finally, small companies have less access to capital markets. This is due in
10   part to their perceived riskiness and in part because the transaction costs
11   associated with most financial instruments make raising small amounts of
12   capital relatively expensive.[3]
13

14   Liquidity risk and the existence of the small firm effect relating to business risk of small

15   firms are well-documented in financial literature.[4] Investors' expectations reflect the

16   highly-publicized existence of the small firm effect. For example, many mutual funds

17   classify their investment strategy as small capitalization in an attempt to profit from the

18   existence of the small firm effect. Because firm size plays a role in the pricing of

19   securities in the unregulated financial markets, it is necessary to reflect this fact when

20   determining capital cost rates for utilities. Otherwise, a small utility is at a competitive

21   disadvantage in the money market when competing for capital.

22

23   Q.   **IS THERE ANY SINGLE MEASURE THAT BEST SHOWS INVESTMENT RISK**

24   **FROM A COMMON STOCKHOLDER'S PERSPECTIVE?**

25   A.   No. However, from a creditor's viewpoint, the best measure of investment risk is debt

---

[3]National Association of Regulatory Utility Commissioners, Discussion Papers of Selected Regulatory Issues, April 1992.

[4]Banz, Rolf, W. "The Relationship Between Return and Market Value of Common Stocks," Journal of Financial Economics, 9:3-18 1981.

1	rating. The debt rating process generally provides a good measure of investment risk for
2	common stockholders because the factors considered in the debt rating process are usually
3	relevant factors that a common stock investor would consider in assessing the risk of an
4	investment.
5	
6	Q. WHAT IS THE BOND RATING OF THE COMPARABLE GROUP?
7	A. Page 1 of Schedule HW-2.11 shows the average bond rating for the comparable group.
8	On average, their bonds are rated A. Although MAWC does not have bonds rated,
9	MAWC must present a financial profile similar to the financial profiles of the comparable
10	group and the S&P Utilities with which they must compete for capital. Currently and
11	prospectively, MAWC must present a favorable financial profile to attract the capital
12	infusions necessary to support its capital expenditure program.
13	
14	Q. WHAT ARE SOME FINANCIAL BENCHMARKS APPLIED BY CREDIT
15	RATING AGENCIES FOR RATING PUBLIC UTILITY DEBT?
16	A. The current range of S&P's financial benchmarks for water utilities to attain/maintain
17	debt ratings are shown on page 2 of Schedule HW-2.11.
18	
19	Q. WHAT OTHER INFORMATION IS SHOWN ON SCHEDULE HW-2.11?
20	A. Page 3 of Schedule HW-2.11 summarizes the application of S&P's five measures of
21	financial risk for MAWC and the comparable group. S&P's measures of financial risk
22	are broader than the traditional measure of financial risk, leverage. Besides reviewing
23	amounts of leverage employed, S&P also focuses on earnings protection and cash flow

1   adequacy.

2

3   As is evident from the information shown on page 3 of Schedule HW-2.11, for the five

4   years ended 1998 and for the year 1998, in most instances, MAWC's ratios were below

5   the comparable group. Prospectively, based upon the Company's capital expenditure

6   program, the Company's ratios are likely to worsen. Based solely upon these ratios,

7   MAWC's debt would likely be rated lower than the comparable group.

8

9 Q. YOU STATED THE NECESSITY OF MAWC TO PRESENT A FAVORABLE

10   FINANCIAL PROFILE. AT THIS TIME, DOES MAWC PRESENT A GOOD

11   FINANCIAL PROFILE NECESSARY TO ATTRACT THE LARGE AMOUNT

12   CAPITAL?

13 A. No. Based upon the Company's filed pro forma present rates, Standard & Poor's

14   various financial benchmarks can be calculated for MAWC. The pro forma present rates

15   show: pre-tax interest coverage of 0.9 times, gross cash flow interest coverage of 1.9

16   times, gross cash flow as a percent of average total debt of 6.6% and net cash flow as a

17   percent of capital expenditures of 2.8% presently. MAWC cannot attract the required

18   capital if they maintain financial ratios that are similar to the pro forma present rates

19   ratios.

20

21   In the future, it will be necessary for MAWC to achieve higher returns on equity,

22   decrease leverage, and increase cash flow just to maintain their credit quality as is evident

23

1   by comparing the current benchmarks, shown on page 2, to the actual results of

2   operations of MAWC and the comparable group, shown on page 3.

3

4   S&P has stated:

5   ... low authorized returns may affect the industry's ability to attract
6   necessary capital to develop new water supplies and upgrade the quality of
7   existing supplies . . . Traditional ratemaking policy has not provided
8   sufficient credit support during the construction cycle of the electric industry
9   over the past 15 years. To avoid a repeat in the water industry, regulators
10   must be aware of the increased challenges the industry faces.[5] (Emphasis
11   added)
12

13   Investors will not provide the equity capital necessary for increasing the amount of

14   common equity in a capital structure unless the regulatory authority allows an adequate

15   rate of return on the equity.[6]

16

17 Q. WHAT INFORMATION IS SHOWN ON SCHEDULE HW-2.12?

18 A. Schedule HW-2.12 reviews long-term and short-term interest rate trends. Based upon the

19   settled yields implied in the Treasury Bond future contracts and the long-term and recent

20   trends in spreads between long-term government bonds and public utility bonds rated A

21   available to me at the time my Schedule was prepared in November 1999, I conclude that

22   the market believes that if the comparable group issued new long-term bonds

23   prospectively, they would be priced to yield about 7.9% based upon a credit profile of

---

[5]Standard & Poor's CreditWeek, May 25,1992.

[6]National Association of Regulatory Utility Commissioners, loc. cit.

1   A. Moreover, I believe the market anticipates that long-term government bonds will be

2   priced to yield about 6.0%, prospectively.

3

4   COMMON EQUITY COST RATE ESTIMATE

5

6   Q. WHAT IS THE BEST METHOD OF ESTIMATING COMMON EQUITY COST

7   RATES?

8   A. There is no single method (model) suitable for estimating the cost rate for common

9   equity. While a single investor may rely solely upon one model in evaluating investment

10   opportunities, other investors rely on different models. Most investors who use an equity

11   valuation model rely on many models in evaluating their common equity investment

12   alternatives. Therefore, the average price of an equity security reflects the results of the

13   application of many equity models used by investors in determining their investment

14   decisions.

15

16   The application of any single model to estimate common equity cost rates is not

17   appropriate because the security price for which the equity cost rate is being estimated

18   reflects the application of many models used in the valuation of the investment. That is,

19   the price of any security reflects the collective application of many models. Accordingly,

20   if only one model is used to estimate common equity cost rates, that cost rate will most

21   likely be different from the collective markets cost rates because the collective valuation

22   in the market reflects more than one method.

23

1	Noted financial text, investor organizations and professional societies all endorse the use
2	of more than one valuation method. "We endorse the dividend discount model,
3	particularly when used for establishing companies with consistent earnings power and
4	when used along with other valuation models. It is our view that, in any case, an investor
5	should employ more than one model."[7] (Emphasis added)
6	
7	The American Association of Individual Investors state, "No one area of investment is
8	suitable for all investors and no single method of evaluating investment opportunities has
9	been proven successful all of the time."[8]
10	
11	In their study guide, the National Society of Rate of Return Analysts state, "No cost of
12	equity model or other concept is recommended or emphasized, nor is any procedure for
13	employing any model recommended . . . it remains important to recognize that alternative
14	methods exist and have merit in cost of capital estimation. To this end, analysts should
15	be knowledgeable of a broad spectrum of cost of capital techniques and issues."[9]
16	
17	I likewise believe that several different models are required to be employed to measure
18	more accurately the market-required cost of equity reflected in the price of stock.
19	Therefore, I used three methods including the Discounted Cash Flow or DCF shown on

[7]Sidney Cottle, Rodger F. Murray and Frank E. Block, Graham and Dodd's Securities Analysis 5th Edition, McGraw-Hill, Inc., 1988, p. 568.

[8]Editorial Policy, AAII Journal, American Association of Individual Investors, Volume 18, No. 1, January 1996, p. 1.

[9]David C. Parcell, The Cost of Capital - A Practitioners Guide, National Society of Rate of Return Analysts, 1995 Edition.

1		Schedule HW-2.13, the Capital Asset Pricing Model or CAPM shown on Schedule HW-
2		2.18, and the Risk Premium or RP shown on Schedule HW-2.19.
3		
4	DISCOUNTED CASH FLOW	
5		

6 **Q. PLEASE EXPLAIN THE DISCOUNTED CASH FLOW MODEL.**

7 A. The discounted cash flow model or DCF, is based upon the assumption that the price of

8 a share of stock is equal to a future stream of cash flow to which the holder is entitled.

9 The stream of cash flow is discounted at the investor-required cost rate (cost of capital).

10

11 Although the traditional DCF assumes a stream of cash flow into perpetuity, a

12 termination, or sale price can be calculated at any point in time. Therefore, the return

13 rate to the stockholder consists of cash flow (earnings or dividends) received and the

14 change in the price of a share of stock. The cost of equity is defined as:

15 ...the minimum rate of return that must be earned on equity finance and
16 investments <u>to keep the value of existing common equity unchanged</u>. This
17 return rate is the rate of return that investors expect to receive on the
18 Company's common stock . . . <u>the dividend yield plus the capital gains</u>
19 <u>yield</u> . . . [10](Emphasis added)
20

21 **Q. PLEASE EXPLAIN HOW YOU CALCULATED YOUR DCF SHOWN ON**

22 **SCHEDULE HW-2.13.**

23 A. As shown on page 1 of Schedule HW-2.13, I used the average dividend yield of 3.6% for

24 the Water Group. The individual dividend yields are shown on page 2 of Schedule HW-

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[10]J. Fred Weston and Eugene F. Brigham. <u>Essentials of Managerial Finance</u>, 3rd ed. (The Dryden Press), 1974, p. 504.

1   2.13 and are based upon the most recent months' yield, October 1999, and the twelve-

2   month average yield, ending October 1999. The second input to a DCF calculation is the

3   determination of an appropriate share price growth rate.

4

5   Q. WHAT SOURCES OF GROWTH RATES DID YOU REVIEW?

6   A. I reviewed historical and projected growth rates. Page 1 of Schedule HW-2.14 shows

7   historical growth rates for the comparable companies using two methodologies. The first

8   methodology uses the "Value Line Methodology" of averaging two three-year base

9   periods that are five years apart. The three-year base year averages are then related to

10   each other to determine a compound growth rate. The second method employed in

11   calculating the growth rate used a single period five-year compound growth rate of

12   relating one year's results to an earlier year's results and then calculating the implied

13   compound growth rate.

14

15   Q. PLEASE EXPLAIN THE SOURCES OF THE PROJECTED GROWTH RATES

16   SHOWN ON PAGES 2, 3 AND 4 OF SCHEDULE HW-2.14.

17   A. I relied upon three sources for projected growth rates, Zacks Investment Research, S&P

18   and Value Line.[11]

19

---

[11]Zacks is one of the most comprehensive sources of earnings growth rate projections available in the world. Zacks provides consensus estimates of one and two-year EPS as well as a consensus five-year EPS estimates. S&P's projected EPS growth rates are consensus estimates as well. S&P reports earnings expectations on more than 3,600 stocks compiled from more than 1,700 financial analysts, representing more than 150 individual brokerage firms nationwide. As was the case with Zacks, S&P provides both one-year and two-year EPS consensus estimates and a consensus five-year EPS estimates. It should be noted that neither Zacks nor S&P provides projected DPS estimates. Value Line Investment Survey is the most highly subscribed-to investment advisor. Value Line publishes projected EPS and DPS for one-year and two-year projections and five-year growth projections as well.

1 Q. DID YOU INCLUDE NEGATIVE GROWTH RATES IN YOUR GROWTH RATE

2   SUMMARIES SHOWN ON SCHEDULE HW-2.14?

3 A. Yes, Schedule HW-2.14 summarizes growth rates both including and excluding negative

4   growth rates. Investors are aware that negative growth rates may occur. However, their

5   expectations are not to experience negative growth rates. Investors do not provide capital

6   with the expectation of losing money. Moreover, the use of a negative growth rate in a

7   DCF calculation produces an useless result.

8

9 Q. DID YOU REVIEW ANY OTHER GROWTH RATES THAN THOSE SHOWN ON

10   SCHEDULE HW-2.14?

11 A. Yes. I determined earnings per share or EPS growth rate reflecting changes in return

12   rates on book common equity (ROE) over time. On page 1 of Schedule HW-2.15, I have

13   summarized the impact on EPS and hence ROE as a result of increasing the comparable

14   companies' currently low earnings shown on page 5 of Schedule HW-2.15, to the higher

15   levels projected to be achieved by Value Line. The Value Line projections are shown on

16   Schedule HW-2.15, page 6. ROEs increase when EPS grows at much higher/faster rates

17   than book value. Page 1 of Schedule HW-2.15 illustrates the dramatic effect of

18   increasing EPS and, hence, share price value, occurring when ROEs increase from 10.3%

19   to 12.2% for the Water Group over various holding periods. The shorter the period of

20   time of the increase in EPS and ROE, the higher the share growth. For example, a 7.6%

21   annual growth will occur when the Water Group's ROE increases from the current 10.3%

22   to the projected 12.2% over a five-year period. The EPS growth will be 8.5% if such

23   an increase occurred over a four-year period.

1 Q. DID YOU REVIEW ANY OTHER GROWTH RATES THAN THOSE SHOWN ON

2 SCHEDULES 14 AND 15?

3 A. Yes. I observed Value Line's projected growth in cash flow per share for the comparable

4 group that averaged 5.9%. Cash flow per share is used by investors because it generally

5 mirrors a company's capital additions and hence proves a source of income growth.

6

7 Q. WHAT DO YOU CONCLUDE FROM THE GROWTH RATES YOU HAVE

8 REVIEWED?

9 A. Table 4 summarizes some of the various growth rates reviewed.

10 TABLE 4

Summary of Growth Rates	Water Group
Historical Growth in EPS	6.0
Historical Growth in DPS	2.9
Projected 1 Year Growth in EPS (excluding negatives & zeros)	5.0
Projected 1 Year Growth in EPS & DPS (excluding negatives & zeros)	4.5
Projected 2 Year Growth in EPS (excluding negatives & zeros)	5.6
Projected 2 Year Growth in EPS & DPS (excluding negatives & zeros)	5.1
Projected 5 Year Growth in EPS	5.5
Projected 5 Year Growth in EPS & DPS	4.8
Projected 4 Year Growth in EPS With Increasing ROE	8.5
Projected 5 Year Growth in EPS With Increasing ROE	7.6
Projected 5 Year Growth in EPS	5.9

26 Academic studies suggest that growth rate conclusions should be tested for reasonableness

27 against long-term interest rate levels. Further, the minimum growth rate must at least

28 exceed expected inflation levels. Otherwise, investors would experience decreases in the

29 purchasing power of their investment. The expected growth must be higher than expected

30 inflation levels in order for investors to experience real growth in their investments. On

1   a short-term basis, Blue Chip Financial Forecast (November 1999) and Value Line

2   (September 3, 1999) forecast inflation (CPI) to be in the range of 2.3% to 2.6% and

3   2.2% to 2.7%, respectively, over the next six quarters (ended 1st Qtr. 2001). They also

4   forecast that the U.S. domestic economy will grow in a range of 3.8% to 5.6% and 3.5%

5   to 5.1%, respectively over the short-term.

6

7   **Q. WHAT METHOD DID YOU USE TO ARRIVE AT YOUR GROWTH RATE**

8   **CONCLUSION?**

9   A. No single method is necessarily the correct method of estimating share value growth.

10   However, I believe it is reasonable to assume that investors anticipate that the comparable

11   companies' current ROE will expand to higher levels. Because there is not necessarily

12   any single correct means of estimating share value growth, I considered all of this

13   information in determining a growth rate conclusion for the comparable companies.

14

15   Moreover, while some rate of return practitioners would advocate that mathematical

16   precision should be followed when selecting a growth rate, the fact is that investors, when

17   establishing the market price for a firm, do not behave in the same manner assumed by

18   a constant growth rate DCF model. Rather, investors consider both company-specific

19   variables and overall market sentiment such as inflation rates, interest rates and economic

20   conditions when formulating their capital gains expectations. This is especially true when

21   one considers the relatively meaningless negative growth rates. That is, use of a negative

22   growth rate in a DCF implies that investors invest with the expectation of losing money.

23

1	A comparison of current A-rated public utility bond yields of 8.0% to the result of
2	combing the various growth rates shown in Table 4 with the Water Group's dividend
3	yield of 3.6%, indicates that most growth rates provide an inadequate spread. My risk
4	premium analysis shows that the current premium is at least 450 basis points. Moreover,
5	Value Line's projected returns on common equity for my comparable group of water
6	utilities, for the period 2001 to 2003, average 11.8% to 12.2%. Capital is provided by
7	investors based upon risk and return opportunities. Investors will not provide common
8	equity capital when higher risk-adjusted returns are available. I believe the range of
9	growth rates previously summarized and the comparison to current interest rate levels
10	support the reasonableness of an expected 6.8% growth rate for the Water Group.
11	
12	**Q. WHAT IS YOUR DCF ESTIMATE FOR THE COMPARABLE COMPANIES?**
13	A. The DCF cost rate estimate for the Water Group is 10.5%, as detailed on page 1 of
14	Schedule HW-2.13.
15	
16	**Q. ARE THERE OTHER CONSIDERATIONS THAT SHOULD BE TAKEN INTO**
17	**ACCOUNT IN REVIEWING THE DCF COST RATE ESTIMATE?**
18	A. Yes, it should be noted that although I recommend specific dividend yields for the
19	comparable group, I recommend that less weight be given the resultant DCF cost rate due
20	to the market's current market-to-book ratios and the impact that the market-to-book ratio
21	has on the DCF results. I believe the Water Group's current market-to-book ratios of
22	231% and low dividend yield are being affected by a short-term acquisition frenzy,
23	worldwide market sentiment and not DCF fundamentals.

1

2   Although the DCF cost for common equity appears to be based upon mathematical

3   precision, the derived result does not reflect the reality of the marketplace since the model

4   proceeds from irrational assumptions. The traditional DCF derived cost rate for common

5   equity will continuously understate or overstate investors' return requirements as long as

6   stock prices continually sell above or below book value. A traditional DCF model

7   implicitly assumes that stock price will be driven to book value over time. However,

8   such a proposition is not rational when viewed in the context of an investor purchasing

9   stock above book value. It is not rational to assume that an investor would expect share

10   price to decrease 57% (100% ÷ 231% = 43%-100% = 57%) in value to equal book value.

11

12   Utility stocks do not trade in a vacuum. Utility stock prices, whether they are above or

13   below book value, reflect worldwide market sentiment and are not reflective of only one

14   element.

15

16 Q. WHAT DO YOU MEAN BY YOUR STATEMENT THAT UTILITY STOCKS ARE

17   NOT TRADED IN A VACUUM?

18 A. Utility stocks cannot be viewed solely by themselves. They must be viewed in the

19   context of the market environment. Table 5 summarizes recent market-to-book ratios for

20   well-known measures of market value reported in the November 1, 1999 issue of

21   Barron's and page 5 of Schedule HW-2.15.

22

	TABLE 5	
		M/B Ratios(%)
Dow Jones Industrials		634
Dow Jones Transportation		216
Dow Jones Utilities		250
S&P 500		650
S&P Industrials		856
	Vs.	
Water Group		231

Utility stock investors view their investment decisions compared with other investment alternatives, including those of the various market measures shown in Table 5.

Q. **HOW DOES A TRADITIONAL DCF IMPLICITLY ASSUME THAT MARKET PRICE WILL EQUAL BOOK VALUE?**

A. Under traditional DCF theory, price will equal book value (M/B=1.00) only when a company is earning its cost of capital. Traditional DCF theory maintains that a company is under-earning its cost of capital when the market price is below book value (M/B<1.00), while a company over-earning its cost of capital will have a market price above its book value (M/B>1.00). If this were true, it would imply that the capitalistic free-market is not efficient because the overwhelming majority of stocks would currently be earning more than their cost of capital. Table 5 shows that most stocks sell at an M/B that is greater than 1.0.

Q. **PLEASE EXPLAIN WHY SUCH A PHENOMENON WOULD SHOW THAT THE CAPITALISTIC FREE-MARKET IS NOT EFFICIENT.**

1   A.   Schedule HW-2.16 shows M/Bs, ROE for the S&P Industrials, representing

2   approximately 400 companies, and yields on industrial bonds rated A for the period 1947-

3   1998. (It should be noted that information before 1946 is not available to extend this

4   study to a longer period of time.) The S&P Industrials have only sold at an M/B as low

5   as 1.0 only one time out of the past 52 years. Based upon the traditional DCF

6   assumption, which suggests that companies with M/Bs greater than 1.0 earn more than

7   their cost of capital, this data would suggest that the S&P Industrial companies have

8   earned more than their cost of capital while competing in a competitive environment over

9   the past 52 years. In a competitive market, new companies would continually enter the

10   market up to the point that the earnings rate was at least equal to their cost of capital.

11

12   Q.   **WHAT OTHER INFORMATION IS SHOWN ON SCHEDULE HW-2.16?**

13   A.   From viewing information on page 1 of Schedule HW-2.16, it is apparent that the S&P

14   Industrials have sold at an average M/B of 213.0% while experiencing a ROE of 14.5%

15   over a period in which interest rates averaged 7.2%. It is important to note that the

16   average ROE of 14.5% is relative to a common equity ratio more than 60% for the S&P

17   Industrials over many years.

18

19   Page 2 reveals the same information as that which is shown on page 1, however, it is

20   sorted based upon M/Bs from lowest to highest. A review of this information suggests

21   that M/Bs is not a direct function of interest rate levels. Further, page 2 suggests that

22   M/Bs are not directly related to ROEs. In fact, some of the highest ROEs occurred at a

23   time in which there were the lowest M/Bs and relatively low interest rate levels as well.

1	Page 3 contains similar information, however, it is sorted based upon industrial bond
2	yields from lowest to highest. Again, this information suggests that there is not a direct
3	relationship between M/Bs, ROEs and interest rate levels. However, what this
4	information suggests the spread between ROEs and interest rate levels is highest when
5	interest rates are low and lowest when interest rates are high.
6	
7	Q. WHAT IS THE SIGNIFICANCE OF INDUSTRIAL COMPANIES' M/B AND THE
8	COST OF CAPITAL FOR A WATER UTILITY?
9	A. As stated previously, water utility stocks do not trade in a vacuum. They must compete
10	for capital with other firms including industrial stocks. Over time, there has been a
11	relationship between M/Bs of industrial stocks and water utility stocks. Although
12	industrial stocks have sold at a higher multiple of book value than water utility stocks,
13	both have tracked in similar directions. This is displayed graphically on page 1 of
14	Schedule HW-2.17, where a comparison of M/Bs of the S&P Industrials and the
15	comparable group are shown for the 37-year period 1962-1998. The graph illustrates the
16	strong relationship between the comparable group' M/Bs and industrial companies' M/Bs.
17	Because water utility stocks' and industrial stocks' prices relative to book values' move
18	in similar directions, it is irrational to conclude that stock prices that are different from
19	book value, either above or below, suggests that a firm is over- or under-earning its cost
20	of capital when competitive free-markets exist.
21	
22	Q. DOES THE DCF PROVIDE A REASONABLE ESTIMATE OF THE WATER
23	GROUP'S COMMON EQUITY COST RATE?

1   A.   No, the DCF only provides a reasonable estimate of the Water Group's common equity

2   cost rate when their market price and book value are similar (M/B=100%).[12] A DCF

3   will overstate a common equity cost rate when M/Bs are below 100% and understate

4   when they are above 100%. Since the Water Group's current M/Bs are 231%, the DCF

5   understates their common equity cost rate. Page 2 of Schedule HW-2.17 provides a

6   numerical illustration of the impact of M/Bs on investors' market returns and DCF

7   returns. The reason that DCF understates or overstates investors' return requirements

8   depending upon M/B levels is that a DCF derived equity cost rate is applied to a book

9   value rate base while investors' returns are measured relative to stock price levels.

10

11   Base upon this, I recommend that less weight be given the indicated DCF cost rate.

12

13 **CAPITAL ASSET PRICING MODEL**

14

15   Q. **PLEASE BRIEFLY DESCRIBE THE THEORY OF THE CAPITAL ASSET**

16   **PRICING MODEL.**

17   A.   The CAPM is based upon the assumption that investors hold diversified portfolios and

18   that the market only recognizes or rewards non-diversifiable (or systematic) risk when

19   determining the price of a security because company-specific risk (or non-systematic) is

20   removed through diversification. Further, investors are assumed to be risk-averse and

21   therefore, they require additional or higher returns for assuming additional or higher risk.

---

[12]Roger A Morin, Regulatory Finance - Utilities' Cost of Capital, Public Utility Reports, Inc., 1994, pp. 236-237.

1	This assumption is captured by using a beta that provides an incremental cost of
2	additional risk above the base risk-free rate available to investors. The beta of a security
3	reflects the market risk or systematic risk of the security relative to the market. The beta
4	for the market is always equal to 1.00 and therefore, a company whose stock has a beta
5	greater than 1.00 is considered riskier than the market and a company with a beta less
6	than 1.00 is considered less risky than the market. The base risk-free rate is assumed to
7	be a U.S. Government treasury security because they are free of default risk.
8	
9	Q. **WHAT RISK-FREE RATE AND BETA HAVE YOU USED IN YOUR CAPM**
10	**CALCULATION?**
11	A. The risk-free rate used in CAPM should have approximately the same maturity as the life
12	of the asset for which the cost rate is being determined. Because utility assets are long-
13	lived, a long-term Treasury Bond yield serves as an appropriate proxy. Previously, I
14	estimated an appropriate risk-free rate of 6.0% based upon the recent and forward long-
15	term Treasury yields. I used the average beta of 0.52 for the Water Group as shown on
16	page 1 of Schedule HW-2.9. However, as stated previously, the Water Group's beta is
17	understated due to their small size effecting their stock price change.
18	
19	Q. **AFTER DEVELOPING AN APPROPRIATE BETA AND RISK-FREE RATE,**
20	**WHAT ELSE IS NECESSARY TO CALCULATE A CAPM DERIVED COST**
21	**RATE?**
22	A. A market premium is necessary to determine a traditional CAPM derived cost rate. The
23	market return rate is the return expected for the entire market. The market premium is

1   then multiplied by the company specific beta to capture the incremental cost of additional

2   risk (market premium) above the base risk-free rate (long-term treasury securities) to

3   develop a risk adjusted market premium. For example, if you conclude the expected

4   return on the market as a whole is 15% and further assume that the risk-free rate is 8%,

5   then the market premium is shown to be 7% (15% - 8% = 7%).

6

7   Further, if you assume there are two companies, one of which is considered less risky

8   than the market and therefore has a beta of less than 1.00 or 0.80. The second company,

9   which is considered riskier than the market and therefore has a beta that is greater than

10 1.00 or 1.20. By multiplying the hypothetical 7.0% market premium by the respective

11 betas of 0.80 and 1.20, risk adjusted market premiums of 5.6% (7.0% x 0.80) and 8.4%

12 (7.0% x 1.20) are shown for the company considered less risky than the market and for

13 the company considered more risky than the market, respectively.

14

15 Adding the assumed risk-free rate of 8% to the risk adjusted market premiums results in

16 the CAPM derived cost rates of 13.6% (5.6% + 8.0%) for the less risky company and

17 16.4% (8.4% + 8.0%) for the company considered of greater risk than the market. In

18 fact, the result of this hypothetical CAPM calculation shows that the least risky company,

19 with the beta of 0.80, has a cost rate of 13.6%, the market, with the beta of 1.00, has a

20 cost rate of 15.0% and that the higher risk company, with a beta of 1.20, has a cost rate

21 of 16.4%.

22

23 Q. HOW DID YOU DEVELOP A MARKET PREMIUM FOR YOUR CAPM?

1   A.   The average projected market premium of 9.0% is developed on page 2 of Schedule HW-

2   2.18. It is based upon Value Line's average projected total market return for the next

3   three to five years of 15.0% less the risk free rate of 6.0%. As a check on the

4   reasonableness of the projected market premium, I also reviewed market premiums

5   derived from Ibbotson Associates' most recent publication concerning asset returns that

6   show a market premium of 7.5%. The comparison shows that the Value Line market

7   premium has been on the high side.

8

9   Q.   HOW DID YOU ADJUST FOR THE IMPACT THAT SIZE HAS ON THE WATER

10   GROUP'S BETA?

11   A.   The adjustment is reflected in the CAPM size premium. The CAPM size premium is

12   developed on page 4 of Schedule HW-2.18. The size premium reflects the risks

13   associated with the Water Groups's small size and its impact on the determination of their

14   beta. This adjustment is necessary because beta (systematic risk) does not capture or

15   reflect the Water Group's small size.

16

17   Q.   WHAT IS THE WATER GROUP'S INDICATED COST OF EQUITY BASED

18   UPON YOUR CAPM CALCULATION?

19   A.   The Water Group's CAPM based on projected market returns shows a 12.3% cost rate

20   and the CAPM based on historical market returns shows a 11.3% as shown on page 1 of

21   Schedule HW-2.18. The average of Water Group's CAPM cost rates of 11.8% is very

22   conservative when compared with the recent market expected return of 17.9%. It should

23   be noted that the CAPM derived cost rate may be understated as a result of the Water

1		Group's small size affecting the determination of their beta.
2		
3	**RISK PREMIUM**	
4		
5	Q.	WHAT IS A RISK PREMIUM?
6	A.	A risk premium is the common equity investors' required premium over the long-term
7		debt cost rate for the same company, in recognition of the added risk to which the
8		common stockholder is exposed versus long-term debtholders. Long-term debtholders
9		have a stated contract concerning the receipt of dividend and principal repayment whereas
10		common stock investors do not. Further, long-term debtholders have first claim on assets
11		in case of bankruptcy. A risk premium recognizes the higher risk to which a common
12		stock investor is exposed. The risk premium-derived cost rate for common equity is the
13		simplest form of deriving the cost rate for common equity because it is nothing more than
14		a premium above the prospective level of long-term corporate debt.
15		
16	Q.	WHAT IS THE APPROPRIATE ESTIMATED FUTURE LONG-TERM
17		BORROWING RATE FOR THE COMPARABLE COMPANIES?
18	A.	As previously mentioned, based upon a credit file that supports an A bond rating, the
19		estimated future long-term borrowing rate for the comparable companies is 7.9%.
20		
21	Q.	WHAT IS THE APPROPRIATE RISK PREMIUM TO BE ADDED TO THE
22		FUTURE LONG-TERM BORROWING RATE?
23	A.	To determine a common equity cost rate, it is necessary to estimate a risk premium to be

1   added to the comparable group's prospective long-term debt rate. Investors may rely

2   upon published projected premiums and they also rely upon their experiences of investing

3   in ultimately determining a probabilistic forecasted risk premium.

4

5   Projections of total market returns are shown on page 2 of Schedule HW-2.19. A

6   projected risk premium for the market can be derived by subtracting the debt cost rate

7   from the projected market return as shown on page 2 of Schedule HW-2.19. However,

8   the derived risk premium for the market is not directly applicable to the comparable

9   companies because they are less risky then the market. The use of 70% of the market's

10   risk is a conservative estimation of their level of risk.

11

12   The midpoint of the risk premium range is 5.6% and the average for the past twelve

13   months are 5.1%. This suggests that a reasonable estimate of a longer term projected risk

14   premiums is 5.3%.

15

16   Q. HOW DO INVESTORS' EXPERIENCES AFFECT THEIR DETERMINATION OF

17   A RISK PREMIUM?

18   A. Returns on various assets are studied to determine a probabilistic risk premium. The

19   most noted asset return studies and resultant risk premium studies are those performed

20   by Ibbotson Associates. However, Ibbotson Associates has not performed asset return

21   studies concerning public utility common stocks. Based upon Ibbotson Associates'

22   methodology of computing asset returns, I calculated annual returns for the S&P utilities

23   and bonds for the period 1928-98. The resultant annual returns were then compared to

1   determine a recent risk premium from a ten year period, 1989-98, and a recent twenty

2   year period, 1979-98.

3

4   A long-term analysis of rates of return is necessary because it assumes that investors'

5   expectations are, on average, equal to realized long-run rates of return and resultant risk

6   premium. Observing a single year's risk premium, either high or low, may not be

7   consistent with investors' requirements.　Studies show a mean reversion in risk

8   premiums.　In other words, over time, risk premiums revert to a longer-term average

9   premium.　The expected rate of return is defined as "the rate of return expected to be

10   realized from an investment; the mean value of the probability distribution of possible

11   results."[13]

12

13   Q. **WHAT DO YOU CONCLUDE FROM THE INFORMATION SHOWN ON PAGE**

14   **3 OF SCHEDULE HW-2.19?**

15   A. The absolute range of the S&P Utilities' appropriate average risk premium was 4.8% to

16   5.1% during the 1979-98 period and the credit quality differences during this period was

17   4.8%. The absolute range of their average risk premium fell to 3.1% to 3.9% during the

18   1989-98 period and the range during this period resulting from credit quality differences

19   was 3.1% to 3.8%, as shown on page 3 of Schedule HW-2.19. The appropriate average

20   longer term risk premiums, 1928-98, have an absolute range of 4.7% to 5.2% and the

21   range resulting from credit quality differences was also 4.7% to 5.2%.

---

[13]Eugene F. Brigham, _Fundamentals of Financial Management_, Fifth Edition, The Dryden Press, 1989, p. 106.

1

2   The S&P Utilities' appropriate average risk premium was 4.9% throughout the 1979-98

3   period and 3.7% throughout the 1989-98 period. These average risk premium from 1928

4   to 1998 was 5.0%. Based upon a reasonable probability distribution of return rates, I

5   believe that investors give the recent twenty year results more weight than those from the

6   most recent ten years. I base this upon the information shown on page 4 of Schedule

7   HW-2.19.

8

9   Risk premiums are mean reverting. They constantly move toward a long-term average.

10   That is, an above average risk premium will decrease toward a long-term average while

11   a below average risk premium will increase toward a long-term average. In any single

12   year, of course, investor-required rates of return may not be realized and in certain

13   instances, a single years' risk premiums may be negative. Negative risk premiums are

14   not indicative of investors' expectations and violate the basic premise of finance

15   concerning risk and return. Negative risk premiums usually occur only in the stock

16   market's down years, i.e., the years in which the stock markets' return was negative.

17

18   A resultant negative risk premium only occurs 32% of the time or about one out of every

19   three years. However, excluding the stock market's down years, the probability of a

20   resultant negative risk premium occurring is only 13% or about one every eight years.

21   During the last ten years, 1989 to 1998, a resultant negative risk premium occurred 50%

22   (5 out of 10 years) of the years or almost twice its probabilistic occurrence. Removing

23   the down year of the stock market, 1994, a resultant negative risk premium occurred 44%

| 1 | of the years or more than three times its probabilistic occurrence (44% ÷ 13% = 3x). |

1   of the years or more than three times its probabilistic occurrence (44% ÷ 13% = 3x).

2   Clearly, the risk premium results from the last ten-year period, 1989-98, shown on page

3   3 of Schedule HW-2.19 do not reflect investors probabilistic forecasted risk premium for

4   the future.

5

6   Therefore, based upon a reasonable probability distribution of risk premiums, I believe

7   that investors would give the recent twenty year results of 4.8% to 5.1%, more weight

8   than those from the most recent ten years. Based upon the published projected risk

9   premium and the probabilistic forecasted risk premium, I believe a reasonable estimate

10   of investors risk premium is 4.5%. Adding the risk premium of 4.5% for the comparable

11   group to the prospective cost of newly-issued long-term debt of 7.9% results in a risk

12   premium derived cost rate for common equity of 12.4% as is shown on page 1 of

13   Schedule HW-2.19. The risk premium derived cost rate for common equity of 12.4% is

14   conservative when compared with Value Line's 17.9% projected total market return for

15   the 1,700 stocks covered by Value Line.

16

17   **SUMMARY OF COMMON EQUITY COST RATE**

18

19   Q. WHAT IS YOUR COMPARABLE GROUP' COMMON EQUITY COST RATE?

20   A. Based upon the results of the models employed, the Water Group's common equity cost

21   rate is in the range of 10.5% to 12.4% as shown on Schedule HW-2.2. Based upon the

22   range of these data, I believe the common equity cost rate for the comparable companies

23   is at least 11.4%.

1 Q. DO YOU RECOMMEND A COST OF COMMON EQUITY OF 11.4% FOR

2   MAWC?

3 A. No, MAWC's cost rate must be adjusted to reflect the risk differences of MAWC versus

4   the comparable group. Based upon the financial analysis and risk analysis I conclude that

5   MAWC is exposed to greater investment risk than the comparable group.

6

7 Q. HOW DO YOU REFLECT THE INVESTMENT RISK DIFFERENCE BETWEEN

8   MAWC AND THE COMPARABLE GROUP?

9 A. The direction of the investment risk adjustment on common equity cost rates is clearly

10   known. A specific quantification of risk differences can be difficult.   However, based

11   upon the large size difference of MAWC versus the comparable companies, I believe that

12   MAWC would have at best, a BBB bond rating.

13

14   MAWC could not command an A bond rating, given its size, liquidity considerations, and

15   given the lack of diversity in geographic area served versus the comparable companies.

16   A BBB bond rating is one bond rating lower than the A rating of the comparable

17   companies.   The difference in bond rating between MAWC and the comparable

18   companies suggests a 30-basis points difference in long-term debt cost rates based upon

19   the yield spread of A and BBB rated debt.

20

21   MAWC's pro forma common equity ratio at 4/30/2000 of 42.1% is below the Water

22   Group's average historical ratio of 46.2% (6/30/1999) and below their average projected

23   ratio of 49.1% (for the year 2003), indicating greater financial risk for MAWC.

1	Financial studies[14] have found that the average change in common equity cost rate is 12-
2	basis points per percentage point change in common equity ratios between 40% and 50%
3	equity ratios. Further, the change at the upper end of the common equity ratio range,
4	49% to 50%, was 7-basis points and 15-basis points at the lower end of the common
5	equity ratio range, 41% to 40%. Therefore, the difference in equity ratio shows a risk
6	adjustment in the range of 29 to 105 basis points.
7	
8	Based upon these factors, I believe it is reasonable to adjust the comparable group
9	common equity cost rate by 30-basis points to reflect the implicit bond rating difference
10	(30-basis points) and the difference in common equity ratio (29 to 105-basis points). A
11	30-basis point spread between MAWC and the comparable companies is very
12	conservative when compared with a 200-basis point size premium suggested by Ibbotson
13	Associates. Adding the 0.3% risk adjustment to the various results of the three models
14	employed shows a current range of common equity cost for MAWC of 10.8% (DCF) to
15	12.7% (RP) with a mid-range estimate of 12.1% (CAPM) as shown in Table 6.

TABLE 6

Summary of MAWC's Equity Cost

Rates

DCF	10.8
CAPM	12.1
RP	12.7

[14]Eugene F. Brigham, Louis C. Gapenski, and Dana A. Aberwald, "Capital Structure, Cost of Capital. and Revenue Requirements," Public Utilities Fortnightly, 8 January 1987, pp. 15-24.

1 Q. WHAT IS YOUR COMMON EQUITY COST RATE RECOMMENDATION FOR

2 MAWC?

3 A. As shown on Schedule HW-2.2, I recommend a 11.654% common equity cost rate for

4 MAWC. It should be noted that my recommended common equity cost rate for MAWC

5 is related to the Company's pro forma capital structure ratios that include 41.96%

6 common equity.

7

8 Q. HAVE YOU CHECKED THE REASONABLENESS OF YOUR RECOMMENDED

9 COMMON EQUITY RATE FOR MAWC?

10 A. Yes. On page 6 of Schedule HW-2.15 the average projected return on average book

11 common equity for the comparable group for the period 2002-2004 is shown to be 11.8%

12 to 12.2%. Therefore, an opportunity for MAWC to earn 11.654% on the portion of its

13 rate base financed with common equity capital is conservative.

14

15 OVERALL RATE OF RETURN RECOMMENDATION

16

17 Q. WHAT IS YOUR OVERALL FAIR RATE OF RETURN RECOMMENDATION

18 FOR MAWC?

19 A. Based upon my recommended capital structure and my estimates of MAWC's capital cost

20 rates, I recommend that an overall fair rate of return of 9.11%. The details of my

21 recommendation are shown on Schedule HW-2.1.

22

23 Q. HAVE YOU TESTED THE REASONABLENESS OF YOUR OVERALL FAIR

1   RATE OF RETURN RECOMMENDATION?

2   A. Yes. A comparison of the results of my recommend overall rate of return to S&P's

3   financial benchmarks for water utilities and pro forma present rates are shown in Table

4   7.

5

TABLE 7			
	Recommendation	S&P Criteria for A Rating	Pro Forma Present Rates
Pre-Tax Coverage(x)	3.0	3.00	0.9
Debt/ Capital (%)	56.3	52.00	56.3
Cash Flow:			
Interest Coverage (x)	3.2	3.25	1.9
Total Debt (%)	16.2	21.00	6.6
Capital Expenditures (%)	61.5	75.00	2.8

19   As shown in Table 7, if my recommendation is actually earned, it will give MAWC

20   financial benchmark ratios that are much closer to those published by S&P for an A Bond

21   rating while allowing an improvement over MAWC' current pro forma present rates

22   ratios. I believe it is necessary that MAWC be allowed to present a financial profile that

23   will enable it to attract the large amount of capital necessary to provide safe and reliable

24   water service, at reasonable terms.

25

26   Q. **DO YOU BELIEVE THAT MAWC CAN EXPERIENCE THE BENCHMARK**

27   **RATIOS THAT YOU HAVE CALCULATED?**

28   A. No. As previously stated, MAWC requires about $64.790 million of additional or new

29   capital over the next several years, 2000-2003. This represents an 38% ($64.790 million

1   ÷ $170.068 million) increase and/or turnover of ratemaking related capital.

2   Accordingly, prospectively, MAWC will most likely experience attrition and therefore

3   will not earn its cost of capital.

4

5   **Q. DOES THAT CONCLUDE YOUR TESTIMONY?**

6   A. Yes, it does.

SCHEDULE HW-1

Professional Qualifications
of
Harold Walker, III
Manager, Financial Studies
Gannett Fleming Valuation and Rate Consultants, Inc.

EDUCATION

Mr. Walker graduated from Pennsylvania State University in 1984 with a Bachelor of Science Degree in Finance. His studies concentrated on securities analysis and portfolio management with an emphasis on economics and quantitative business analysis. He has also completed the regulation and the rate-making process courses presented by the College of Business Administration and Economics Center for Public Utilities at New Mexico State University. Additionally, he has attended programs presented by The Institute of Chartered Financial Analysts (CFA).

Mr. Walker was awarded the professional designation "Certified Rate of Return Analyst" (CRRA) by the Society of Utility and Regulatory Financial Analysts. This designation is based upon education, experience and the successful completion of a comprehensive examination. He is also a member of the Society of Utility and Regulatory Financial Analysts (SURFA) and has attended numerous financial forums sponsored by the Society. The SURFA forums are recognized by the Association for Investment Management and Research (AIMR) and the National Association of State Boards of Accountancy for continuing education credits.

BUSINESS EXPERIENCE

Prior to joining Gannett Fleming Valuation and Rate Consultants, Mr. Walker was employed by AUS Consultants - Utility Services. He held various positions during his eleven years with AUS, concluding his employment there as a Vice President. His duties included providing and supervising financial and economic studies on behalf of investor owned and municipally owned water, waste water, electric, natural gas distribution and transmission, oil pipeline and telephone utilities as well as resource recovery companies.

In 1996, Mr. Walker joined Gannett Fleming Valuation and Rate Consultants. In his capacity as Manager, Financial Studies and for the past fifteen years, he has continuously studied rates of return requirements for regulated firms. In this regard, he supervised the preparation of rate of return studies in connection with his testimony and in the past, for other individuals. He also assisted and/or developed dividend policy studies, nuclear prudence studies, calculated fixed charge rates for avoided costs involving cogeneration projects, financial decision studies for capital budgeting purposes and developed financial models for determining future capital requirements

and the effect of those requirements on investors and ratepayers, valued utility property and common stock for acquisition and divestiture, and assisted in the private placement of fixed capital securities for public utilities.

Mr. Walker was also the Publisher of C.A. Turner Utility Reports from 1988 to 1996. C.A. Turner Utility Reports is a financial publication which provides financial data and related ratios and forecasts covering the utility industry. From 1993 to 1994, he became a contributing author for the Fortnightly, a utility trade journal. His column was the Financial News column and focused mainly on the natural gas industry.

In 1996, Mr. Walker was elected to the Board of Directors of the Society of Utility and Regulatory Financial Analysts.

EXPERT TESTIMONY

Mr. Walker has submitted testimony before twelve state public utility commissions including: Colorado, Connecticut, Delaware, Indiana, Michigan, New Hampshire, New Jersey, New York, Oklahoma, Pennsylvania, Vermont and West Virginia. His testimonies covered various subjects including: appropriate capital structure and fixed capital cost rates, fair rate of return, synchronization of interest charges for income tax purposes, fair value and cash working capital. The following tabulation provides a listing of the electric power, natural gas distribution, telephone, wastewater, and water service utility cases in which he has been involved as a witness. Additionally, he has been involved in a number of rate proceedings involving small public utilities which were resolved by Option Orders and therefore, are not listed below.

Client	Docket No.
Alpena Power Company	U-10020
Armstrong Telephone Company - Northern Division	92-0884-T-42T
Armstrong Telephone Company - Northern Division	95-0571-T-42T
Artesian Water Company, Inc.	90-10
Connecticut-American Water Company	99-08-32
Citizens Utilities Company Colorado Gas Division	-
Citizens Utilities Company Vermont Electric Division	5426
Citizens Utilities Home Water Company	R-901664

Continued:

Client	Docket No.
Citizens Utilities Water Company of Pennsylvania	R-901663
City of Bethlehem - Bureau of Water	R-00984375
City of Lancaster Water Fund	R-00984567
Consumers Pennsylvania Water Company Roaring Creek Division	R-00973869
Consumers Pennsylvania Water Company Shenango Valley Division	R-00973972
Country Knolls Water Works, Inc.	90-W-0458
Hampton Water Works Company	DW 99-057
Indian Rock Water Company	R-911971
Indiana Natural Gas Corporation	38891
Jamaica Water Supply Company	-
Middlesex Water Company	WR-89030266J
New Jersey-American Water Company	WR-89080702J
New Jersey-American Water Company	WR-90090950J
Newtown Artesian Water Company	R-911977
Newtown Artesian Water Company	R-00943157
Northern Indiana Fuel & Light Company	38770
Oklahoma Natural Gas Company	PUD-940000477
Pennsylvania Gas & Water Company (Gas)	R-891261
Pennsylvania Gas & Water Co. (Water)	R-901726
Pennsylvania Gas & Water Co. (Water)	R-911966
Pennsylvania Gas & Water Co. (Water)	R-22404
Pennsylvania Gas & Water Co. (Water)	R-00922482
Pennsylvania Gas & Water Co. (Water)	R-00932667
Presque Isle Harbor Water Company	U-9702
United Water New Rochelle	W-95-W-1168
United Water Toms River	WR-95050219
Wilmington Suburban Water Corporation	94-149
York Water Company	R-901813
York Water Company	R-922168
York Water Company	R-943053
York Water Company	R-963619
York Water Company	R-994605

RATE OF RETURN

SCHEDULES

TO ACCOMPANY THE

DIRECT TESTIMONY

OF HAROLD WALKER, III

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

NOVEMBER 19, 1999

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, INC.

HARRISBURG, PENNSYLVANIA

Missouri-American Water Company
Cost of Capital and Fair Rate of Return
Pro Froma at April 30, 2000

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	56.10 %	7.22 %	4.05 %
Preferred & Preference Stock	1.64	8.82	0.14
Common Equity	41.96	11.654	4.89
Investment Tax Credit	0.30	9.11	0.03
Overall Cost of Capital	100.00 %		9.11 %

Before Income Tax Interest Coverage
(Based on effective income tax rate of 37.00%)   3.0 x

Debt / Total Capital   56.3 %

Gross Cash Flow Interest Coverage   3.2 x
(From page 2 of this Schedule)

Gross Cash Flow / Total Debt   16.2 %
(From page 2 of this Schedule)

Net Cash Flow / Capital Expenditures   61.5 %
(From page 2 of this Schedule)

Source of Information: JES-1 and Company provided data

Missouri-American Water Company
Funds Flow Ratio Test of Recommended
Cost of Capital and Fair Rate of Return
Pro Forma at April 30, 2000

Line No.		($ 000's)	Cash Flow ($ 000's)	Funds Flow Ratios
1 .	Rate Base Value	$177,163		
2 .	Weighted Traditional Debt Component	4.06 %		
3 .	Weighted Traditional Equity Components	5.07 %		
4 .	Net Income (ln 1 x ln 3)		$8,974	
	Expenses Not Requiring Cash Outlays:			
5 .	Depreciation		5,697	
6 .	Amortization		284	
7 .	Deferred Income Taxes		1,214	
8 .	Investment Tax Credits		(35)	
9 .	Gross Cash Flow		16,134	
10 .	Less:			
	Preferred Stock Dividends(1)		242	
	Common Dividends(1)		5,931	
11 .	Net Cash Flow		$9,961	
12 .	Interest Charges (ln 1 x ln 2)		$7,197	
13 .	Gross Construction(2)		$16,198	
14 .	Rate Base Related Debt(3)		$99,688	
15 .	Funds From Operations Interest Coverage			
16 .	((ln 9 + ln 12) / ln 12)			3.2 x
17 .	Funds From Operations / Total Debt			
18 .	(ln 9 / ln 14)			16.2 %
19 .	Net Cash Flow / Capital Expenditures			
20 .	(ln 11 / ln 13)			61.5 %

Notes: (1) Average estimated dividends for 2000 - 2003.
      (2) Average estimated construction for 2000 - 2003.
      (3) The traditional debt ratio (from Schedule 3) times the rate base claim (ln 1).

Missouri-American Water Company
Common Equity Cost Rate Summary

	Value Line Water Group		
	DCF(1)	CAPM(2)	RP(3)
Common Equity Cost Rate Range	10.5 %	11.8 %	12.4 %
Investment Risk Adjustment(4)	0.3	0.3	0.3
Adjusted Common Equity Cost Rate Range Applicable to Missouri-American Water Company	10.8	12.1	12.7
Recommendation for Missouri-American Water Company (5)		11.7 %	
Check of Reasonableness of Common Equity Cost Rate(6)		11.8 % to 12.2 %	

Notes: (1) From Schedule 13.
(2) From Schedule 18.
(3) From Schedule 19.
(4) As explained in the Direct Testimony
(5) As explained in the Direct Testimony, the recommendation is only applicable to a conventional common equity ratio of 42.1%.
(6) See page 6 of Schedule 15.

Missouri-American Water Company
Capitalization, Capitalization Ratios and Ratemaking Ratios
Pro Forma at April 30, 2000

	Capital	Ratios	Ratemaking Ratios
Long-Term Debt	$95,409,103	56.27 %	56.10 %
Preferred & Preference Stock	2,794,516	1.65	1.64
Common Equity	71,355,391	42.08	41.96
Permanent Capital	169,559,010	100.00 %	
Investment Tax Credit	509,460		0.30
Total Capital	$170,068,470		100.00 %

Source of Information: JES-1

Size and Common Equity Ratios of
Publicly Traded Water Companies With
More Than $50 Million Of Capitalization

Company Name	Ticker	Recent Market Value ($ Million)	Recent Market Capitalization ($ Million)	Year-end Equity Ratio Based on Permanent Capital	Year-end Equity Ratio Based on Total Capital	Year-end Permanent Capital ($ Million)	Regional Grouping	Rank of Market Capitalization	Size Grouping
American States Water Co	AWR	307.371	481.054	55.6	48.9	277.328	West	7	2
American Water Works Inc	AWK	2,817.178	5,459.268	36.7	35.3	3,495.595	National	1	1
Aquarion Co	WTR	413.781	568.655	49.2	47.6	298.220	East	5	2
Artesian Resources	ARTNA	49.302	93.139	45.7	40.1	60.529	East	12	3
California Water Service Gp	CWT	365.951	525.771	54.3	50.3	310.864	West	6	2
Connecticut Water Svc Inc	CTWS	141.296	209.271	47.8	47.0	121.249	East	10	2
E'Town Corp	ETW	394.940	746.879	43.2	39.1	526.637	East	4	1
Middlesex Water Co	MSEX	152.489	238.565	44.5	44.2	149.829	East	9	2
Pennichuck Corp	PNNW	45.413	73.652	47.1	47.0	53.310	East	14	3
Philadelphia Suburban Corp	PSC	939.895	1,424.443	46.4	45.7	499.037	National	3	1
SJW Corp	SJW	357.026	449.926	61.4	61.4	233.149	West	8	2
Southwest Water Co	SWWC	89.416	124.698	49.3	48.2	70.222	West	11	3
United Water Resources	UWR	1,308.994	2,146.234	40.6	37.5	1,201.980	National	2	1
York Water Co	3YORW	53.303	85.812	48.7	48.7	62.380	East	13	3
Average - All Cos.		531.168	901.955	47.9	45.8	525.738			
Average - Eastern Cos.		178.646	287.996	46.6	44.8	181.736			
Average - National Cos.		1,688.689	3,009.982	41.2	39.5	1,732.204			
Average - Western Cos.		279.941	395.362	55.2	52.2	222.891			
Average - Largest 4 Cos.		1,365.252	2,444.206	41.7	39.4	1,430.812			
Average - Middle 5 Cos.		289.652	412.207	52.2	49.9	231.773			
Average - Smallest 5 Cos.		59.358	94.325	47.7	46.0	61.610			

Capital Structure Ratios for the
Value Line Water Group
For 1999, Estimated for 2000 and 2003

	1999(1)	Est.(2) 2000	Est.(3) 2003
Value Line Water Group			
Long-term debt	52.7 %	52.0 %	49.3 %
Preferred stock	1.1	1.7	1.6
Common equity	46.2	46.3	49.1
Total	100.0 %	100.0 %	100.0 %

Notes: (1) At 6/30/99
(2) Project by Value Line for 2000.
(3) Project by Value Line for the period 2002 to 2004.

Source of Information: Value Line Investment Survey, November 5, 1999
S&P and Quarterly Reports

Missouri-American Water Company
Five Year Analysis
1994-1998 (1)

Ln #		1998	1997	1996	1995	1994	Average Ann. Chg(%)	Average Central Values(9)
				(Millions of $)				
	Investor Provided Capital($)							
1	Permanent Capital	113.973	85.528	74.574	68.676	54.029	20.9	
2	Short-Term Debt	2.534	6.987	4.415	0.630	0.000		
3	Total Capital	116.507	92.515	78.989	69.306	54.029	21.3	
4	Total Revenue($)	29.223	27.002	25.940	23.404	12.883	26.2	
5	Construction($)	25.455	17.606	13.318	6.282	4.098	60.5	

Ln #		1998	1997	1996	1995	1994	Five Year Average	Average Central Values(9)
6	Effective Income Tax Rate(%)	39.3	39.5	35.8	35.8	22.5	34.6	37.0
	Capitalization Ratios(%)							
7	Long-Term Debt	57.4	55.9	54.1	56.6	50.5	54.9	55.5
8	Preferred Stock	2.5	3.3	3.8	4.2	4.8	3.7	3.8
9	Common Equity	40.1	40.8	42.1	39.2	44.7	41.4	41.0
	Total	100.0	100.0	100.0	100.0	100.0		
10	Total Debt	58.4	59.2	56.7	57.0	50.5	56.4	57.4
11	Preferred Stock	2.3	3.0	3.5	4.1	4.8	3.5	3.5
12	Common Equity	39.3	37.8	39.8	38.9	44.7	40.1	39.3
	Total	100.0	100.0	100.0	100.0	100.0		
	Rates on Average Capital(2)(%)							
13	Total Debt	6.8	7.4	7.6	9.3	6.3	7.5	7.3
14	Long-Term Debt	6.5	7.6	7.8	9.1	8.8	8.0	8.1
15	Preferred Stock	8.8	8.8	8.8	9.2	9.0	8.9	8.9
	Coverage - Including AFC(3)(x)							
16	PreTax Interest	2.8	2.6	2.8	2.3	2.3	2.6	2.6
17	PreTax Interest + Pref. Div	2.6	2.5	2.6	2.1	2.1	2.4	2.4
18	PostTax Interest + Pref. Div	2.0	1.9	2.0	1.7	1.8	1.9	1.9
	Coverage - Excluding AFC(3)(x)							
19	PreTax Interest	2.4	2.3	2.7	2.2	2.3	2.4	2.3
20	PreTax Interest + Pref. Div	2.3	2.2	2.5	2.0	2.1	2.2	2.2
21	PostTax Interest + Pref. Div	1.6	1.6	1.9	1.6	1.8	1.7	1.7
22	GCF / Interest Coverage(4)(x)	3.0	2.9	3.0	2.4	3.2	2.9	3.0
23	Coverage of Common Dividends(5)(x)	2.6	2.5	2.5	2.3	3.6	2.7	2.5
24	Construction / Avg. Tot. Capital(%)	24.4	20.5	18.0	10.2	7.6	16.1	16.2
25	NCF / Construction(6)(%)	19.2	23.1	27.8	37.4	75.3	36.6	29.4
26	AFC / Income for Common Stock	34.7	33.7	15.9	6.3	4.5	19.0	18.6
27	GCF / Avg. Tot. Debt(7)(%)	13.3	14.2	15.4	13.1	13.8	14.0	13.8
28	GCF / Permanent Capital(8)(%)	7.1	8.3	8.7	6.4	8.3	7.8	7.9

See page 2 of this Schedule for notes.

Missouri-American Water Company
Five Year Analysis
1994-1998

Notes:

(1)   Based upon the financials as originally reported.

(2)   Computed by relating total debt interest, long-term debt interest and preferred dividend expense to average of beginning and ending balance of the respective capital outstanding.

(3)   The coverage calculations, both including and excluding AFC, represent the number of times available earnings cover the various fixed charges. It should be noted that the pretax coverage including preferred dividends has been grossed up for the income tax paid on the preferred dividends.

(4)   GCF or gross cash flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less AFC), plus interest charges, divided by interest charges.

(5)   GCF (see note 4) less all preferred dividends which cover common dividends.

(6)   The percent of GCF (see note 4) less all cash dividends which cover gross construction expenditures.

(7)   GCF (see note 4) as a percentage of Permanent Capital (long-term debt, current maturities and preferred, preference and common equity).

(8)   GCF (see note 4) as a percentage of average total debt.

(9)   Average of the second, third and fourth quintile values.

Source of Information: Annual Reports

Value Line Water Group
Five Year Analysis
1994-1998 (1)

Ln #		1998	1997	1996	1995	1994	Average Ann. Chg(%)	
				(Millions of $)				
	Investor Provided Capital($)							
1	Permanent Capital	1,055.389	959.785	900.177	778.292	720.157	10.1	
2	Short-Term Debt	56.260	50.852	74.147	51.419	46.975		
3	Total Capital	1,111.649	1,010.637	974.324	829.711	767.132	9.8	
4	Total Revenue($)	328.737	313.005	289.475	273.230	258.858	6.2	
5	Construction($)	117.757	95.093	91.407	99.837	83.179	9.9	

Ln #		1998	1997	1996	1995	1994	Five Year Average	Average Central Values(9)
6	Effective Income Tax Rate(%)	36.5	38.6	38.1	39.0	39.6	38.4	38.6
	Capitalization Ratios(%)							
7	Long-Term Debt	53.6	54.0	54.1	53.6	51.8	53.4	53.7
8	Preferred Stock	1.3	1.5	1.7	1.7	1.8	1.6	1.6
9	Common Equity	45.1	44.5	44.2	44.7	46.4	45.0	44.8
	Total	100.0	100.0	100.0	100.0	100.0		
10	Total Debt	54.8	55.6	55.6	54.7	52.9	54.7	55.0
11	Preferred Stock	2.6	2.0	3.6	2.7	2.7	2.7	2.7
12	Common Equity	42.6	42.4	40.8	42.6	44.4	42.6	42.5
	Total	100.0	100.0	100.0	100.0	100.0		
	Rates on Average Capital(2)(%)							
13	Total Debt	7.0	7.1	7.2	7.7	7.9	7.4	7.3
14	Long-Term Debt	7.0	7.4	7.7	7.4	7.9	7.5	7.5
15	Preferred Stock	6.2	6.2	5.0	6.2	7.2	6.2	6.2
	Coverage - Including AFC(3)(x)							
16	PreTax Interest	3.1	3.0	2.9	2.7	2.8	2.9	2.9
17	PreTax Interest + Pref. Div	3.1	2.9	2.8	2.7	2.8	2.9	2.8
18	PostTax Interest + Pref. Div	2.3	2.2	2.1	2.0	2.0	2.1	2.1
	Coverage - Excluding AFC(3)(x)							
19	PreTax Interest	3.1	2.9	2.8	2.6	2.8	2.8	2.8
20	PreTax Interest + Pref. Div	3.1	2.9	2.7	2.6	2.7	2.8	2.8
21	PostTax Interest + Pref. Div	2.3	2.1	2.0	1.9	2.0	2.1	2.0
22	GCF / Interest Coverage(4)(x)	3.2	3.0	2.9	2.8	2.9	3.0	2.9
23	Coverage of Common Dividends(5)(x)	2.6	2.5	2.3	2.1	2.3	2.4	2.4
24	Construction / Avg. Tot. Capital(%)	11.2	9.0	12.1	13.9	11.8	11.6	11.7
25	NCF / Construction(6)(%)	50.8	49.9	35.2	27.9	40.2	40.8	41.8
26	AFC / Income for Common Stock	2.1	4.8	9.4	11.8	7.6	7.1	7.3
27	GCF / Avg. Tot. Debt(7)(%)	15.6	14.6	13.6	13.8	14.6	14.4	14.3
28	GCF / Permanent Capital(8)(%)	8.6	8.2	7.5	7.2	7.6	7.8	7.8

See page 2 of this Schedule for notes.

Value Line Water Group
Five Year Analysis
1994-1998

Notes:

(1) Average of the achieved results for each individual company based upon the financials as originally reported.

(2) Computed by relating total debt interest, long-term debt interest and preferred dividend expense to average of beginning and ending balance of the respective capital outstanding.

(3) The coverage calculations, both including and excluding AFC, represent the number of times available earnings cover the various fixed charges. It should be noted that the pretax coverage including preferred dividends has been grossed up for the income tax paid on the preferred dividends.

(4) GCF or gross cash flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less AFC), plus interest charges, divided by interest charges.

(5) GCF (see note 4) less all preferred dividends which cover common dividends.

(6) The percent of GCF (see note 4) less all cash dividends which cover gross construction expenditures.

(7) GCF (see note 4) as a percentage of Permanent Capital (long-term debt, current maturities and preferred, preference and common equity).

(8) GCF (see note 4) as a percentage of average total debt.

(9) Average of the second, third and fourth quintile values.

Source of Information: Standard & Poor's, Moody's and Annual Reports

S&P Utilities
Five Year Analysis
1994-1998 (1)

Ln #		1998	1997	1996	1995	1994	Average Ann. Chg(%)	
				(Millions of $)				
	Investor Provided Capital($)							
1	Permanent Capital	10,474.312	9,649.418	7,917.916	8,055.819	7,886.265	7.7	
2	Short-Term Debt	957.457	698.751	507.452	482.337	431.904		
3	Total Capital	11,431.770	10,348.169	8,425.368	8,538.156	8,318.168	8.7	
4	Total Revenue($)	8,579.550	6,955.310	4,999.746	4,541.817	4,491.406	18.4	
5	Construction($)	851.277	719.734	514.748	561.476	589.237	11.3	

Ln #		1998	1997	1996	1995	1994	Five Year Average	Average Central Values(9)
6	Effective Income Tax Rate(%)	29.3	28.0	31.7	30.9	29.9	30.0	30.0
	Capitalization Ratios(%)							
7	Long-Term Debt	47.1	46.8	42.9	42.3	42.2	44.2	44.0
8	Preferred Stock	12.3	12.2	14.5	16.2	16.7	14.4	14.3
9	Common Equity	40.6	41.0	42.7	41.5	41.1	41.4	41.2
	Total	100.0	100.0	100.0	100.0	100.0		
10	Total Debt	47.1	47.2	43.6	43.1	42.9	44.8	44.6
11	Preferred Stock	15.4	14.7	16.4	17.7	18.2	16.5	16.5
12	Common Equity	37.5	38.1	40.0	39.3	38.9	38.8	38.8
	Total	100.0	100.0	100.0	100.0	100.0		
	Rates on Average Capital(2)(%)							
13	Total Debt	6.8	6.9	6.8	7.7	8.6	7.3	7.1
14	Long-Term Debt	5.7	6.1	5.7	7.4	6.2	6.2	6.0
15	Preferred Stock	5.7	6.2	5.7	6.4	6.0	6.0	6.0
	Coverage - Including AFC(3)(x)							
16	PreTax Interest	2.6	2.7	3.1	3.0	3.0	2.9	2.9
17	PreTax Interest + Pref. Div	2.5	2.6	2.9	2.7	2.8	2.7	2.7
18	PostTax Interest + Pref. Div	2.0	2.0	2.1	2.0	2.1	2.0	2.0
	Coverage - Excluding AFC(3)(x)							
19	PreTax Interest	2.6	2.7	3.0	2.9	3.0	2.8	2.9
20	PreTax Interest + Pref. Div	2.5	2.5	2.8	2.7	2.7	2.7	2.6
21	PostTax Interest + Pref. Div	1.9	1.9	2.1	2.0	2.0	2.0	2.0
22	GCF / Interest Coverage(4)(x)	3.3	3.2	3.7	3.5	3.7	3.5	3.5
23	Coverage of Common Dividends(5)(x)	3.7	3.2	3.4	2.8	2.6	3.1	3.1
24	Construction / Avg. Tot. Capital(%)	7.5	7.2	6.3	6.4	7.0	6.9	6.9
25	NCF / Construction(6)(%)	96.2	99.8	109.4	93.2	91.2	98.0	96.4
26	AFC / Income for Common Stock	2.7	3.9	2.8	3.2	4.0	3.3	3.3
27	GCF / Avg. Tot. Debt(7)(%)	20.0	20.2	21.5	20.2	80.6	32.5	20.6
28	GCF / Permanent Capital(8)(%)	10.3	9.9	10.7	10.1	10.0	10.2	10.2

See page 2 of this Schedule for notes.

S&P Public Utilities
Five Year Analysis
1994-1998

Notes:

(1)   Market value weighted achieved results for each individual company based upon the financials as originally reported.

(2)   Computed by relating total debt interest, long-term debt interest and preferred dividend expense to average of beginning and ending balance of the respective capital outstanding.

(3)   The coverage calculations, both including and excluding AFC, represent the number of times available earnings cover the various fixed charges. It should be noted that the pretax coverage including preferred dividends has been grossed up for the income tax paid on the preferred dividends.

(4)   GCF or gross cash flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less AFC), plus interest charges, divided by interest charges.

(5)   GCF (see note 4) less all preferred dividends which cover common dividends.

(6)   The percent of GCF (see note 4) less all cash dividends which cover gross construction expenditures.

(7)   GCF (see note 4) as a percentage of Permanent Capital (long-term debt, current maturities and preferred, preference and common equity).

(8)   GCF (see note 4) as a percentage of average total debt.

(9)   Average of the second, third and fourth quintile values.

Source of Information: Standard & Poor's, Moody's and Annual Reports

Risk Measures for the Common Stock of the
S&P Utilities and the Value Line Water Group

	Recent S&P Senior Debt Rating	Recent S&P Common Stock Ranking	Estimated Value Line Beta	Estimated Merrill Lynch Beta	Recent Market Value ($ Million)	Market Deciles	Market Quintiles
S&P Public Utilities							
AES Corp	BB	B+	1.05	1.47	11,287.500	1	Large-Cap
Ameren Corp	A+	A-	0.50	0.48	5,188.442	2	Large-Cap
American Electric Power	A-	B+	0.40	0.38	6,668.574	2	Large-Cap
Carolina Power & Light	A	A-	0.55	0.48	5,505.855	2	Large-Cap
Central & South West Corp	NA	A-	0.50	0.49	4,717.063	2	Large-Cap
Cinergy Corp	BBB+	B	0.55	0.40	4,488.530	2	Large-Cap
CMS Energy Corp	BB	B	0.50	0.58	4,353.315	2	Large-Cap
Coastal Corp	BBB+	B	0.80	0.87	8,989.644	2	Large-Cap
Columbia Energy Group	BBB+	B-	0.75	0.75	5,230.810	2	Large-Cap
Consolidated Edison Inc	A	A	0.50	0.45	8,519.708	2	Large-Cap
Consolidated Natural Gas Co	AA-	B+	0.75	0.82	6,140.544	2	Large-Cap
Constellation Energy Corp	A	B+	0.50	0.53	4,590.850	2	Large-Cap
Dominion Resources Inc	A-	B	0.50	0.53	9,239.038	2	Large-Cap
DTE Energy Co	BBB	A-	0.60	0.43	4,815.381	2	Large-Cap
Duke Energy Corp	A+	A-	0.45	0.38	20,645.313	1	Large-Cap
Eastern Enterprises	NA	B	0.65	0.60	1,380.886	5	Mid-Cap
Edison International	A	B	0.60	0.59	10,286.007	1	Large-Cap
Enron Corp	BBB+	A-	0.90	0.92	28,508.666	1	Large-Cap
Entergy Corp	NA	B	0.50	0.56	7,389.323	2	Large-Cap
Firstenergy Corp	NA	B	0.50	0.57	6,111.422	2	Large-Cap
Florida Progress Corp	A	B+	0.45	0.27	4,498.925	2	Large-Cap
FPL Group Inc	A+	B+	0.45	0.33	9,018.063	2	Large-Cap
GPU Inc	A	B+	0.65	0.58	4,257.527	2	Large-Cap
New Century Energies Inc	BBB+	NA	NA	0.35	3,762.076	3	Mid-Cap
Niagara Mohawk Holdings Inc	BBB	B	0.65	0.60	2,950.999	3	Mid-Cap
NICOR Inc	A+	A-	0.60	0.55	1,827.024	4	Mid-Cap
Northern States Power/Mn	AA-	A-	0.50	0.52	3,306.636	3	Mid-Cap
ONEOK Inc	A	A-	0.70	0.76	922.383	5	Mid-Cap
PacifiCorp	A	B	0.45	0.41	6,132.452	2	Large-Cap
PECO Energy Co	A-	B	0.60	0.47	7,125.902	2	Large-Cap
Peoples Energy Corp	A+	B+	0.75	0.68	1,348.582	5	Mid-Cap
PG&E Corp	A	B	0.40	0.47	8,427.994	2	Large-Cap
PP&L Resources Inc	BBB+	B+	0.50	0.50	4,267.594	2	Large-Cap
Public Service Entrp	BBB	B+	0.50	0.46	8,663.673	2	Large-Cap
Reliant Energy Inc	A-	B	0.55	0.51	8,088.127	2	Large-Cap
Sempra Energy	A	NA	0.55	0.54	4,911.990	2	Large-Cap
Sonat Inc	NA	B	0.85	0.58	4,526.711	2	Large-Cap
Southern Co	A	A-	0.45	0.39	18,315.137	1	Large-Cap
Texas Utilities Co	BBB+	B	0.50	0.36	10,883.945	1	Large-Cap
Unicom Corp	BBB+	B	0.50	0.40	8,319.828	2	Large-Cap
Williams Cos Inc	BBB	B	0.90	0.89	16,275.000	1	Large-Cap
Average	A-	B+	0.59	0.56	7,363.108	2	Large-Cap
Value Line Water Group							
American Water Works, Co.	NA	A	0.55	0.66	2,817.178	3	Mid-Cap
The Aquarion Company	AA-	B+	0.50	0.45	413.781	8	Low-Cap
California Water Service	AA-	A-	0.55	0.67	365.951	8	Low-Cap
E'Town Corporation	A	B+	0.50	0.27	394.940	8	Low-Cap
Philadelphia Suburban Corp.	NA	A-	0.50	0.26	939.895	5	Mid-Cap
United Water Resources	A-	B	0.55	0.68	1,308.994	5	Mid-Cap
Average	A+	B+	0.53	0.50	1,040.123	6	Low-Cap

S&P Financial Benchmark Criteria Necessary
to Obtain An A Bond Rating For Utilities
with an "Average" Business Position

Pre-tax Interest Coverage

Water	3.00 x
Electric	3.50
Gas Distribution	3.75
Gas Pipeline	4.00
Telephone	4.15

Debt / Total Capital

Water	52.00 %
Electric	47.00
Gas Distribution	46.00
Gas Pipeline	44.00
Telephone	46.00

Funds Flow Interest Coverage

Water	3.25 x
Electric	4.00
Gas Distribution	4.25
Gas Pipeline	4.50
Telephone	6.00

Funds Flow / Total Debt

Water	21.00 %
Electric	25.00
Gas Distribution	26.00
Gas Pipeline	30.00
Telephone	29.00

Net Cash Flow/ Construction

Water	75.00 %
Electric	85.00
Gas Distribution	90.00
Gas Pipeline	95.00
Telephone	NA

Comparative Ratios
For Missouri-American Water Company,
The Value Line Water Group,
S&P Utilities, and S&P Industrials
for the Years 1994-1998(1)

	1998	1997	1996	1995	1994	Five Year Average
Return on Common Equity(2)						
Missouri-American Water Co.	10.7	10.2	12.0	8.8	10.1	10.4
Value Line Water Group	11.7	11.1	10.8	9.7	10.3	10.7
S&P Utilities	10.0	9.7	11.0	10.4	10.4	10.3
S&P Industrials	20.8	24.6	24.8	22.9	23.0	23.2
Market/Book Ratio(3)						
Value Line Water Group	2.08	1.79	1.51	1.34	1.39	1.62
S&P Utilities	1.85	1.67	1.55	1.39	1.36	1.56
S&P Industrials	6.92	6.00	5.03	4.04	3.72	4.26
Earnings/Price Ratio(4)						
Value Line Water Group	5.8	6.2	7.2	7.1	7.4	6.7
S&P Utilities	5.0	5.5	6.6	6.8	6.9	6.2
S&P Industrials	3.0	4.1	4.9	5.7	6.2	4.8
Dividend Payout Ratio(5)						
Missouri-American Water Co.	70.0	81.2	72.6	78.5	62.6	73.0
Value Line Water Group	67.6	73.7	77.1	93.6	82.3	78.9
S&P Utilities	81.4	81.4	81.4	81.4	81.4	81.4
S&P Industrials	45.0	39.7	37.9	38.8	39.3	40.1
Dividend Yield(6)						
Value Line Water Group	3.9	4.6	5.5	5.9	6.3	5.2
S&P Utilities	3.7	4.4	4.6	5.1	5.4	4.6
S&P Industrials	1.4	1.6	1.9	2.2	2.4	1.9

See next page for Notes.

Comparative Ratios For
Missouri-American Water Company,
the Value Line Water Group
S&P Utilities, and S&P Industrials
for the Years 1994-1998 (1)

Notes:

(1)   The average of achieved results for the companies in each group.
       The information for the S&P Public Utilities is market weighted.
       The information for the S&P Industrials is based upon per share
       information adjusted to price index level.

(2)   Rate' of Return on Average Book Common Equity - income available for
       common equity divided by average beginning and ending year's balance of
       book common equity.

(3)   Market/Book Ratio - average of yearly high-low market price divided by
       the average of beginning and ending year's book value per share.

(4)   Earnings/Price Ratio - reported earnings per share yearly divided by the
       average of yearly high-low market price.

(5)   Dividend Payout Ratio is computed by dividing the yearly reported
       dividends paid by the yearly income available for common equity.

(6)   Dividend Yield - yearly dividend per share divided by the average yearly
       high-low market price.

Source of Information: Standard & Poor's, Moody's and Annual Reports

Relative Size of
Missouri-American Water Company,
Versus the Value Line Water Group
Pro Forma - for the Year Ended December 31, 1997

	Missouri-American Water Company	Value Line Water Group **	Value Line Group Vs. Missouri-American Water Company
Total Capitalization (in thousands)	$116,507	$1,129,548	9.7 x
Total Operating Revenues (in thousands)	$29,223	$358,924	12.3 x
Total Water Production (in millions of gallons)	13,092	100,957	7.7 x
Number of Water Customers (in thousands)	94	709	7.5 x

** Reflects mergers and acquisitions announcements of 1998.

Bond Ratings for
The Value Line Water Group

	Oct. 1999 Bond Rating		Oct. 1999 Bond Weightings	
	Moody's	S&P	Moody's	S&P

Value Line Water Group

	Moody's	S&P	Moody's	S&P
American Water Works, Co.	A3	A-	7	7
The Aquarion Company	NR	A+	NR	5
California Water Service	Aa3	AA-	4	4
E'Town Corporation	A3	A	7	6
Philadelphia Suburban Corp.	NR	A	NR	6
United Water Resources	A2	A-	6	7
Average	A2	A	6	6

Standard & Poor's
Water Utility Financial Benchmark Criteria

	AA	A	BBB	BB
PreTax Interest Coverage(x)				
Above average	2.75	2.25	1.25	0.75
Average	3.25	3.00	2.00	1.00
Below average	---	3.75	2.75	1.50
Total Debt/Total Capital(%)				
Above average	52	56	64	70
Average	48	52	59	65
Below average	--	48	54	60
GCF / Interest Coverage(x)				
Above average	3.00	2.50	1.50	1.00
Average	3.50	3.25	2.25	1.25
Below average	---	4.00	3.00	1.75
GCF / Average Total Debt(%)				
Above average	19	15	10	7
Average	25	21	15	9
Below average	--	27	20	12
NCF / Construction(%)				
Above average	75	60	35	20
Average	95	75	50	30
Below average	--	90	65	40

The terms "above average", "average" and "below average" are S&P's terms
reflecting their assessment of business position. "A utility with a stronger
competitive position, more favorable business prospects, and more predictable
cash flow can afford to withstand greater financial risk while maintaining the same
credit rating."

Source of Information: Standard & Poor's Creditweek, 12/6/93

Comparison of Standard & Poor's Measures of Financial Risk
For Missouri-American Water Company and
The Value Line Water Group(1)

Trend in Standard & Poor's Measures of
Financial Risk (Five-Year Average 1994-98)

	Missouri-American Water Company	Value Line Water Group
PreTax Interest Coverage(2)(x)	2.4	2.8
Total Debt/Total Capital(%)	56.4	54.7
GCF / Interest Coverage(3)(x)	2.9	3.0
GCF / Average Total Debt(4)(%)	14.0	14.4
NCF / Construction(5)(%)	36.6	40.8

Spot in Standard & Poor's Measures of
Financial Risk (For the Year 1998)

	Missouri-American Water Company	Value Line Water Group
PreTax Interest Coverage(2)(x)	2.4	3.1
Total Debt/Total Capital(%)	58.4	54.8
GCF / Interest Coverage(3)(x)	3.0	3.2
GCF / Average Total Debt(4)(%)	13.3	15.6
NCF / Construction(5)(%)	19.2	50.8

See the next page for notes.

Comparison of Standard & Poor's Measures of Financial Risk
For Missouri-American Water Company,
The Value Line Water Group

Notes:

(1)   Average of the achieved results for each individual company based upon the financials as originally reported.

(2)   Represents the number of times available earnings, excluding AFC, cover all interest charges.

(3)   GCF or gross cash flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less AFC), plus interest charges, divided by interest charges.

(4)   GCF (see note 3) as a percentage of average total debt.

(5)   The percent of GCF (see note 3) less all cash dividends which cover gross construction expenditures.

Source of Information: Annual Reports

Interest Rate Trends for
Investor-Owned Public Utility Bonds
Yearly for 1988-1997, Monthly for the Years 1998 and 1999

Years	Aaa Rated	Aa Rated	A Rated	Baa Rated
1988	10.05	10.26	10.49	11.00
1989	9.32	9.56	9.77	9.98
1990	9.45	9.66	9.86	10.07
1991	8.85	9.09	9.36	9.55
1992	8.19	8.55	8.69	8.86
1993	7.29	7.44	7.59	7.91
1994	8.06	8.21	8.30	8.63
1995	7.68	7.77	7.89	8.29
1996	7.48	7.57	7.75	8.16
1997	7.43	7.54	7.60	7.95
Average	8.38	8.56	8.73	9.04

	Years	Aaa Rated	Aa Rated	A Rated	Baa Rated
Jan	1998	6.85	6.94	7.04	7.28
Feb	1998	6.91	6.99	7.12	7.36
Mar	1998	6.96	7.04	7.16	7.37
Apr	1998	6.94	7.02	7.16	7.37
May	1998	6.94	7.02	7.16	7.34
Jun	1998	6.80	6.91	7.03	7.21
Jul	1998	6.80	6.91	7.03	7.23
Aug	1998	6.75	6.87	7.00	7.20
Sep	1998	6.66	6.78	6.93	7.13
Oct	1998	6.63	6.79	6.96	7.13
Nov	1998	6.59	6.89	7.03	7.31
Dec	1998	6.43	6.78	6.91	7.24
Avg	1998	6.77	6.91	7.04	7.26
Jan	1999	6.41	6.82	6.97	7.30
Feb	1999	6.56	6.94	7.09	7.41
Mar	1999	6.78	7.11	7.26	7.55
Apr	1999	6.80	7.11	7.22	7.51
May	1999	7.09	7.38	7.47	7.74
Jun	1999	7.37	7.67	7.74	8.03
Jul	1999	7.34	7.62	7.71	7.97
Aug	1999	7.54	7.82	7.91	8.16
Sep	1999	7.55	7.82	7.93	8.19
Oct	1999	7.73	7.96	8.06	8.32

Source of Information: Moody's Investors Services, Inc.

Credit Risk Spreads of
Investor-Owned Public Utility Bonds
Yearly for 1988-1997, Monthly for the Years 1998 and 1999

	Years	Aa Over Aaa	A Over Aa	Baa Over A	Baa Over Aaa
	1988	0.21	0.23	0.51	0.95
	1989	0.24	0.21	0.21	0.66
	1990	0.21	0.20	0.21	0.62
	1991	0.24	0.27	0.19	0.70
	1992	0.36	0.14	0.17	0.67
	1993	0.15	0.15	0.32	0.62
	1994	0.14	0.10	0.32	0.56
	1995	0.09	0.12	0.40	0.61
	1996	0.09	0.18	0.41	0.68
	1997	0.11	0.06	0.35	0.52
	Average	0.18	0.17	0.31	0.66
Jan	1998	0.09	0.10	0.24	0.43
Feb	1998	0.08	0.13	0.24	0.45
Mar	1998	0.08	0.12	0.21	0.41
Apr	1998	0.08	0.14	0.21	0.43
May	1998	0.08	0.14	0.18	0.40
Jun	1998	0.11	0.12	0.18	0.41
Jul	1998	0.11	0.12	0.20	0.43
Aug	1998	0.12	0.13	0.20	0.45
Sep	1998	0.12	0.15	0.20	0.47
Oct	1998	0.16	0.17	0.17	0.50
Nov	1998	0.30	0.14	0.28	0.72
Dec	1998	0.35	0.13	0.33	0.81
Avg	1998	0.14	0.13	0.22	0.49
Jan	1999	0.41	0.15	0.33	0.89
Feb	1999	0.38	0.15	0.32	0.85
Mar	1999	0.33	0.15	0.29	0.77
Apr	1999	0.31	0.11	0.29	0.71
May	1999	0.29	0.09	0.27	0.65
Jun	1999	0.30	0.07	0.29	0.66
Jul	1999	0.28	0.09	0.26	0.63
Aug	1999	0.28	0.09	0.25	0.62
Sep	1999	0.27	0.11	0.26	0.64
Oct	1999	0.23	0.10	0.26	0.59

Source of Information: Moody's Investors Services, Inc.

Interest Rate Trends
Of Long-Term Treasury Constant
Maturities Yearly for 1988-1997
Monthly for the Years 1998 and 1999

Years	10-Year T-Bond	20-Year T-Bond	30-Year T-Bond	Average Long-term T-Bond Yield
1988	8.85	NA	8.96	8.91
1989	8.50	NA	8.45	8.48
1990	8.55	NA	8.61	8.58
1991	7.86	NA	8.14	8.00
1992	7.01	NA	7.67	7.34
1993	5.87	NA	6.60	6.24
1994	7.08	7.49	7.38	7.32
1995	6.58	6.96	6.88	6.81
1996	6.44	6.82	6.70	6.65
1997	6.35	6.68	6.61	6.55
Average	7.31	6.99	7.60	7.49
Jan 1998	5.54	5.88	5.81	5.74
Feb 1998	5.57	5.96	5.89	5.81
Mar 1998	5.65	6.01	5.95	5.87
Apr 1998	5.64	6.00	5.92	5.85
May 1998	5.65	6.01	5.93	5.86
Jun 1998	5.50	5.80	5.70	5.67
Jul 1998	5.46	5.78	5.68	5.64
Aug 1998	5.34	5.66	5.54	5.51
Sep 1998	4.81	5.38	5.20	5.13
Oct 1998	4.53	5.30	5.01	4.95
Nov 1998	4.83	5.48	5.25	5.19
Dec 1998	4.65	5.36	5.06	5.02
Avg 1998	5.26	5.72	5.58	5.52
Jan 1999	4.72	5.45	5.16	5.11
Feb 1999	5.00	5.66	5.37	5.34
Mar 1999	5.23	5.87	5.58	5.56
Apr 1999	5.18	5.82	5.55	5.52
May 1999	5.54	6.08	5.81	5.81
Jun 1999	5.90	6.36	6.04	6.10
Jul 1999	5.79	6.28	5.98	6.02
Aug 1999	5.94	6.43	6.07	6.15
Sep 1999	5.92	6.50	6.07	6.16
Oct 1999	6.11	6.66	6.26	6.34

Source of Information: Federal Reserve Bulletin

Spread in Average Long-Term Bond Yields
Versus Public Utility Bond Yields
Yearly for 1988-1997, Monthly for the Years 1998 and 1999

Spread in Average Long-Term T-Bond Yields Versus Public Utility Bonds:

	Years	Aaa Rated	Aa Rated	A Rated	Baa Rated
	1988	1.09	1.30	1.53	2.04
	1989	0.87	1.11	1.32	1.53
	1990	0.84	1.05	1.25	1.46
	1991	0.71	0.95	1.22	1.41
	1992	0.52	0.88	1.02	1.19
	1993	0.69	0.84	0.99	1.31
	1994	0.68	0.83	0.92	1.25
	1995	0.80	0.89	1.01	1.41
	1996	0.78	0.87	1.05	1.46
	1997	0.82	0.93	0.99	1.34
	Average	0.78	0.97	1.13	1.44
Jan	1998	1.04	1.13	1.23	1.47
Feb	1998	1.02	1.10	1.23	1.47
Mar	1998	1.01	1.09	1.21	1.42
Apr	1998	1.02	1.10	1.24	1.45
May	1998	1.01	1.09	1.23	1.41
Jun	1998	1.10	1.21	1.33	1.51
Jul	1998	1.12	1.23	1.35	1.55
Aug	1998	1.21	1.33	1.46	1.66
Sep	1998	1.46	1.58	1.73	1.93
Oct	1998	1.62	1.78	1.95	2.12
Nov	1998	1.34	1.64	1.78	2.06
Dec	1998	1.37	1.72	1.85	2.18
Avg	1998	1.19	1.33	1.46	1.68
Jan	1999	1.25	1.66	1.81	2.14
Feb	1999	1.19	1.57	1.72	2.04
Mar	1999	1.20	1.53	1.68	1.97
Apr	1999	1.25	1.56	1.67	1.96
May	1999	1.28	1.57	1.66	1.93
Jun	1999	1.33	1.63	1.70	1.99
Jul	1999	1.36	1.64	1.73	1.99
Aug	1999	1.47	1.75	1.84	2.09
Sep	1999	1.48	1.75	1.86	2.12
Oct	1999	1.47	1.70	1.80	2.06

Comment: Derived from the information on pages 1 and 3 of this Schedule.

Interest Rate Trends for
Federal Funds Rate and Prime Rate
Yearly for 1988-1997, Monthly for the Years 1998 and 1999

	Years	Fed Funds Rate	Prime Rate
	1988	7.57	9.31
	1989	9.22	10.87
	1990	8.10	10.01
	1991	5.69	8.46
	1992	3.52	6.25
	1993	3.02	6.00
	1994	4.21	7.15
	1995	5.80	8.80
	1996	5.30	8.27
	1997	5.46	8.44
	Average	6.19	8.48
Jan	1998	5.56	8.50
Feb	1998	5.51	8.50
Mar	1998	5.49	8.50
Apr	1998	5.45	8.50
May	1998	5.49	8.50
Jun	1998	5.56	8.50
Jul	1998	5.54	8.50
Aug	1998	5.55	8.50
Sep	1998	5.51	8.49
Oct	1998	5.07	8.12
Nov	1998	4.83	7.89
Dec	1998	4.68	7.75
Avg	1998	5.35	8.35
Jan	1999	4.63	7.75
Feb	1999	4.76	7.75
Mar	1999	4.81	7.75
Apr	1999	4.74	7.75
May	1999	4.74	7.75
Jun	1999	4.76	7.75
Jul	1999	4.99	8.00
Aug	1999	5.07	8.06
Sep	1999	5.22	8.25
Oct	1999	5.20	8.25

Source of Information: Federal Reserve Bulletin

Settled Yields on Treasury Bond and
Treasury Bill Future Contracts
Traded on the Chicago Board of Trade and
the Chicago Mercantile Exchange
at the Close of November 1, 1999

Delivery Date		Treasury Bonds (CBT)	Treasury Bills (CME)
December	1999	6.605 %	4.98 %
March	1999	6.679	-
June	2000	6.728	-
Average		6.671 %	4.98 %

Source of Information: Wall Street Journal, November 2, 1999

Blue Chip Financial Forecasts - November 11, 1999

	Third Quarter 1999	Fourth Quarter 1999	First Quarter 2000	Second Quarter 2000	Third Quarter 2000	Five Quarter Average
Prime Rate						
Top Ten Average	8.5 %	8.6 %	8.8 %	9.0 %	9.1 %	8.8 %
Group Average	8.4	8.4	8.5	8.5	8.5	8.5
Bottom Ten Average	8.2	8.2	8.1	8.0	7.9	8.1
Three-Month Treasury Bills						
Top Ten Average	5.2	5.3	5.5	5.7	5.8	5.5
Group Average	5.0	5.1	5.1	5.2	5.2	5.1
Bottom Ten Average	4.8	4.8	4.7	4.7	4.6	4.7
Ten Year Treasury Notes						
Top Ten Average	6.2	6.3	6.5	6.6	6.7	6.5
Group Average	6.1	6.0	6.0	6.0	6.0	6.0
Bottom Ten Average	5.9	5.6	5.5	5.4	5.3	5.5
Thirty Year Treasury Bonds						
Top Ten Average	6.4	6.5	6.6	6.7	6.9	6.6
Group Average	6.3	6.2	6.2	6.2	6.2	6.2
Bottom Ten Average	6.0	5.8	5.6	5.6	5.4	5.7
AAA-Rated Corporate Bonds						
Top Ten Average	7.7	7.7	7.8	7.9	8.0	7.8
Group Average	7.5	7.4	7.3	7.3	7.3	7.4
Bottom Ten Average	7.2	6.9	6.8	6.7	6.5	6.8

Discounted Cash Flow for
The Value Line Water Group

	Value Line Water Group
Dividend Yield(1)	3.6 %
Growth in Dividends(2)	0.1
Adjusted Dividend Yield	3.7
Stock Appreciation(3)	6.8
DCF Cost Rate	10.5 %

Notes: (1) Developed on page 2 of this Schedule.
       (2) Equal to one-half the assumed growth in value.
       (3) As explained in the direct testimony, the growth in value
           is supported by the information shown on Schedules 14 and 15.

Dividend Yield for
the Value Line Water Group
for the Twelve Months Ended October 1999

	Recent Dividend Yields(1)	Longer Term Dividend Yields(2)	Average Yields
Value Line Water Group			
American Water Works, Co.	3.0 %	2.8 %	
The Aquarion Company	3.1	3.8	
California Water Service	4.0	4.1	
E'Town Corporation	4.4	4.6	
Philadelphia Suburban Corp.	3.2	2.9	
United Water Resources	2.9	4.1	
Average	3.4 %	3.7 %	3.6 %

Notes: (1) Computed by annualizing the current quarterly dividend per
share and relating it to the monthly high-low average price per share of
common stock for October 1999.
(2) Computed by annualizing the current quarterly dividend per share and
relating it to the monthly high-low average price per share of common stock
for the twelve months ended October 1999.

Source of Information: Standard & Poor's, Barron's

Development of Intermediated Term Projected Growth in Value
Based Upon Growth Over The Next Year
For the Value Line Water Group

	A	B	C	D	E	F
	Zacks EPS Growth	S&P EPS Growth	Value Line EPS Growth	Value Line DPS Growth	Average EPS Growth	Average All Growth
Value Line Water Group						
American Water Works, Co.	3.2 %	3.2 %	3.2 %	4.9 %	3.2 %	3.6 %
The Aquarion Company	2.0	2.7	4.7	1.8	3.1	2.8
California Water Service	3.4	9.7	10.3	0.9	7.8	6.1
E'Town Corporation	(5.9)	(5.2)	(4.5)	0.0	(5.2)	(3.9)
Philadelphia Suburban Corp.	4.8	4.8	6.8	4.5	5.5	5.2
United Water Resources	6.7	4.2	(1.7)	3.2	3.1	3.1
Average All Values	2.4 %	3.2 %	3.1 %	2.6 %	2.9 %	2.8 %
Average Absolute Values	4.3	5.0	5.2	2.6	4.8	4.3
Avg Excluding Negatives & Zeros	4.0	4.9	6.3	3.1	5.0	4.5

Source of Information: Zacks Investment Research November 4, 1999
Standard & Poor's Earnings Guide, November 1999
Value Line Investment Survey, November 11, 1999

Development of Intermediated Term Projected Growth in Value
Based Upon Growth Over The Next Two Years
For the Value Line Water Group

	A	B	C	D	E	F
	Zacks EPS Growth	S&P EPS Growth	Value Line EPS Growth	Value Line DPS Growth	Average EPS Growth	Average All Growth
Value Line Water Group						
American Water Works, Co.	4.6 %	5.2 %	5.2 %	7.1 %	5.0 %	5.5 %
The Aquarion Company	3.0	3.3	4.0	1.4	3.4	2.9
California Water Service	5.0	6.0	8.3	1.4	6.4	5.2
E'Town Corporation	(0.9)	(0.4)	(0.4)	0.0	(0.6)	(0.4)
Philadelphia Suburban Corp.	6.1	6.5	7.9	5.1	6.8	6.4
United Water Resources	6.5	5.7	7.4	1.6	6.5	5.3
Average All Values	4.1 %	4.4 %	5.4 %	2.8 %	4.6 %	4.2 %
Average Absolute Values	4.4	4.5	5.5	2.8	4.8	4.3
Avg Excluding Negatives & Zeros	5.0	5.3	6.6	3.3	5.6	5.1

Source of Information: Zacks Investment Research November 4, 1999
Standard & Poor's Earnings Guide, November 1999
Value Line Investment Survey, November 11, 1999

Development of Long Term Projected Growth in Value
Based Upon Growth Over The Next Five Years
For the Value Line Water Group

	A	B	C	D	E	E
	Zacks EPS Growth	S&P EPS Growth	Value Line EPS Growth	Value Line DPS Growth	Average EPS Growth	Average All Growth
Value Line Water Group						
American Water Works, Co.	7.4 %	6.0 %	8.0 %	7.0 %	7.1 %	7.1 %
The Aquarion Company	3.0	3.0	3.0	0.5	3.0	2.4
California Water Service	NA	NA	5.0	1.5	5.0	3.3
E'Town Corporation	3.0	3.0	6.0	2.0	4.0	3.5
Philadelphia Suburban Corp.	5.8	10.0	9.0	5.0	8.3	7.5
United Water Resources	5.0	5.0	7.5	1.5	5.8	4.8
Average	4.8 %	4.5 %	6.4 %	2.9 %	5.5 %	4.8 %

Source of Information: Zacks Investment Research November 4, 1999
Standard & Poor's Earnings Guide, November 1999
Value Line Investment Survey, November 11, 1999

Earnings per Share Growth Occuring When ROE
Increase From Their Current Levels
to the Higher Projected Levels for the
Value Line Water Group

Increasing ROE to 11.8%

	Compound Growth					
	Year 1	Year 2	Year 3	Year 4	Year 5	Average
Value Line Water Group	19.3%	11.4%	8.8%	7.6%	6.8%	10.8%

Increasing ROE to 12.2%

	Compound Growth					
	Year 1	Year 2	Year 3	Year 4	Year 5	Average
Value Line Water Group	23.3%	13.3%	10.1%	8.5%	7.6%	12.6%

Comment: See pages 2-3 for supporting calculations. See page 4 for a
description of the methodology employed to derive the growth rates.

Value Line Water Group
Earnings per Share Growth Occuring When ROE Increase
From Their Current Levels to the Higher Projected Levels

Their Current ROE is 10.3%
and
Their Projected ROE is 11.8%

Line
No.

1 .	Period 1	Year 1				
2 .	Begin BV	$10.00				
3 .	Current Earnings	$1.03				
4 .	Retention	40.00%				
5 .	Current Growth	$0.41				
6 .	End BV	$10.41				
7 .	Target ROE	11.80%				
8 .	Target Earnings	$1.23				
9 .	Actual Growth	19.28%				
10 .	Period 2	Year 1	Year 2			
11 .	Begin BV	$10.00	$10.37			
12 .	Current Earnings	$1.03	$1.15			
13 .	Retention	35.50%	40.00%			
14 .	Current Growth	$0.37	$0.46			
15 .	End BV	$10.37	$10.82			
16 .	Target ROE	11.05%	11.80%			
17 .	Target Earnings	$1.15	$1.28			
18 .	Actual Growth	11.20%	11.36%			
19 .	Period 3	Year 1	Year 2	Year 3		
20 .	Begin BV	$10.00	$10.35	$10.76		
21 .	Current Earnings	$1.03	$1.12	$1.22		
22 .	Retention	34.00%	37.00%	40.00%		
23 .	Current Growth	$0.35	$0.41	$0.49		
24 .	End BV	$10.35	$10.76	$11.25		
25 .	Target ROE	10.80%	11.30%	11.80%		
26 .	Target Earnings	$1.12	$1.22	$1.33		
27 .	Actual Growth	8.53%	8.67%	8.83%		
28 .	Period 4	Year 1	Year 2	Year 3	Year 4	
29 .	Begin BV	$10.00	$10.34	$10.73	$11.18	
30 .	Current Earnings	$1.03	$1.10	$1.19	$1.28	
31 .	Retention	33.25%	35.50%	37.75%	40.00%	
32 .	Current Growth	$0.34	$0.39	$0.45	$0.51	
33 .	End BV	$10.34	$10.73	$11.18	$11.69	
34 .	Target ROE	10.68%	11.05%	11.43%	11.80%	
35 .	Target Earnings	$1.10	$1.19	$1.28	$1.38	
36 .	Actual Growth	7.19%	7.31%	7.44%	7.58%	
37 .	Period 5	Year 1	Year 2	Year 3	Year 4	Year 5
38 .	Begin BV	$10.00	$10.34	$10.72	$11.14	$11.62
39 .	Current Earnings	$1.03	$1.10	$1.17	$1.25	$1.34
40 .	Retention	32.80%	34.60%	36.40%	38.20%	40.00%
41 .	Current Growth	$0.34	$0.38	$0.43	$0.48	$0.53
42 .	End BV	$10.34	$10.72	$11.14	$11.62	$12.15
43 .	Target ROE	10.60%	10.90%	11.20%	11.50%	11.80%
44 .	Target Earnings	$1.10	$1.17	$1.25	$1.34	$1.43
45 .	Actual Growth	6.39%	6.50%	6.61%	6.72%	6.84%

Value Line Water Group
Earnings per Share Growth Occuring When ROE Increase
From Their Current Levels to the Higher Projected Levels

Their Current ROE is 10.3%
and
Their Projected ROE is 12.2%

Line
No.

		Year 1				
1.	Period 1	Year 1				
2.	Begin BV	$10.00				
3.	Current Earnings	$1.03				
4.	Retention	40.00%				
5.	Current Growth	$0.41				
6.	End BV	$10.41				
7.	Target ROE	12.20%				
8.	Target Earnings	$1.27				
9.	Actual Growth	23.33%				
10.	Period 2	Year 1	Year 2			
11.	Begin BV	$10.00	$10.37			
12.	Current Earnings	$1.03	$1.17			
13.	Retention	35.50%	40.00%			
14.	Current Growth	$0.37	$0.47			
15.	End BV	$10.37	$10.83			
16.	Target ROE	11.25%	12.20%			
17.	Target Earnings	$1.17	$1.32			
18.	Actual Growth	13.22%	13.27%			
19.	Period 3	Year 1	Year 2	Year 3		
20.	Begin BV	$10.00	$10.35	$10.77		
21.	Current Earnings	$1.03	$1.13	$1.25		
22.	Retention	34.00%	37.00%	40.00%		
23.	Current Growth	$0.35	$0.42	$0.50		
24.	End BV	$10.35	$10.77	$11.27		
25.	Target ROE	10.93%	11.57%	12.20%		
26.	Target Earnings	$1.13	$1.25	$1.37		
27.	Actual Growth	9.87%	9.97%	10.10%		
28.	Period 4	Year 1	Year 2	Year 3	Year 4	
29.	Begin BV	$10.00	$10.34	$10.74	$11.19	
30.	Current Earnings	$1.03	$1.11	$1.21	$1.31	
31.	Retention	33.25%	35.50%	37.75%	40.00%	
32.	Current Growth	$0.34	$0.40	$0.46	$0.53	
33.	End BV	$10.34	$10.74	$11.19	$11.72	
34.	Target ROE	10.78%	11.25%	11.73%	12.20%	
35.	Target Earnings	$1.11	$1.21	$1.31	$1.43	
36.	Actual Growth	8.19%	8.30%	8.41%	8.54%	
37.	Period 5	Year 1	Year 2	Year 3	Year 4	Year 5
38.	Begin BV	$10.00	$10.34	$10.72	$11.15	$11.64
39.	Current Earnings	$1.03	$1.10	$1.19	$1.28	$1.38
40.	Retention	32.80%	34.60%	36.40%	38.20%	40.00%
41.	Current Growth	$0.34	$0.38	$0.43	$0.49	$0.55
42.	End BV	$10.34	$10.72	$11.15	$11.64	$12.19
43.	Target ROE	10.68%	11.06%	11.44%	11.82%	12.20%
44.	Target Earnings	$1.10	$1.19	$1.28	$1.38	$1.49
45.	Actual Growth	7.19%	7.29%	7.39%	7.50%	7.62%

Description of Methodology

Earnings per share and hence, share growth, necessary to produce the projected increase in ROE was calculated for 5 periods ranging from 1 to 5 years. A beginning book value of $10.00 per share was assumed. Current earnings per share in year 1 is calculated by multiplying the current return on common equity of 10.3% (page 5 of this Schedule) for the Value Line Water Group times the assumed book value per share. Current earnings for each subsequent year are taken as the target earnings from the year before. Current growth is then added to beginning book value for that year to arrive at ending book value.

The retention ratio is based upon the latest average retention ratios of 31% for the Value Line Water Group (page 5 of this Schedule). The retention ratio was then increased in equal annual amounts in order to result in the assumed future retention ratio of 40% for the Value Line Water Group, as projected by Value Line (page 6 of this Schedule). For example, in order for a retention ratio to increase from 31% to 40% over 5 years, the annual increase would be 1.8% (31.0% - 40.0% = 9.0% ÷ 5).

Target ROE is determined by taking the difference between the ultimate target ROE and the current ROE and dividing the result by the number of years in the period. The calculated increment is added to the ROE at the beginning of the year to arrive at the target ROE. For example, the Value Line Water Group has a current ROE of 10.3%. In order for the ultimate target ROE of 12.2% (page 6 of this Schedule) to be reached in 5 years, the target ROE must increase by 0.50% per year (12.2% - 10.3% = 1.9% ÷ 5).

Actual growth is the compound growth of target earnings over the current earnings in year 1. Target earnings result in the target ROE for each year. A similar process was followed for each time period analyzed.

Source of Information: Value Line Investment Survey

Recent Payout Ratios,
Returns on Equity, Common Equity Ratios
Market/Book Ratio and P-E Multiples
For the Value Line Water Group

	Current Dividend Payout Ratio	Recent Return on Average Equity	Recent Common Equity Ratio	Market/ Book Ratio	P-E Multiples
Value Line Water Group					
American Water Works, Co.	56 %	9.0 %	39 %	181 %	20.3 x
The Aquarion Company	48	11.7	52	273	15.5
California Water Service	68	11.5	52	210	18.2
E'Town Corporation	71	11.0	44	177	16.1
Philadelphia Suburban Corp.	66	10.3	47	268	26.1
United Water Resources	107	8.1	40	278	34.1
Average	69 %	10.3 %	46 %	231 %	21.7 x

Comment : Recent spot information at 10/29/99

Source of Information: Quarterly Reports, Standard & Poor's

Value Line Projected ROE Based on Year-End and Average,
Dividend Payout Ratio, and Common Equity Ratio for
The Value Line Water Group for 2002-2004

	Value Line Projected ROE	Projected Average ROE (1)	Value Line Projected Dividend Payout	Value Line Projected Common Equity Ratio
Value Line Water Group				
American Water Works, Co.	12.0 %	12.5 %	50.0 %	38.0 %
The Aquarion Company	11.5	12.0	66.5	62.0
California Water Service	13.0	13.3	50.0	56.0
E'Town Corporation	10.0	10.4	69.7	45.5
Philadelphia Suburban Corp.	12.5	13.4	56.7	47.0
United Water Resources	11.5	11.7	64.5	46.0
Average	11.8 %	12.2 %	59.6 %	49.1 %

Notes: (1) Value Line ROE, which is a year-end ROE, is converted to average ROE by the factor
derived from the following formula: $2((1+g)/(2+g))$, where "g" is the rate of growth in
common equity.

Source of Information: Value Line Investment Survey, November 11, 1999

Market to Book Ratios and Return on Average Book Value
for the S&P Industrial Companies and
Yields on Industrial Bonds Rated A for the Period 1947 to 1998

				10 Year Moving Average		
	Market To Book Ratio(1)	Return On Average Equity(2)	A Rated Industrial. Bond Yld(3)	Market To Book Ratio(1)	Return On Average Equity(2)	A Rated Industrial. Bond Yld(3)
1947	123.4	13.4	2.66			
1948	112.9	17.2	2.86			
1949	100.2	16.3	2.71			
1950	115.7	18.3	2.66			
1951	127.5	14.4	2.90			
1952	129.4	12.7	3.01			
1953	121.5	12.7	3.27			
1954	144.9	13.5	3.09			
1955	180.6	16.0	3.16			
1956	192.4	13.7	3.47	134.9	14.8	3.0
1957	170.7	12.5	4.03	139.6	14.7	3.1
1958	170.0	9.8	3.91	145.3	14.0	3.2
1959	194.4	11.2	4.49	154.7	13.5	3.4
1960	182.4	10.3	4.58	161.4	12.7	3.6
1961	200.6	9.8	4.50	168.7	12.2	3.8
1962	182.6	10.9	4.43	174.0	12.0	3.9
1963	194.2	11.4	4.37	181.3	11.9	4.0
1964	218.2	12.3	4.47	188.6	11.8	4.1
1965	220.9	13.2	4.55	192.6	11.5	4.3
1966	200.3	13.2	5.26	193.4	11.5	4.5
1967	205.1	12.1	5.72	196.9	11.4	4.6
1968	217.4	12.6	6.39	201.6	11.7	4.9
1969	209.9	12.1	7.26	203.2	11.8	5.2
1970	171.0	10.4	8.33	202.0	11.8	5.5
1971	199.4	11.2	7.61	201.9	11.9	5.8
1972	215.8	12.0	7.36	205.2	12.1	6.1
1973	196.3	14.6	7.63	205.4	12.4	6.5
1974	138.7	14.8	8.90	197.5	12.6	6.9
1975	133.5	12.3	9.21	188.7	12.5	7.4
1976	155.5	14.9	8.88	184.3	12.7	7.7
1977	141.6	15.0	8.36	177.9	13.0	8.0
1978	124.9	15.3	8.94	168.7	13.3	8.2
1979	123.2	17.2	9.91	160.0	13.8	8.5
1980	131.4	15.6	12.44	156.0	14.3	8.9
1981	126.1	14.9	14.62	148.7	14.7	9.6
1982	116.7	11.3	15.00	138.8	14.6	10.4
1983	145.2	12.2	12.53	133.7	14.4	10.9
1984	145.9	14.6	13.43	134.4	14.3	11.3
1985	167.3	12.2	12.09	137.8	14.3	11.6
1986	202.5	11.5	10.30	142.5	14.0	11.8
1987	250.4	15.7	9.88	153.4	14.1	11.9
1988	221.1	19.0	9.99	163.0	14.4	12.0
1989	256.0	18.4	9.71	176.3	14.5	12.0
1990	263.1	16.3	9.77	189.4	14.6	11.7
1991	276.9	10.9	9.25	204.5	14.2	11.2
1992	329.4	13.0	8.53	225.8	14.4	10.5
1993	357.6	15.1	7.57	247.0	14.7	10.1
1994	372.3	23.0	8.25	269.7	15.5	9.5
1995	404.1	22.9	7.77	293.3	16.6	9.1
1996	502.5	24.8	7.62	323.3	17.9	8.8
1997	600.1	24.6	7.47	358.3	18.8	8.6
1998	692.2	20.8	6.81	405.4	19.0	8.3
Average	213.0	14.5	7.2	193.7	13.7	7.5
High	692.2	24.8	15.0	405.4	19.0	12.0
Low	100.2	9.8	2.7	133.7	11.4	3.0

Notes: (1) Average high-low price divided by average book value per share.
(2) EPS divided by average book value per share.
(3) Moody's A rated industrial bond yield.

Source of Information: S&P Security Price Index Record
Moody's Industrial Manuals

Market to Book Ratios and Return on Average Book Value
for the S&P Industrial Companies and
Yields on Industrial Bonds Rated A for the Period 1947 to 1998

Sorted Based Upon Market to Book Ratios

	Market To Book Ratio	Return On Average Equity	A Rated Industrial Bond Yld
1949	100.2	16.3	2.71
1948	112.9	17.2	2.86
1950	115.7	18.3	2.66
1982	116.7	11.3	15.00
1953	121.5	12.7	3.27
1979	123.2	17.2	9.91
1947	123.4	13.4	2.66
1978	124.9	15.3	8.94
1981	126.1	14.9	14.62
1951	127.5	14.4	2.90
1952	129.4	12.7	3.01
1980	131.4	15.6	12.44
1975	133.5	12.3	9.21
1974	138.7	14.8	8.90
1977	141.6	15.0	8.36
1954	144.9	13.5	3.09
1983	145.2	12.2	12.53
1984	145.9	14.6	13.43
1976	155.5	14.9	8.88
1985	167.3	12.2	12.09
1958	170.0	9.8	3.91
1957	170.7	12.5	4.03
1970	171.0	10.4	8.33
1955	180.6	16.0	3.16
1960	182.4	10.3	4.58
1962	182.6	10.9	4.43
1956	192.4	13.7	3.47
1963	194.2	11.4	4.37
1959	194.4	11.2	4.49
1973	196.3	14.6	7.63
1971	199.4	11.2	7.61
1966	200.3	13.2	5.26
1961	200.6	9.8	4.50
1986	202.5	11.5	10.30
1967	205.1	12.1	5.72
1969	209.9	12.1	7.26
1972	215.8	12.0	7.36
1968	217.4	12.6	6.39
1964	218.2	12.3	4.47
1965	220.9	13.2	4.55
1988	221.1	19.0	9.99
1987	250.4	15.7	9.88
1989	256.0	18.4	9.71
1990	263.1	16.3	9.77
1991	276.9	10.9	9.25
1992	329.4	13.0	8.53
1993	357.6	15.1	7.57
1994	372.3	23.0	8.25
1995	404.1	22.9	7.77
1996	502.5	24.8	7.62
1997	600.1	24.6	7.47
1998	692.2	20.8	6.81

Market to Book Ratios and Return on Average Book Value
for the S&P Industrial Companies and
Yields on Industrial Bonds Rated A for the Period 1947 to 1998

Sorted Based Upon Industrial Bond Yield

	Market To Book Ratio	Return On Average Equity	A Rated Industrial Bond Yld
1947	123.4	13.4	2.66
1950	115.7	18.3	2.66
1949	100.2	16.3	2.71
1948	112.9	17.2	2.86
1951	127.5	14.4	2.90
1952	129.4	12.7	3.01
1954	144.9	13.5	3.09
1955	180.6	16.0	3.16
1953	121.5	12.7	3.27
1956	192.4	13.7	3.47
1958	170.0	9.8	3.91
1957	170.7	12.5	4.03
1963	194.2	11.4	4.37
1962	182.6	10.9	4.43
1964	218.2	12.3	4.47
1959	194.4	11.2	4.49
1961	200.6	9.8	4.50
1965	220.9	13.2	4.55
1960	182.4	10.3	4.58
1966	200.3	13.2	5.26
1967	205.1	12.1	5.72
1968	217.4	12.6	6.39
1998	692.2	20.8	6.81
1969	209.9	12.1	7.26
1972	215.8	12.0	7.36
1997	600.1	24.6	7.47
1993	357.6	15.1	7.57
1971	199.4	11.2	7.61
1996	502.5	24.8	7.62
1973	196.3	14.6	7.63
1995	404.1	22.9	7.77
1994	372.3	23.0	8.25
1970	171.0	10.4	8.33
1977	141.6	15.0	8.36
1992	329.4	13.0	8.53
1976	155.5	14.9	8.88
1974	138.7	14.8	8.90
1978	124.9	15.3	8.94
1975	133.5	12.3	9.21
1991	276.9	10.9	9.25
1989	256.0	18.4	9.71
1990	263.1	16.3	9.77
1987	250.4	15.7	9.88
1979	123.2	17.2	9.91
1988	221.1	19.0	9.99
1986	202.5	11.5	10.30
1985	167.3	12.2	12.09
1980	131.4	15.6	12.44
1983	145.2	12.2	12.53
1984	145.9	14.6	13.43
1981	126.1	14.9	14.62
1982	116.7	11.3	15.00

Market to Book Ratios and Return on Average Book Value
for the S&P Industrial Companies and
Yields on Industrial Bonds Rated A for the Period 1947 to 1998

Sorted Based Upon Return on Book Value

	Market To Book Ratio	Return On Average Equity	A Rated Industrial Bond Yld
1958	170.0	9.8	3.91
1961	200.6	9.8	4.50
1960	182.4	10.3	4.58
1970	171.0	10.4	8.33
1991	276.9	10.9	9.25
1962	182.6	10.9	4.43
1959	194.4	11.2	4.49
1971	199.4	11.2	7.61
1982	116.7	11.3	15.00
1963	194.2	11.4	4.37
1986	202.5	11.5	10.30
1972	215.8	12.0	7.36
1967	205.1	12.1	5.72
1969	209.9	12.1	7.26
1983	145.2	12.2	12.53
1985	167.3	12.2	12.09
1975	133.5	12.3	9.21
1964	218.2	12.3	4.47
1957	170.7	12.5	4.03
1968	217.4	12.6	6.39
1953	121.5	12.7	3.27
1952	129.4	12.7	3.01
1992	329.4	13.0	8.53
1966	200.3	13.2	5.26
1965	220.9	13.2	4.55
1947	123.4	13.4	2.66
1954	144.9	13.5	3.09
1956	192.4	13.7	3.47
1951	127.5	14.4	2.90
1984	145.9	14.6	13.43
1973	196.3	14.6	7.63
1974	138.7	14.8	8.90
1976	155.5	14.9	8.88
1981	126.1	14.9	14.62
1977	141.6	15.0	8.36
1993	357.6	15.1	7.57
1978	124.9	15.3	8.94
1980	131.4	15.6	12.44
1987	250.4	15.7	9.88
1955	180.6	16.0	3.16
1990	263.1	16.3	9.77
1949	100.2	16.3	2.71
1948	112.9	17.2	2.86
1979	123.2	17.2	9.91
1950	115.7	18.3	2.66
1989	256.0	18.4	9.71
1988	221.1	19.0	9.99
1998	692.2	20.8	6.81
1995	404.1	22.9	7.77
1994	372.3	23.0	8.25
1997	600.1	24.6	7.47
1996	502.5	24.8	7.62

M/B Ratios Of Industrials and Water Companies

1962 - 1998

Industrial Scale

Water Scale

Industrial   Value Line

Note: Scale is logged for comparison purposes.
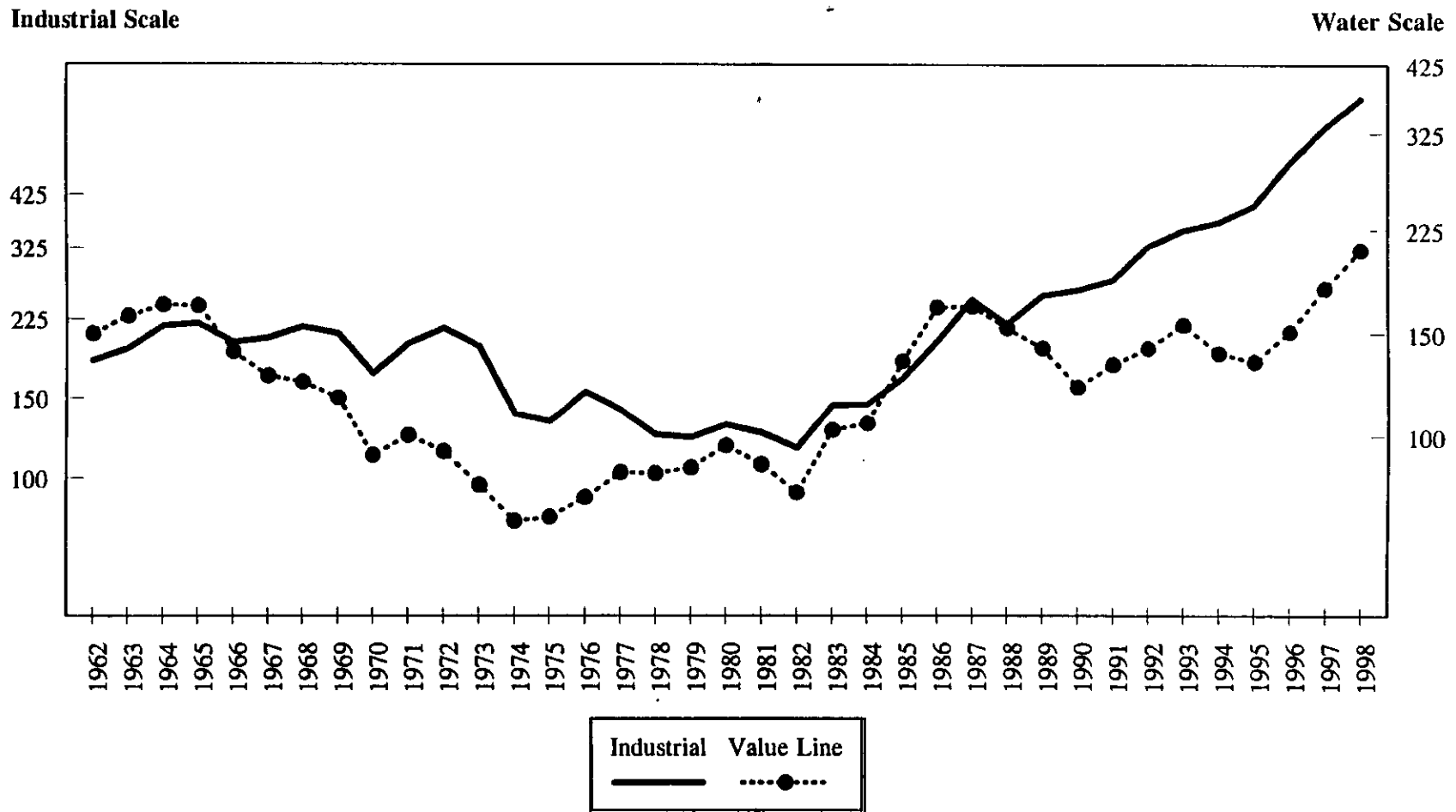
Illustration of the
Effect of Market-To-Book Ratio on Market Return

Ln #		Situation 1	Situation 2	Situation 3
1	M/B Ratio	50%	100%	200%
2	Market Purchase Price	$25.00	$50.00	$100.00
3	Book Value	$50.00	$50.00	$50.00
4	DCF Return	10.0%	10.0%	10.0%
5	DCF Dollar Return	$5.00	$5.00	$5.00
6	Dividend Yield	5.0%	5.0%	5.0%
7	DPS	$1.25	$2.50	$5.00
8	Dollar Growth in Value	$3.75	$2.50	$0.00
9	Market Sale Price	$28.75	$52.50	$100.00
10	Total Market Return	20.0%	10.0%	5.0%

The simple numerical illustration....demonstrates the impact of market-to-book ratios on the DCF market return....The DCF cost rate of 10%, made up of a 5% dividend yield and a 5% growth rate, is applied to the book value rate base of $50 to produce $5.00 of earnings. Of the $5.00 of earnings, the full $5.00 are required for dividends to produce a dividend yield of 5.0% on a stock price of $100.00, and no dollars are available for growth. The investor's return is therefore only 5% versus his required return of 10%. A DCF cost rate of 10%, which implies $10.00 of earnings, translates to only $5.00 of earnings on book value, or a 5% return.....Therefore, the DCF cost rate understates the investor's required return when stock prices are well above book, as is the case presently.

The above illustration is taken from Roger A Morin, Regulatory Finance - Utilities' Cost of Capital, Public Utility Reports, Inc., 1994, pp. 236-237.

CAPM for
The Value Line Water Group

Estimation Based Upon Historical Information

Market Premium(1)	7.5 %
x Beta(2)	0.52
Risk Adjusted Market Premium	3.9
Weighting - Traditional	0.75
Weighted - Traditional Premium	2.9
Market Premium(1)	7.5
Weighting - Zero-Beta	0.25
Weighted - Zero-Beta Premium	1.9
Total Market Premium(3)	4.8
Size Adjustment Premium(4)	0.5
Plus Risk Free Rate(1)	6.0
-CAPM Cost Rate	11.3 %

Estimation Based Upon Projected Information

Market Premium(1)	9.0 %
x Beta(2)	0.52
Risk Adjusted Market Premium	4.7
Weighting - Traditional	0.75
Weighted - Traditional Premium	3.5
Market Premium(1)	9.0
Weighting - Zero-Beta	0.25
Weighted - Zero-Beta Premium	2.3
Total Market Premium(3)	5.8
Size Adjustment Premium(4)	0.5
Plus Risk Free Rate(1)	6.0
CAPM Cost Rate	12.3 %

Notes: (1) Developed on page 2 of this Schedule.
      (2) Developed on Schedule 9.
      (3) Sum of the weighted traditional and zero-beta premiums.
      (4) Developed on page 4 of this Schedule.

Development of Market Premiums for Use in a CAPM Model

	A	B	C	D	E	F	G	H
	Value Line Summary & Index Month End Edition Date	Forecasted Market Dividend Yield	Stock Price Appreciation Next 3-5 Years	Annual Price Appreciation(1)	Annual Total Return(1)	Midpoint Market Return(2)	Average Market Return(3)	CAPM Projected Market Return(6)
Nov 27 1998	1.90 %	55 %	11.6 %	13.5 %			
Dec 25 1998	2.00	60	12.5	14.5			
Jan 29 1999	1.90	50	10.7	12.6			
Feb 26 1999	2.10	60	12.5	14.6			
Mar 26 1999	2.00	65	13.3	15.3			
Apr 30 1999	1.90	60	12.5	14.4			
May 28 1999	1.80	55	11.6	13.4			
Jun 25 1999	1.80	60	12.5	14.3			
Jul 30 1999	1.80	55	11.6	13.4			
Aug 27 1999	1.90	65	13.3	15.2			
Sep 24 1999	2.00	70	14.2	16.2			
Oct 29 1999	2.10	80	15.8	17.9			
						15.3 %	14.6 %	15.0 %

Less Risk Free Rate(4)   6.0

Estimated Market Premium Based Upon Projected Information (1)   9.0 %

Estimated Market Premium Based Upon Historical Information (5)   7.5 %

See next page of this Schedule for Notes.

CAPM for the Value Line Water Group(6)

Notes:

(1)   A projected market premium is based upon the projected market return rate derived from the Value Line Summary and Index for the various dates shown. For example, Value Line projects (10/29/99) that the market will appreciate in price 80% over the next three to five years. Using a four-year midpoint estimate, Value Line's appreciation potential equates to 15.8% annually ($1.80^{.25}$). Additionally, Value Line estimates the market will have a dividend yield of 2.1%. Combining the market dividend yield of 2.1% with the market appreciation results in a projected market return rate of 17.9% (15.8% + 2.1%).

(2)   _ Mid point of the month-end total market returns in Column E.

(3)   Equal the 12-month average total market return in Column E.

(4)   As discussed in the direct testimony, the risk-free rate is 6.0%.

(5)   The historical market premium is based upon studies conducted by Ibbotson Associates concerning asset returns. Ibbotson Associates' asset return studies are the most noted asset return rate studies available today. The results are widely disseminated throughout the investment public. Ibbotson Associates' long-term common stock total market return is 13.2% which, when reduced by the long-term historic risk-free rate of 5.7% results in a market premium of 7.5% (13.2% - 5.7%).

(6)   The CAPM calculations includes a traditional CAPM and the zero beta CAPM. The zero beta CAPM reflects a slight modification to the traditional CAPM formula. Both CAPMs are calculated using the same risk-free rates, betas, and market premiums. The only difference between the traditional and zero beta CAPM is the use of the "x" term which is an assumed weighting factor. The zero beta CAPM uses a conservative weighting of 25% for the "x" term. The formula for the zero beta CAPM is:

$$K = R_f + [x(R_m - R_f)] + [(1-x)\beta(R_m - R_f)]$$

Size Effect on CAPM Returns

Decile	Beta of Deciles	Size Premium In Excess of CAPM	Beta of Value Line Water Group	Ratio of Betas	Group's Market Size Premium
1	0.90	-0.28			
2	1.04	0.18			
3	1.04	0.25			
4	1.13	0.57			
5	1.16	1.09			
6	1.18	0.99			
7	1.23	0.98			
8	1.27	1.72			
9	1.34	1.96			
10	1.44	4.35			
Market Quintiles					
Mid-Cap 3-5	1.11	0.64			
Low-Cap 6-8	1.23	1.23	0.52	42%	0.5
Micro-Cap 9-10	1.39	3.16			

	Group's Market Deciles	Group's Market Quintiles
Value Line Water Group	7	Low-Cap

Source of Information: Stocks, Bonds, Bills, and Inflation, 1999 Yearbook

Risk Premium
For the Value Line Water Group

Prospective Public Utility Bond Yields(1)	7.9 %
Estimated Risk Premium(2)	4.5
Risk Premium Indicated Cost Rate	12.4 %

Notes: (1) Based upon the current and prospective long-term debt cost
rates, it is reasonable to expect that if the Value Line Group
issued new long-term bonds, they would be priced to yield
about 7.9% based upon a credit profile of A.

(2) A 4.5% risk premium is concluded for the Value Line Group
after reviewing the tabulation of risk spreads shown on pages
2 and 3 of this Schedule.

Development of the Project Risk Premium

			A		B	C	D	E	E	G	H	I
			Value Line Summary & Index Month End Edition Date		Forecasted Market Dividend Yield	Stock Price Appreciation Next 3-5 Years	Annual Price Appreciation	Forecasted Annual Total Return	Less: Yield of Moody's A Rated Industrial Bonds	Forecasted Equity Premium	Estimated Risk Adjustment	Forecasted Risk Premium
Nov	27	1998			1.9 %	55 %	11.6 %	13.5 %	6.88 %	6.6 %	70 %	4.6 %
Dec	25	1998			2.0	60	12.5	14.5	6.68	7.8	70	5.5
Jan	29	1999			1.9	50	10.7	12.6	6.70	5.9	70	4.1
Feb	26	1999			2.1	60	12.5	14.6	6.84	7.8	70	5.4
Mar	26	1999			2.0	65	13.3	15.3	7.02	8.3	70	5.8
Apr	30	1999			1.9	60	12.5	14.4	7.03	7.4	70	5.2
May	28	1999			1.8	55	11.6	13.4	7.33	6.1	70	4.2
Jun	25	1999			1.8	60	12.5	14.3	7.64	6.7	70	4.7
Jul	30	1999			1.8	55	11.6	13.4	7.59	5.8	70	4.1
Aug	27	1999			1.9	65	13.3	15.2	7.76	7.4	70	5.2
Sep	24	1999			2.0	70	14.2	16.2	7.76	8.4	70	5.9
Oct	29	1999			2.1	80	15.8	17.9	7.92	10.0	70	7.0
				Midpoint of data				15.3		7.9		5.6 %
				Twelve Month Average				14.6		7.3		5.1 %

Recent Returns and Risk Premiums of
S&P Public Utility Stocks and Bonds
for the Years 1979-1998 and 1989-1998 Vs. 1928-1998

Years	Public Utility Stock Returns	L-Term T-Bonds	Public Utility Bond Returns				
			AAA	AAA & AA	AA	A	BBB
1979	0.1221	(0.0289)	(0.0424)	(0.0509)	(0.0590)	(0.0655)	(0.0823)
1980	0.1275	(0.0804)	(0.0782)	(0.0778)	(0.0773)	(0.0702)	(0.0649)
1981	0.1464	0.0472	0.0616	0.0674	0.0730	0.0416	0.0674
1982	0.2292	0.4323	0.3294	0.3750	0.3942	0.3708	0.3808
1983	0.2372	(0.0049)	0.0721	0.0691	0.0763	0.1406	0.1347
1984	0.2219	0.1611	0.1770	0.1796	0.1768	0.1783	0.2075
1985	0.3232	0.3143	0.3473	0.3276	0.3259	0.3143	0.3098
1986	0.3575	0.3692	0.2994	0.2720	0.2698	0.2835	0.2933
1987	(0.0544)	(0.1013)	(0.1132)	(0.0637)	(0.0566)	(0.0435)	(0.0505)
1988	0.1849	0.1026	0.2027	0.1615	0.1594	0.1643	0.1919
1989	0.4351	0.2176	0.1770	0.1743	0.1715	0.1692	0.1781
1990	0.0069	0.0482	0.0685	0.0689	0.0722	0.0738	0.0728
1991	0.0931	0.1472	0.1813	0.1647	0.1624	0.1715	0.1878
1992	0.1183	0.1093	0.1264	0.1312	0.1324	0.1355	0.1315
1993	0.1661	0.2162	0.1926	0.2126	0.2190	0.1429	0.1590
1994	(0.0825)	(0.1075)	(0.0802)	(0.0656)	(0.0657)	0.0065	(0.0351)
1995	0.3772	0.3268	0.2860	0.3074	0.3089	0.2164	0.2442
1996	0.0550	0.0020	0.0279	0.0211	0.0214	0.0279	0.0415
1997	0.1959	0.1454	0.1181	0.1157	0.1169	0.1238	0.1496
1998	0.1896	0.1786	0.1431	0.0365	0.0289	0.1074	0.0981

Average Returns 1928-1998	0.1121	0.0539	0.0605	0.0603	0.0615	0.0650	0.0721
Average Returns 1979-1998	0.1725	0.1248	0.1248	0.1213	0.1225	0.1245	0.1308
Average Returns 1989-1998	0.1555	0.1284	0.1241	0.1167	0.1168	0.1175	0.1228

Average Risk Premium 1928-1998		0.0581	0.0516	0.0517	0.0506	0.0471	0.0400
Average Risk Premium 1979-1998		0.0478	0.0477	0.0512	0.0500	0.0481	0.0418
Average Risk Premium 1989-1998		0.0271	0.0314	0.0388	0.0387	0.0380	0.0327

Analysis of Resultant Risk Premiums of
S&P Public Utility Stocks and Public Utility Bonds

Years	Public Utility Stock Returns	Average High Grade Public Utility Bond Premium	Stock Market Down Years	Negative Resultant Premium Years	Stock Market Down Years With Negative Premium
1928	0.5431	0.5047	--	--	--
1929	0.1376	0.1190	--	--	--
1930	(0.2149)	(0.3024)	Down	Negative	Down & Neg.
1931	(0.3193)	(0.2998)	Down	Negative	Down & Neg.
1932	(0.0724)	(0.1674)	Down	Negative	Down & Neg.
1933	(0.2170)	(0.1898)	Down	Negative	Down & Neg.
1934	(0.1743)	(0.4055)	Down	Negative	Down & Neg.
1935	0.6914	0.5543	--	--	--
1936	0.2357	0.1401	--	--	--
1937	(0.3337)	(0.3648)	Down	Negative	Down & Neg.
1938	0.1020	0.0220	--	--	--
1939	0.1538	0.0971	--	--	--
1940	(0.1643)	(0.2260)	Down	Negative	Down & Neg.
1941	(0.3050)	(0.3375)	Down	Negative	Down & Neg.
1942	0.1079	0.0785	--	--	--
1943	0.4750	0.4389	--	--	--
1944	0.1879	0.1539	--	--	--
1945	0.5665	0.5237	--	--	--
1946	(0.0130)	(0.0375)	Down	Negative	Down & Neg.
1947	(0.1236)	(0.1043)	Down	Negative	Down & Neg.
1948	0.0451	0.0157	--	--	--
1949	0.3074	0.2292	--	--	--
1950	0.0152	0.0027	--	--	--
1951	0.2075	0.2487	--	--	--
1952	0.1947	0.1544	--	--	--
1953	0.0918	0.0844	--	--	--
1954	0.2269	0.1557	--	--	--
1955	0.1357	0.1477	--	--	--
1956	0.0416	0.1122	--	--	--
1957	0.0541	0.0356	--	--	--
1958	0.3827	0.3820	--	--	--
1959	0.0958	0.1164	--	--	--
1960	0.1680	0.0931	--	--	--
1961	0.3646	0.3185	--	--	--
1962	(0.0519)	(0.1354)	Down	Negative	Down & Neg.
1963	0.1261	0.1036	--	--	--
1964	0.1685	0.1290	--	--	--
1965	0.0489	0.0511	--	--	--
1966	(0.0504)	0.0029	Down	--	--
1967	(0.0216)	0.0336	Down	--	--
1968	0.1419	0.1179	--	--	--
1969	(0.1769)	(0.0900)	Down	Negative	Down & Neg.
1970	0.1494	0.0522	--	--	--
1971	0.0050	(0.1258)	--	Negative	--
1972	0.1464	0.0454	--	--	--
1973	(0.2106)	(0.2249)	Down	Negative	Down & Neg.
1974	(0.2135)	(0.1694)	Down	Negative	Down & Neg.
1975	0.4364	0.3498	--	--	--
1976	0.3245	0.1114	--	--	--
1977	0.1076	0.0497	--	--	--
1978	(0.0174)	(0.0126)	Down	Negative	Down & Neg.
1979	0.1221	0.1766	--	--	--
1980	0.1275	0.2034	--	--	--
1981	0.1464	0.0855	--	--	--
1982	0.2292	(0.1382)	--	Negative	--
1983	0.2372	0.1477	--	--	--
1984	0.2219	0.0440	--	--	--
1985	0.3232	(0.0056)	--	Negative	--
1986	0.3575	0.0763	--	--	--
1987	(0.0544)	0.0149	Down	--	--
1988	0.1849	0.0129	--	--	--
1989	0.4351	0.2621	--	--	--
1990	0.0069	(0.0640)	--	Negative	--
1991	0.0931	(0.0769)	--	Negative	--
1992	0.1183	(0.0131)	--	Negative	--
1993	0.1661	(0.0257)	--	Negative	--
1994	(0.0825)	(0.0313)	Down	Negative	Down & Neg.
1995	0.3772	0.0975	--	--	--
1996	0.0550	0.0304	--	--	--
1997	0.1959	0.0773	--	--	--
1998	0.1896	0.1107	--	--	--
Count					
1928-98	71	71	19	23	16
1979-98	20	20	2	7	1
1989-98	10	10	1	5	1