Exhibit No. _____
Issue: Cost of Capital
Witness: Dylan W. D'Ascendis
Type of Exhibit: Direct Testimony
Sponsoring Party: Indian Hills
Case No.: SR-2017-0259
Date: October 13, 2017

Missouri Public Service Commission

Direct Testimony

of

Dylan W. D'Ascendis, CRRA, CVA

On Behalf of

Indian Hills Utility Operating Company, Inc.

October 13, 2017

IH Exhibit No. 10
Date 11-27-17 Reporter KF
File No WR-2017-0259

AFFIDAVIT

STATE OF New Jersey)
) ss
COUNTY OF Burlington)

I, Dylan W. D'Ascendis, state that the answers to the questions posed in the attached Direct Testimony are true to the best of my knowledge, information and belief.

Subscribed and sworn to before me this 13 day of October, 2017.

Notary Public

My Commission Expires:

BRIDGET D JUNGBLUT
NOTARY PUBLIC
My Comm. Exp. 01-25-2022
No. 2283356
NEW JERSEY

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I. INTRODUCTION

A. Witness Identification

Q. Please state your name and business address.

A. My name is Dylan W. D'Ascendis. My business address is 3000 Atrium Way, Suite 241, Mount Laurel, NJ 08054.

Q. By whom are you employed and in what capacity?

A. I am a Director at ScottMadden, Inc.

B. Background and Qualifications

Q. Please summarize your professional experience and educational background.

A. I offer expert testimony on behalf of investor-owned utilities on a variety of regulatory subjects including rate of return issues. I have previously testified to rate of return before regulatory commissions on nineteen separate occasions in eleven different regulatory jurisdictions, including Missouri. I am a graduate of the University of Pennsylvania, where I received a Bachelor of Arts degree in Economic History. I also hold a Master of Business Administration from Rutgers University with a concentration in Finance and International Business, which was conferred with high honors. I am a Certified Rate of Return Analyst ("CRRA") and a Certified Valuation Analyst ("CVA"). My full professional qualifications are provided in Appendix A.

II. PURPOSE OF TESTIMONY

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

A. The purpose of my testimony is to testify on behalf of Indian Hills Utility Operating Company ("Indian Hills" or the "Company") about the appropriate capital structure and corresponding cost rates that the Company should be afforded the opportunity to earn on its jurisdictional rate base.

Q. Have you prepared an exhibit in support of your recommendation?

A. Yes. I have prepared Schedule DWD-01, which consists of Sub-Schedules DWD-1 through DWD-9.

III. SUMMARY

Q. What is your recommended cost of capital for Indian Hills?

A. I recommend that the Missouri Public Service Commission ("MO PSC" or the "Commission") authorize the Company the opportunity to earn weighted average cost of capital ("WACC") of 14.28%. My recommended capital structure consists of 77.12% long-term debt at an embedded debt cost rate of 14.00%, and 22.88% common equity at my recommended common equity cost rate[1] of 15.20%. The overall rate of return is summarized on page 1 of Sub-Schedule DWD-1 and in Table 1 below:

[1] I will also refer to the cost of common equity as return on equity ("ROE")

Table 1: Summary of Overall Rate of Return

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	77.12%	14.00%	10.80%
Common Equity	22.88%	15.20%	3.48%
Total	100.00%		14.28%

Q. Do you have any general comments regarding the Missouri Public Service Commission ("MOPSC" or the "Commission") Staff's ("Staff") cost of capital recommendation in this case?

A. Yes. The Staff recommended WACC of 12.37%, derived using a hypothetical capital structure of 65.00% long-term debt at a cost rate of 14.00% and 35.00% common equity at a cost rate of 9.34%, is inadequate for ratemaking purposes. It is inadequate because, first, Staff's recommended hypothetical capital structure is based on a faulty premise that Indian Hills can receive traditional utility financing from commercial lenders. As will be discussed in detail by Mr. Josiah Cox in his direct testimony, Indian Hills currently cannot be traditionally financed, and because of this, Staff's assumption for their capital structure is incorrect. Second, Staff's recommended ROE ignores the basic financial precept that debt investments are less risky than equity investments. In other proceedings before this Commission, Staff uses a "rule of thumb" test for ROE recommendations which simply adds a 3.00% to 4.00% risk premium to the yield to maturity of the subject company's cost of long-term debt.[2] While I do not agree with the method, if Staff followed their "rule of thumb" cost of equity model for Indian Hills' actual cost of long-term debt of 14.00%, indicated ROEs of 17.00% and 18.00% would

[2] For example, Missouri Public Service Commission Staff Report, Cost of Service: Spire Missouri, Inc. Case Nos. GR-2017-0215 and GR-2017-0216, September 2017.

result.[3] As it stands currently, the Staff's own ROE recommendation for Indian Hills clearly fails their own reasonableness check.

Indian Hills' request for relief is both reasonable and conservative given the Company's significant risks compared to other water utilities and is consistent regarding the relative riskiness of long-term debt versus common equity.

IV. CAPITAL STRUCTURE AND COST OF LONG-TERM DEBT

Q. What capital structure ratios do you recommend be employed in developing an overall fair rate of return appropriate for the Company?

A. I recommend the use of Indian Hills' actual capital structure consisting of 77.12% long-term debt and 22.88% common equity as shown on page 1 of Sub-Schedule DWD-1.

Q. What capital structure is Staff recommending in this proceeding?

A. Staff is recommending a hypothetical capital structure of 65% long-term debt and 35% common equity in this proceeding.

Q. Is the Staff recommended hypothetical capital structure appropriate in this proceeding?

A. No. As mentioned above, the hypothetical capital structure recommended by Staff is based on the faulty premise that Indian Hills is traditionally financed. As

[3] In this proceeding, Staff applied the 3%-4% equity premium indicated by the "rule of thumb" method to a recent BB bond yield of 5.34% instead of the Company's long-term debt cost rate of 14.00%. What is prescribed in the "rule of thumb" method is to use the target company's long-term debt cost rate. *See*, John D. Stowe, Thomas R. Robinson, Jerald E. Pinto and Dennis W. McLeavey, *Analysis of Equity Investments: Valuation*, Association for Investment Management and Research, 2002, p. 54. I would also note that Staff has agreed to Indian Hills' requested cost of long-term debt in this proceeding.

discussed in detail in Mr. Cox' direct testimony, the operations of Indian Hills cannot be traditionally financed.

Q. How has the Commission recently ruled regarding actual capital structures in small utility rate cases?

A. In a Report and Order in Case No. WR-2016-0064, issued on July 12, 2016, this Commission authorized the actual capital structure of Hillcrest Utility Operating Company, Inc.,[4] which consisted of 81.00% long-term debt and 19.00% common equity. The Commission stated:

> The Commission concludes that in calculating Hillcrest's cost of capital and cost of debt, the appropriate capital structure to use is the actual capital structure of Hillcrest as of September 2015, which was 19% equity and 81% debt.

Staff in that case recommended a hypothetical capital structure consisting of 75% long-term debt and 25%.

Q. Given the above, is Staff's recommendation of a hypothetical capital structure in this proceeding reasonable?

A. No. Staff should have used Indian Hills' actual capital structure in its analysis.

Q. Is the level of debt proposed in this case already approved by the Commission?

A. Yes. The original indebtedness Indian Hills sought was authorized in File No. WO-2016-0045.

4 Hillcrest Utility Operating Company is a sister company to Indian Hills.

Q. What cost rate for long-term debt is most appropriate for use in a cost of capital determination for Indian Hills?

A. A long-term debt cost rate of 14.00% is reasonable and appropriate and is the actual cost of long-term debt outstanding for the Company. Staff does not object to this cost rate.

Q. Is long-term debt available to Indian Hills at a lower cost rate than 14%?

A. No. As mentioned previously and discussed in Messrs. Cox' and Thaman's testimonies, the operations of small water utilities like Indian Hills cannot attract traditional financing from commercial lenders.

V. COST OF COMMON EQUITY

Q. Please summarize your recommended common equity cost rate.

A. My recommended common equity cost rate of 15.20% is summarized on page 2 of Sub-Schedule DWD-1. I have assessed the market-based common equity cost rates of companies of relatively similar, but not necessarily identical, risk to Indian Hills. Using companies of relatively comparable risk as proxies to derive a return on common equity is consistent with the principles of fair rate of return established in the *Hope*[5] and *Bluefield*[6] cases. No proxy group can be identical in risk to any single company, so there must be an evaluation of relative risk between the company and the proxy group to see if it is appropriate to make adjustments to the proxy group's indicated rate of return.

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5 *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

6 *Bluefield Water Works Improvement Co. v. Public Serv. Comm'n*, 262 U.S. 679 (1922).

My recommendation results from the application of several cost of common equity models, specifically the Discounted Cash Flow ("DCF") model, the Risk Premium Model ("RPM"), and the Capital Asset Pricing Model ("CAPM"), to the market data of a proxy group of eight water companies ("Utility Proxy Group") whose selection criteria will be discussed below. In addition, I also applied the DCF, RPM, and CAPM to a proxy group of domestic, non-price regulated companies comparable in total risk to the Utility Proxy Group ("Non-Price Regulated Proxy Group").

The results derived from each are as follows:

Table 2: Summary of Common Equity Cost Rate

	Utility Proxy Group
Discounted Cash Flow Model	8.63%
Risk Premium Model	10.75
Capital Asset Pricing Model	10.21
Cost of Equity Models Applied to Comparable Risk, Non-Price Regulated Companies	11.38
Indicated Common Equity Cost Rate Before Adjustments	10.35%
Financial Risk Adjustment	2.49
Size Risk Adjustment	2.38
Indicated Common Equity Cost Rate after Adjustment	15.22%
Recommended Common Equity Cost Rate after Adjustment	15.20%

After analyzing the indicated common equity cost rates derived by these models, I conclude that a common equity cost rate of 10.35% for the Company is

indicated before any Company-specific adjustments. I then adjusted the indicated common equity cost rate upward by 2.49% and 2.38% to reflect Indian Hills' significantly greater financial risk and size risk relative to the Utility Proxy Group, respectively which resulted in a financial and size risk adjusted indicated common equity cost rate of 15.22%. After rounding down to the nearest five basis points, 15.20% is my recommendation for the Commission to adopt for use in setting rates for the Company.

VI. GENERAL PRINCIPLES

Q. What general principles have you considered in arriving at your recommended common equity cost rate of 15.20%?

A. In unregulated industries, the competition of the marketplace is the principal determinant of the price of products or services. For regulated public utilities, regulation must act as a substitute for marketplace competition. Assuring that the utility can fulfill its obligations to the public while providing safe and reliable service at all times requires a level of earnings sufficient to maintain the integrity of presently invested capital. Sufficient earnings also permit the attraction of needed new capital at a reasonable cost, for which the utility must compete with other firms of comparable risk, consistent with the fair rate of return standards established by the U.S. Supreme Court in the previously cited *Hope* and *Bluefield* cases. Consequently, marketplace data must be relied on in assessing a common equity cost rate appropriate for ratemaking purposes. Just as the use of the market data for the proxy group adds reliability to the informed expert judgment used in arriving at a recommended common equity cost rate, the use of

multiple generally accepted common equity cost rate models also adds reliability and accuracy when arriving at a recommended common equity cost rate.

A. Business Risk

Q. Please define business risk and explain why it is important to the determination of a fair rate of return.

A. Business risk is the riskiness of a company's common stock without the use of debt and/or preferred capital. Examples of such general business risks faced by all utilities (*i.e.*, electric, natural gas distribution, and water) include size, the quality of management, the regulatory environment in which they operate, customer mix and concentration of customers, service territory growth, and capital intensity. All of these have a direct bearing on earnings.

Consistent with the basic financial principle of risk and return, business risk is important to the determination of a fair rate of return because the higher the level of risk, the higher the rate of return investors demand.

Q. What business risks does the water industry face in general?

A. Increasingly stringent standards plus aging infrastructure necessitate additional capital investment in the distribution and treatment of water, exacerbating the pressure on free cash flows arising from increased capital expenditures for infrastructure repair and replacement. The significant amount of capital investment and, hence, high capital intensity, is a major risk factor for the water utility industry.

Value Line Investment Survey ("*Value Line*") observes the following about the water utility industry:

> In the most recent report card by the American Society of Civil Engineers (ACSC), the nation's drinking water and wastewater infrastructure received grades of D and D+, respectively.
>
> ***
>
> Even with the higher capital spending, much more work needs to be done. According to the ACSC report, much of the one million miles of pipes that carry drinking water across the country is in dire need of repair as some pipes are approaching 100 years old.
>
> ***
>
> Overall, the Water Utility Industry is in decent shape. Every company is in the process of rebuilding an antiquated system, which will require tremendous amounts of capital. Fortunately, regulators are working with the companies to gradually replace the antiquated infrastructure.[7]

The water industry also experiences low depreciation rates. Depreciation rates are one of the principal sources of internal cash flows for all utilities (through a utility's depreciation expense), and are vital to a company to fund ongoing replacements and repairs of the system. Water utilities' assets have long lives, and therefore have long capital recovery periods. As such, they face greater risk due to inflation, which results in a higher replacement cost per dollar of net plant.

Substantial capital expenditures, as noted by *Value Line,* will require significant financing. The three sources of financing typically used are debt,

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[7] *Value Line Investment Survey*, July 14, 2017.

equity (common and preferred), and cash flow. All three are intricately linked to the opportunity to earn a sufficient rate of return as well as the ability to achieve that return. Consistent with *Hope* and *Bluefield*, the return must be sufficient to maintain credit quality as well as enable the attraction of necessary new capital, be it debt or equity capital. If unable to raise debt or equity capital, the utility must turn to either retained earnings or free cash flow,[8] both of which are directly linked to earning a sufficient rate of return. The level of free cash flow represents a company's ability to meet the needs of its debt and equity holders. If either retained earnings or free cash flow is inadequate, it will be nearly impossible for the utility to attract the needed new capital to invest in new infrastructure to ensure quality service to its customers. An insufficient rate of return can be financially devastating for utilities and a public safety issue for their customers.

The water utility industry's high degree of capital intensity and low depreciation rates, coupled with the need for substantial infrastructure capital spending, require regulatory support in the form of adequate and timely rate relief, particularly a sufficient authorized return on common equity, so that the industry can successfully meet the challenges it faces.

B. Financial Risk

Q. Please define financial risk and explain why it is important to the determination of a fair rate of return.

A. Financial risk is the additional risk created by the introduction of debt and preferred stock into the capital structure. The higher the proportion of debt and

[8] Free Cash Flow = Operating Cash Flow (funds from operations) minus Capital Expenditures.

preferred stock in the capital structure, the higher the financial risk (*i.e.* likelihood of default). Therefore, consistent with the basic financial principle of risk and return, investors demand a higher common equity return as compensation for bearing higher default risk.

Q. How does your proposed ratemaking common equity ratio of 22.88% for Indian Hills compare with the total equity ratios maintained by the companies in your Utility Proxy Group?

A. My proposed ratemaking common equity ratio of 22.88% for Indian Hills is substantially outside of the range of total equity ratios maintained, on average, by the companies in the Utility Proxy Group on which I base my recommended common equity cost rate, indicating extraordinary relative risk. As shown on page 2 of Sub-Schedule DWD-2, the common equity ratios of the Utility Proxy Group range from 45.17% to 60.60%, with a midpoint of 52.89% and an average of 53.75% in 2016.

Q. Can bond and credit ratings be a proxy for the combined business and financial risks (*i.e.*, investment risk of an enterprise)?

A. Yes, similar bond ratings/issuer credit ratings reflect, and are representative of, similar combined business and financial risks (*i.e.*, total risk) faced by bond investors.[9] Although specific business or financial risks may differ between companies, the same bond/credit rating indicates that the combined risks are roughly similar, albeit not necessarily equal, as the purpose of the bond/credit

[9] Risk distinctions within S&P's bond rating categories are recognized by a plus or minus, i.e., within the A category, an S&P rating can be at A+, A, or A-. Similarly, risk distinctions for Moody's ratings are distinguished by numerical rating gradations, i.e., within the A category, a Moody's rating can be A1, A2 and A3.

rating process is to assess credit quality or credit risk and not common equity risk.

Q. Do rating agencies reflect company size in their bond ratings?

A. No. Neither S&P nor Moody's have minimum company size requirements for any given rating level. This means, all else equal, a relative size analysis needs to be conducted for companies with similar bond ratings.

VII. INDIAN HILLS UTILITY OPERATING COMPANY, INC.

Q. Please describe Indian Hills' operations.

A. The original Indian Hills drinking water system was constructed approximately fifty years ago. Indian Hills currently serves approximately 700 water customers in and immediately surrounding Indian Hills subdivision, a residential/recreational lake development near Cuba, Missouri in Crawford County. Indian Hills was recently purchased by Indian Hills Utility Operating Company, Inc. on March 31, 2016. Indian Hills is not publicly-traded.

Q. What condition was the Indian Hills' system in when it was acquired last year?

A. As explained further in detail in Mr. Cox' testimony, the original system was in a state of significant disrepair that centered around six major enforcement issues or schedules of compliance associated with the system's existing operation before Indian Hills bought the water assets. Additionally, the water system was found to be out of compliance by the Missouri Department of Natural Resources ("MDNR") on twenty-seven different measures.

Q. After acquisition of Indian Hills, have significant improvements been made to the water system?

A. Yes. As explained in greater detail by Mr. Cox, approximately $1.8 million of improvements were made to the system from the time of acquisition to February 2017.

VIII. PROXY GROUP SELECTION

Q. Please explain how you chose your proxy group of eight water companies.

A. The basis of selection for the Utility Proxy Group was to select those companies which meet the following criteria:

(i) They are included in the Water Utility Group of *Value Line's Standard Edition* (July 14, 2017);

(ii) They have 70% or greater of 2016 total operating income and 70% or greater of 2016 total assets attributable to regulated water operations;

(iii) At the time of the preparation of this testimony, they had not publicly announced that they were involved in any major merger or acquisition activity (*i.e.*, one publicly-traded utility merging with or acquiring another);

(iv) They have not cut or omitted their common dividends during the five years ending 2016 or through the time of the preparation of this testimony;

(v) They have *Value Line* and Bloomberg adjusted betas;

(vi) They have a positive *Value Line* five-year dividends per share (DPS) growth rate projection; and

(vii) They have *Value Line*, Reuters, Zacks, or Yahoo! Finance consensus five-year earnings per share (EPS) growth rate projections.

The following eight companies met these criteria: American States Water Co., American Water Works Co., Inc., Aqua America, Inc., California Water Service Corp., Connecticut Water Service, Inc., Middlesex Water Co., SJW Corp., and York Water Co.

Q. Please describe Sub-Schedule DWD-2, page 1.

A. Page 1 of Sub-Schedule DWD-2 contains comparative capitalization and financial statistics for the eight water companies identified above for the years 2012 to 2016.

During the five-year period ending 2016, the historically achieved average earnings rate on book common equity for the group averaged 10.56%. The average common equity ratio based on total permanent capital (excluding short-term debt) was 53.13%, and the average dividend payout ratio was 56.73%.

Total debt to earnings before interest, taxes, depreciation, and amortization ("EBITDA") for the years 2012 to 2016 ranges between 3.40 and 3.83, with an average of 3.63. Funds from operations to total debt range from 20.86% to 25.95%, with an average of 23.18%.

IX. COMMON EQUITY COST RATE MODELS

Q. Are your cost of common equity models market-based models?

A. Yes. The DCF model is market-based because market prices are used in developing the dividend yield component of the model. The RPM is market-based because the bond ratings and expected bond yields used in the application of the RPM reflect the market's assessment of bond/credit risk. In addition, the use of beta coefficients (β) to determine the equity risk premium

reflects the market's assessment of market/systematic risk since beta coefficients are derived from regression analyses of market prices. The Predictive Risk Premium Model ("PRPM") uses monthly market returns in addition to expectations of the risk-free rate. The CAPM is market-based for many of the same reasons that the RPM is market-based (*i.e.*, the use of expected bond yields and betas). Selection of the comparable risk non-price regulated companies is market-based because it is based on statistics which result from regression analyses of market prices and reflect the market's assessment of total risk.

A. Discounted Cash Flow Model

Q. What is the theoretical basis of the DCF model?

A. The theory underlying the DCF model is that the present value of an expected future stream of net cash flows during the investment holding period can be determined by discounting those cash flows at the cost of capital, or the investors' capitalization rate. DCF theory indicates that an investor buys a stock for an expected total return rate which is derived from cash flows received in the form of dividends plus appreciation in market price (the expected growth rate). Mathematically, the dividend yield on market price plus a growth rate equals the capitalization rate, *i.e.*, the total common equity return rate expected by investors.

Q. Which version of the DCF model do you use?

A. I use the single-stage constant growth DCF model.

Q. Please describe the dividend yield you used in your application of the DCF model.

A. The unadjusted dividend yields are based on the proxy companies' dividends as of August 31, 2017, divided by the average of closing market prices for the 60 trading days ending August 31, 2017.[10]

Q. Please explain your adjustment to the dividend yield.

A. Because dividends are paid periodically (quarterly), as opposed to continuously (daily), an adjustment must be made to the dividend yield. This is often referred to as the discrete, or the Gordon Periodic, version of the DCF model.

DCF theory calls for the use of the full growth rate, or D_1, in calculating the dividend yield component of the model. Since the various companies in the Utility Proxy Group increase their quarterly dividend at various times during the year, a reasonable assumption is to reflect one-half the annual dividend growth rate in the dividend yield component, or $D_{1/2}$. Because the dividend should be representative of the next twelve-month period, my adjustment is a conservative approach that does not overstate the dividend yield. Therefore, the actual average dividend yields in Column 1 on page 1 of Sub-Schedule DWD-3 have been adjusted upward to reflect one-half the average projected growth rate shown in Column 6.

[10] See Sub-Schedule DWD-3, page 1, column 1.

Q. Please explain the basis of the growth rates you apply to the Utility Proxy Group in your DCF model.

A. Investors with more limited resources than institutional investors are likely to rely on widely available financial information services, such as *Value Line*, Reuters, Zacks, and Yahoo! Finance. Investors realize that analysts have significant insight into the dynamics of the industries and individual companies they analyze, as well as companies' abilities to effectively manage the effects of changing laws and regulations and ever-changing economic and market conditions. For these reasons, I use analysts' five-year forecasts of earnings per share ("EPS") growth in my DCF analysis.

Over the long run, there can be no growth in dividends per share ("DPS") without growth in EPS. Security analysts' earnings expectations have a more significant influence on market prices than dividend expectations. Thus, the use of earnings growth rates in a DCF analysis provides a better matching between investors' market price appreciation expectations and the growth rate component of the DCF.

Q. Please summarize the DCF model results.

A. As shown on page 1 of Sub-Schedule DWD-3, the mean result of the application of the single-stage DCF model is 8.77%, the median result is 8.48%, and the average of the two is 8.63% for the Utility Proxy Group. In arriving at a conclusion for the DCF-indicated common equity cost rate for the Utility Proxy Group, I have relied on an average of the mean and the median results of the

DCF. This approach takes into consideration all of the proxy companies' results while mitigating the high and low outliers of those individual results.

B. The Risk Premium Model

Q. Please describe the theoretical basis of the RPM.

A. The RPM is based on the fundamental financial principle of risk and return, namely, that investors require greater returns for bearing greater risk. The RPM recognizes that common equity capital has greater investment risk than debt capital, as common equity shareholders are behind debt holders in any claim on a company's assets and earnings. As a result, investors require higher returns from common stocks than from investment in bonds, to compensate them for bearing the additional risk.

While it is possible to directly observe bond returns and yields, investors' required common equity return cannot be directly determined or observed. According to RPM theory, one can estimate a common equity risk premium over bonds (either historically or prospectively), and use that premium to derive a cost rate of common equity. The cost of common equity equals the expected cost rate for long-term debt capital plus a risk premium over that cost rate to compensate common shareholders for the added risk of being unsecured and last-in-line for any claim on the corporation's assets and earnings in the event of a liquidation.

Q. Please explain how you derived your indicated cost of common equity based on the RPM.

A. I relied on the results of the application of two risk premium methods. The first method is the PRPM, while the second method is a risk premium model using a total market approach.

Q. Please explain the PRPM.

A. The PRPM, published in the *Journal of Regulatory Economics ("JRE"),*[11] was developed from the work of Robert F. Engle, who shared the Nobel Prize in Economics in 2003 "for methods of analyzing economic time series with time-varying volatility ("ARCH")".[12] Engle found that volatility changes over time and is related from one period to the next, especially in financial markets. Engle discovered that the volatility in prices and returns clusters over time and is therefore highly predictable and can be used to predict future levels of risk and risk premiums.

The PRPM estimates the risk / return relationship directly, as the predicted equity risk premium is generated by the prediction of volatility or risk. The PRPM is not based on an estimate of investor behavior, but rather on the evaluation of the results of that behavior (*i.e.*, the variance of historical equity risk premiums).

The inputs to the model are the historical returns on the common shares of each company in the Utility Proxy Group minus the historical monthly yield on

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[11] Autoregressive conditional heteroscedasticity. See "A New Approach for Estimating the Equity Risk Premium for Public Utilities", Pauline M. Ahern, Frank J. Hanley and Richard A. Michelfelder, Ph.D. The Journal of Regulatory Economics (December 2011), 40:261-278.

[12] www.nobelprize.org.

long-term U.S. Treasury securities through August 2017. Using a generalized form of ARCH, known as GARCH, I calculate each Utility Proxy Group company's projected equity risk premium using Eviews© statistical software. When the GARCH Model is applied to the historical return data, it produces a predicted GARCH variance series[13] and a GARCH coefficient[14]. Multiplying the predicted monthly variance by the GARCH coefficient and annualizing it[15] produces the predicted annual equity risk premium. I then add the forecasted 30-year U.S. Treasury Bond yield, 3.56%[16], to each company's PRPM-derived equity risk premium to arrive at an indicated cost of common equity. The 30-year Treasury yield is a consensus forecast derived from the *Blue Chip Financial Forecasts ("Blue Chip")*[17]. The mean PRPM indicated common equity cost rate for the Utility Proxy Group is 12.06%, the median is 11.55%, and the average of the two is 11.81%. Consistent with my reliance on the average of the median and mean results of the DCF, I will rely on the average of the mean and median results of the Utility Proxy Group PRPM to calculate a cost of common equity rate of 11.81%.

Q. Please explain the total market approach RPM.

A. The total market approach RPM adds a prospective public utility bond yield to an average of 1) an equity risk premium that is derived from a beta-adjusted total

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13 Illustrated on Columns 1 and 2 of page 2 of Sub-Schedule DWD-4.

14 Illustrated on Column 4 of page 2 of Sub-Schedule DWD-4.

15 Annualized Return = (1+Monthly Return)^12 - 1

16 See column 6 of page 2 of Sub-Schedule DWD-4.

17 *Blue Chip Financial Forecasts*, June 1, 2017 at p. 14 and September 1, 2017, at p. 2.

market equity risk premium, and 2) an equity risk premium based on the S&P Utilities Index.

Q. Please explain the basis of the expected bond yield of 4.89% applicable to the Utility Proxy Group.

A. The first step in the total market approach RPM analysis is to determine the expected bond yield. Because both ratemaking and the cost of capital (including common equity cost rate) are prospective in nature, a prospective yield on similarly-rated long-term debt is essential. I rely on a consensus forecast of about 50 economists of the expected yield on Aaa-rated corporate bonds for the six calendar quarters ending with the fourth calendar quarter of 2018 and the long-term projections for 2019 to 2023 and 2024 to 2028 from Blue Chip. As shown on Line No. 1 of page 3 of Sub-Schedule DWD-4, the average expected yield on Moody's Aaa-rated corporate bonds is 4.57%. In order to derive an expected yield on A2 rated-public utility bonds, I make an upward adjustment of 0.26%, which represents a recent spread between Aaa corporate bonds and A2-rated public utility bonds, in order to adjust the expected Aaa corporate bond yield to an equivalent Moody's A2-rated public utility bond.[18] Adding that recent 0.26% spread to the expected Aaa corporate bond yield of 4.57% results in an expected A2 public utility bond of 4.83%.

Since the Utility Proxy Group's average Moody's long-term issuer rating is A2/A3, another adjustment to the expected A2 public utility bond yield is needed to reflect the difference in bond ratings. An upward adjustment of 0.06%, which

[18] As shown on Line No. 2 and explained in note 2 of page 3 of Sub-Schedule DWD-4.

represents one-sixth of a recent spread between A2 and A3 public utility bond yields, is necessary to make the A2 prospective bond yield applicable to an A2/A3 public utility bond.[19] Adding the 0.06% to the 4.83% prospective A2 public utility bond yield results in a 4.89% expected bond yield for the Utility Proxy Group.

Q. Please explain the derivation of the beta-derived equity risk premium.

A. The components of the beta derived risk premium model are 1) an expected market equity risk premium over corporate bonds and 2) the beta coefficient. The derivation of the beta-derived equity risk premium that I apply to the Utility Proxy Group is shown on lines 1 through 11 of page 8 of Sub-Schedule DWD-4. The total beta-derived equity risk premium I apply is based on an average of: 1) Historical data-based equity risk premiums; 2) *Value Line*-based equity risk premiums; and 3) Bloomberg-based equity risk premium. Each of these is described in turn.

Q. How did you derive a market equity risk premium based on long-term historical data?

A. To derive a historical market equity risk premium, I used the most recent holding period returns for the large company common stocks from the 2017 Stocks, Bonds, Bills, and Inflation ("SBBI") Yearbook ("SBBI – 2017")[20] less the average historical yield on Moody's Aaa/Aa-rated corporate bonds for the period 1928 to 2016. The use of holding period returns over a very long period of time is

[19] As shown on Line No. 4 and explained in note 3 on page 3 of Sub-Schedule DWD-4.

[20] SBBI Appendix A Tables: Morningstar Stocks, Bonds, Bills, & Inflation 1926-2016.

appropriate because it is consistent with the long-term investment horizon presumed by investing in a going concern, *i.e.*, a company expected to operate in perpetuity.

SBBI's long-term arithmetic mean monthly total return rate on large company common stocks was 11.69% and the long-term arithmetic mean monthly yield on Moody's Aaa/Aa-rated corporate bonds was 6.13%.[21] As shown on line 1 of page 8 of Sub-Schedule DWD-4, subtracting the mean monthly bond yield from the total return on large company stocks results in a long-term historical equity risk premium of 5.56%.

I used the arithmetic mean monthly total return rates for the large company stocks and yields (income returns) for the Moody's Aaa/Aa corporate bonds, because they are appropriate for the purpose of estimating the cost of capital as noted in SBBI – 2017.[22] The use of the arithmetic mean return rates and yields is appropriate because historical total returns and equity risk premiums provide insight into the variance and standard deviation of returns needed by investors in estimating future risk when making a current investment. If investors relied on the geometric mean of historical equity risk premiums, they would have no insight into the potential variance of future returns because the geometric mean relates the change over many periods to a constant rate of change, thereby obviating the year-to-year fluctuations, or variance, which is critical to risk analysis.

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[21] As explained in note 1 on page 8 of Sub-Schedule DWD-4.

[22] SBBI – 2017, at 10-22.

Q. Please explain the derivation of a PRPM equity risk premium.

A. I used the same PRPM approach described previously to develop another equity risk premium estimate. The inputs to the model are the historical monthly returns on large company common stocks minus the monthly yields on Aaa/Aa corporate bonds during the period from January 1928 through August 2017.[23] Using the previously discussed generalized form of ARCH, known as GARCH, the projected equity risk premium is determined using Eviews© statistical software. The resulting PRPM predicted market equity risk premium is 5.96%.[24]

Q. Please explain the derivation of the regression-based market equity risk premium.

A. To derive the regression analysis-derived market equity risk premium of 7.41%, shown on line 2 of page 8 of Sub-Schedule DWD-4, I used the same monthly annualized total returns on large company common stocks relative to the monthly annualized yields on Moody's Aaa/Aa corporate bonds as mentioned above. The relationship between interest rates and the market equity risk premium was modeled using the observed monthly market equity risk premium as the dependent variable, and the monthly yield on Moody's Aaa/Aa corporate bonds as the independent variable. I used a linear Ordinary Least Squares ("OLS") regression, in which the market equity risk premium is expressed as a function of the Moody's Aaa/Aa corporate bonds yield:

$$RP = \alpha + \beta\ (R_{Aaa/Aa})$$

[23] Data from January 1926-December 2016 is from SBBI – 2017. Data from January – August 2017 is from Bloomberg Professional Services.

[24] Shown on Line No. 3 on page 8 of Sub-Schedule DWD-4.

The average historical data-based equity risk premium is 6.31%, which is shown on line 4 of page 8 of Sub-Schedule DWD-4.

Q. Please explain the derivation of a projected equity risk premium based on *Value Line* data for your RPM analysis.

A. Because both ratemaking and the cost of capital, including the cost rate of common equity, are prospective, a prospective market equity risk premium is essential. The derivation of the forecasted or prospective market equity risk premium can be found in note 4 on page 8 of Sub-Schedule DWD-4. Consistent with my calculation of the dividend yield component in my DCF analysis, this prospective market equity risk premium is derived from an average of the three- to five-year median market price appreciation potential by *Value Line* for the thirteen weeks ending September 1, 2017, plus an average of the median estimated dividend yield for the common stocks of the 1,700 firms covered in *Value Line*'s Standard Edition.[25]

The average median expected price appreciation is 34%, which translates to a 7.59% annual appreciation, and, when added to the average of *Value Line's* median expected dividend yields of 2.05%, equates to a forecasted annual total return rate on the market of 9.64%. The forecasted Aaa bond yield of 4.57% is deducted from the total market return of 9.64%, resulting in an equity risk premium of 5.07%, shown on page 8, line 5 of Sub-Schedule DWD-5.

[25] As explained in detail in page 2, note 1 of Sub-Schedule DWD-5.

Q. Please explain the derivation of an equity risk premium based on the S&P 500 companies.

A. Using data from *Value Line*, I calculate an expected total return on the S&P 500 using expected dividend yields and long-term growth estimates as a proxy for capital appreciation. The expected total return for the S&P 500 is 14.13%. Subtracting the prospective yield on Aaa Corporate bonds of 4.57% results in an 9.56% projected equity risk premium.

The average *Value Line*-based Equity risk premium is 7.32%, which is shown on Line No. 7 on page 8 of Sub-Schedule DWD-4.

Q. Please explain the derivation of an equity risk premium based on Bloomberg data.

A. Using data from Bloomberg Professional Services, I calculate an expected total return on the S&P 500 using expected dividend yields and long-term growth estimates as a proxy for capital appreciation, identical to the method described above. The expected total return for the S&P 500 is 13.65%. Subtracting the prospective yield on Aaa Corporate bonds of 4.57% results in an 9.08% projected equity risk premium.

Q. What is your conclusion of a beta-derived equity risk premium for use in your RPM analysis?

A. I give equal weight to equity risk premiums based on each source, historical, *Value Line*, and Bloomberg in arriving at my conclusion of 7.57%.[26]

[26] 7.57% = (6.31% + 7.32% + 9.08%)/3. See Line No. 9 on page 8 of Sub-Schedule DWD-4.

After calculating the average market equity risk premium of 7.57%, I adjust it by beta to account for the risk of the Utility Proxy Group. As discussed below, the beta coefficient is a meaningful measure of prospective relative risk to the market as a whole and is a logical means by which to allocate a company's or proxy group's share of the market's total equity risk premium relative to corporate bond yields. As shown on page 1 of Sub-Schedule DWD-5, the average of the mean and median beta coefficient for the Utility Proxy Group is 0.74. Multiplying the beta coefficient of the Utility Proxy Group of 0.74 by the market equity risk premium of 7.57% results in a beta-adjusted equity risk premium of 5.60% for the Utility Proxy Group.

Q. How did you derive the equity risk premium based on the S&P Utility Index and Moody's A-rated public utility bonds?

A. I estimate three equity risk premiums based S&P Utility Index holding returns, and two equity risk premiums based on the expected returns of the S&P Utilities Index, using *Value Line* and Bloomberg data, respectively. Turning first to the S&P Utility Index holding period returns, I derive a long-term monthly arithmetic mean equity risk premium between the S&P Utility Index total returns of 10.57% and monthly A-rated public utility bond yields of 6.61% from 1928 to 2016 to arrive at an equity risk premium of 3.96%.[27] I then apply the PRPM using the historical monthly equity risk premiums from January 1928 to August 2017 to arrive at a PRPM-derived equity risk premium of 4.03% for the S&P Utility Index. The final S&P Utility Index holding period equity risk premium uses the same

[27] As shown on Line No. 1 on page 12 of Sub-Schedule DWD-4.

historical data stated above to derive an equity risk premium of 5.62% based on a regression of the monthly equity risk premiums. The average of the three S&P Utilities Index holding return equity risk premiums is 4.53%.

I then derive expected total returns on the S&P Utilities Index of 8.98% and 8.10% using data from *Value Line* and Bloomberg Professional Services, respectively, and subtract the prospective A2-rated public utility bond yield (4.83%[28]), which results in risk premiums of 4.15% and 3.27%, respectively. As with the market equity risk premiums, I average the risk premium based on each source (*i.e.*, Historical, *Value Line*, and Bloomberg) to arrive at my utility-specific equity risk premium of 3.98%.[29]

Q. What is your conclusion of an equity risk premium for use in your total market approach RPM analysis?

A. The equity risk premium I apply to the Utility Proxy Group is 4.79%, which is the average of the beta-derived and the S&P utility equity risk premiums of 5.60% and 3.98%, respectively.[30]

Q. What is the indicated RPM common equity cost rate based on the total market approach?

A. As shown on Line No. 7 on Sub-Schedule DWD-4, page 3, I calculate a common equity cost rate of 9.68% for the Utility Proxy Group based on the total market approach of the RPM.

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28 Derived on Line No. 3 of page 3 of Sub-Schedule DWD-4.

29 3.98% = (4.53% + 4.15% + 3.27%)/3.

30 As shown on page 7 of Sub-Schedule DWD-4.

Q. What are the results of your application of the PRPM and the total market approach RPM?

A. As shown on page 1 of Sub-Schedule DWD-4, the indicated RPM-derived common equity cost rate is 10.75%, which gives equal weight to the PRPM (11.81%) and the adjusted market approach results (9.68%).

C. The Capital Asset Pricing Model

Q. Please explain the theoretical basis of the CAPM.

A. CAPM theory defines risk as the co-variability of a security's returns with the market's returns as measured by the beta coefficient (β). A beta coefficient less than 1.0 indicates lower variability than the market as a whole, while a beta coefficient greater than 1.0 indicates greater variability than the market.

The CAPM assumes that all other risk (*i.e.*, all non-market or unsystematic risk) can be eliminated through diversification. The risk that cannot be eliminated through diversification is called market, or systematic, risk. In addition, the CAPM presumes that investors require compensation only for systematic risk which is the result of macroeconomic and other events that affect the returns on all assets. The model is applied by adding a risk-free rate of return to a market risk premium, which is adjusted proportionately to reflect the systematic risk of the individual security relative to the total market as measured by the beta coefficient. The traditional CAPM model is expressed as:

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

Where: R_s = Return rate on the common stock

R_f = Risk-free rate of return

R_m = Return rate on the market as a whole

β = Adjusted beta coefficient (volatility of the security relative to the market as a whole)

Numerous tests of the CAPM have measured the extent to which security returns and beta coefficients are related as predicted by the CAPM, confirming its validity. The empirical CAPM ("ECAPM") reflects the reality that while the results of these tests support the notion that the beta coefficient is related to security returns, the empirical Security Market Line ("SML") described by the CAPM formula is not as steeply sloped as the predicted SML.[31] In view of theory and practical research, I have applied both the traditional CAPM and the ECAPM to the companies in the Utility Proxy Group and averaged the results.

Q. What beta coefficients did you use in your CAPM analysis?

A. With respect to the beta coefficient, I considered two methods of calculation: the average of the Beta coefficients of the Utility Proxy Group companies reported by Bloomberg Professional Services, and the average of the Beta coefficients of the Utility Proxy Group companies as reported by *Value Line*. While both of those services adjust their calculated (or "raw") Beta coefficients to reflect the tendency of the Beta coefficient to regress to the market mean of 1.00, *Value Line* calculates the Beta coefficient over a five-year period, while Bloomberg's calculation is based on two years of data.

[31] Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at p. 175.

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

A. As shown in column 5 on page 1 of Sub-Schedule DWD-5, the risk-free rate adopted for both applications of the CAPM is 3.56%. This risk-free rate of 3.56% is based on the average of the *Blue Chip* consensus forecast of the expected yields on 30-year U.S. Treasury bonds for the six quarters ending with the fourth calendar quarter of 2018 and long-term projections for the years 2019 to 2023 and 2024 to 2028.

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

A. The yield on long-term U.S. Treasury Bonds is almost risk-free and its term is consistent with the long-term cost of capital to public utilities measured by the yields on A-rated public utility bonds; the long-term investment horizon inherent in utilities' common stocks; and the long-term life of the jurisdictional rate base to which the allowed fair rate of return (*i.e.*, cost of capital) will be applied. In contrast, short-term U.S. Treasury yields are more volatile and largely a function of Federal Reserve monetary policy.

Q. Please explain the estimation of the expected risk premium for the market used in your CAPM analyses.

A. The basis of the market risk premium is explained in detail in Note 1 on Sub-Schedule DWD-5. As discussed previously, the market risk premium is derived from an average of:

1) Historical data-based market risk premiums;

2) *Value Line* data-based market risk premiums;

3) Bloomberg data-based market risk premium;

The long-term income return on U.S. Government Securities of 5.17% was deducted from the *SBBI-2017* monthly historical total market return of 11.97%, which results in an historical market equity risk premium of 6.80%.[32] The PRPM market equity risk premium is 6.75%, and is derived using the PRPM relative to the yields on long-term U.S. Treasury securities from January 1926 through August 2017. I applied a linear OLS regression to the monthly annualized historical returns on the S&P 500 relative to historical yields on long-term U.S. Government Securities from *SBBI-2017*. That regression analysis yielded a market equity risk premium of 8.62%. The average of the historical data-based market risk premiums is 7.39%.[33]

The *Value Line*-derived forecasted total market equity risk premium is derived by deducting the forecasted risk-free rate of 3.56%, discussed above, from the *Value Line* projected total annual market return of 9.64%, resulting in a forecasted total market equity risk premium of 6.08%. The S&P 500 projected market equity risk premium using *Value Line* data is derived by subtracting the projected risk-free rate of 3.56% from the projected total return of the S&P 500 of 14.13%. The resulting market equity risk premium is 10.57%. The average *Value Line* market risk premium is 8.33%.[34]

The S&P 500 projected market equity risk premium using Bloomberg data is derived by subtracting the projected risk-free rate of 3.56% from the projected

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32 SBBI – 2016, at pp. 3-5 and 21-23.

33 7.39% = (6.80% + 8.62% + 6.75%)/3.

34 8.33% = (6.08% + 10.57%)/2.

total return of the S&P 500 of 13.65%. The resulting market equity risk premium is 10.09%.

These three sources (historical, *Value Line*, and Bloomberg), when averaged, result in an average total market equity risk premium of 8.60%.[35]

Q. What are the results of your application of the traditional and empirical CAPM to the Utility Proxy Group?

A. As shown on page 1 of Sub-Schedule DWD-5, the mean result of my CAPM/ECAPM analyses is 10.21%, the median is 10.21%, and the average of the two is 10.21%. Consistent with my reliance on the average of mean and median DCF results discussed above, the indicated common equity cost rate using the CAPM/ECAPM is 10.21%.

D. Common Equity Cost Rates for a Proxy Group of Domestic, Non-Price Regulated Companies Based on the DCF, RPM, and CAPM

Q. Why do you also consider a proxy group of domestic, non-price regulated companies?

A. In the *Hope* and *Bluefield* cases, the U.S. Supreme Court did not specify that comparable risk companies had to be utilities. Since the purpose of rate regulation is to be a substitute for the competition of the marketplace, non-price regulated firms operating in the competitive marketplace make an excellent proxy if they are comparable in total risk to the Utility Proxy Group being used to estimate the cost of common equity. The selection of such domestic, non-price-

[35] 8.60% = (7.39% + 8.33% + 10.09%)/3.

regulated competitive firms theoretically and empirically results in a proxy group which is comparable in total risk to the Utility Proxy Group.

Q. How did you select unregulated companies that are comparable in total risk to the regulated public Utility Proxy Group?

A. In order to select a proxy group of domestic, non-price regulated companies similar in total risk to the Utility Proxy Group, I rely on the beta coefficients and related statistics derived from *Value Line* regression analyses of weekly market prices over the most recent 260 weeks (*i.e.*, five years). Using these selection criteria results in a proxy group of seventeen domestic, non-price regulated firms comparable in total risk to the Utility Proxy Group. Total risk is the sum of non-diversifiable market risk and diversifiable company-specific risks. The criteria used in the selection of the domestic, non-price regulated firms were:

1) They must be covered by *Value Line Investment Survey* (Standard Edition);
2) They must be domestic, non-price regulated companies, *i.e.*, non-utilities;
3) Their beta coefficients must lie within plus or minus two standard deviations of the average unadjusted beta of the Utility Proxy Group; and
4) The residual standard errors of the *Value Line* regressions which gave rise to the unadjusted beta coefficients must lie within plus or minus two standard deviations of the average residual standard error of the Utility Proxy Group.

Beta coefficients are a measure of market, or systematic, risk, which is not diversifiable. The residual standard errors of the regressions were used to

measure each firm's company-specific, diversifiable risk. Companies that have similar betas and similar residual standard errors resulting from the same regression analyses have similar total investment risk.

Q. Have you prepared a Sub-Schedule which shows the data from which you selected the seventeen domestic, non-price regulated companies that are comparable in total risk to the Utility Proxy Group?

A. Yes, the basis of my selection and both proxy groups' regression statistics are shown in Sub-Schedule DWD-6.

Q. Did you calculate common equity cost rates using the DCF, RPM, and CAPM for the Non-Price Regulated Proxy Group?

A. Yes. Because the DCF, RPM, and CAPM have been applied in an identical manner as described above, I will not repeat the details of the rationale and application of each model. An exception is that, in the application of the RPM, I did not use public utility-specific equity risk premiums, nor have I applied the PRPM to the individual companies.

Page 2 of Sub-Schedule DWD-7 contains the derivation of the DCF cost rates. As shown, the indicated common equity cost rate using the DCF for the Non-Price Regulated Proxy Group comparable in total risk to the Utility Proxy Group, is 12.73%.

Pages 3 through 5 contain the data and calculations that support the 11.18% RPM cost rate. As shown on Line No. 1 of page 3 of Sub-Schedule DWD-7, the consensus prospective yield on Moody's Baa rated corporate bonds for the six quarters ending in the fourth quarter of 2018 and for the years 2019 to

2023 and 2024 to 2028 is 5.33%.[36] Since the Non-Price Regulated Proxy Group has an average Moody's long-term issuer rating of A2/A3, a downward adjustment of 0.36% to the projected Baa corporate bond yield is necessary to reflect the difference in ratings[37] which results in a projected A2/A3 corporate bond yield of 4.97%.

When the beta-adjusted risk premium of 6.21%[38] relative to the Non-Price Regulated Proxy Group is added to the prospective A2/A3 rated corporate bond yield of 4.97%, the indicated RPM cost rate is 11.18%.

Page 6 contains the inputs and calculations that support my indicated CAPM/ECAPM cost rate of 10.79%.

Q. How is the cost rate of common equity based on the Non-Price Regulated Proxy Group comparable in total risk to the Utility Proxy Group?

A. As shown on page 1 of Sub-Schedule DWD-7, the results of the DCF, RPM, and CAPM applied to the Non-Price Regulated Proxy Group comparable in total risk to the Utility Proxy Group are 12.73%, 11.18%, and 10.79%, respectively. The average of the mean and median of these models is 11.38%, which I use as the indicated common equity cost rate for the Non-Price Regulated Proxy Group.

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36 *Blue Chip Financial Forecasts*, September 1, 2017, at p. 2 and June 1, 2017, at p. 14.

37 As demonstrated in line 2 and described in note 2 of page 3 of Sub-Schedule DWD-7.

38 Derived on page 5 of Sub-Schedule DWD-7.

X. CONCLUSION OF COMMON EQUITY COST RATE BEFORE ADJUSTMENT

Q. What is the indicated common equity cost rate before adjustment?

A. Based on the results of the application of multiple cost of common equity models to the Utility Proxy Group and the Non-Price Regulated Proxy Group, the indicated cost of equity before adjustments is 10.35%. I use multiple cost of common equity models as primary tools in arriving at my recommended common equity cost rate, because no single model is so inherently precise that it can be relied on solely to the exclusion of other theoretically sound models. The use of multiple models adds reliability to the estimation of the common equity cost rate, and the prudence of using multiple cost of common equity models is supported in both the financial literature and regulatory precedent.

Based on these common equity cost rate results, I conclude that a common equity cost rate of 10.35% is reasonable and appropriate for the Company before any adjustment is made for relative risk between the Company and the Utility Proxy Group. The 10.35% indicated ROE is the approximate average of the mean and median results produced by my application of the models as explained above.

XI. ADJUSTMENT TO THE COMMON EQUITY COST RATE

A. Financial Risk Adjustment

Q. Does Indian Hills have increased financial risk relative to the Utility Proxy Group?

A. Yes. The Company has significantly greater financial risk than the average company in the Utility Proxy Group because of its highly leveraged debt ratio

compared with the Utility Proxy Group. When Indian Hills was purchased in March 2016, their net book value was $43,966.[39] As mentioned above and detailed by Mr. Cox in his direct testimony, the Company spent approximately $1.8 million in rate base investments in the eleven months subsequent to the acquisition to get the Company back into regulatory compliance. Because of this, the Indian Hills' rate base is almost entirely comprised of the current capital expenditures in the past eleven months. Additionally, of that $1.8 million capital spend, $1.45 million was financed with debt capital, which indicates a debt ratio of approximately 80%. This indicated debt ratio is more highly leveraged than that of the average Utility Proxy Group company, which is 46.13% in fiscal 2016.[40]

Q. How does one measure the relationship between leverage and risk?

A. I relied on the Modigliani / Miller leverage adjustment to measure the relationship between leverage and financial risk. Franco Modigliani and Merton Miller[41] demonstrated that the cost of common equity may be expressed as:

$$k_{e,L} = k_{e,U} + (k_{e,U} - k_d)(1-T)(D/E) \quad \text{Equation [1]}$$

where

$k_{e,U}$ = Cost of common equity for an unlevered firm

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39 Staff determined value at the time of acquisition.

40 As shown on Sub-Schedule DWD-2.

41 F. Modigliani and M. Miller, "The Cost of Capital, Corporation Finance, and the Theory of Investment", The American Economic Review 48 No. 3, June 1958,261-297; F. Modigliani and M. Miller, "Corporate Income Taxes and the Cost of Capital: A Correction", The American Economic Review 53 No. 3, June 1963, at 433-443.

$k_{e,L}$ = Cost of common equity for a levered firm

k_d = Cost of debt (interest rate)

D = Level of debt

E = Level of equity

T = Income tax rate

Equation [1] expresses the cost of common equity for a levered firm as the cost of common equity for an unlevered firm, which reflects business risk only, plus a premium for financial risk. Financial risk, or leverage, has an effect on the cost of capital, including the cost of common equity: the greater the degree of financial leverage, the greater the concentration of business risk on common shareholders, increasing their required return to compensate them for bearing that risk. Indications of the magnitude of the effect upon common equity cost rate due to financial leverage is given by the Modigliani/Miller ("M&M") method as shown on page 1 of Sub-Schedule DWD-8.

The M&M method holds the pretax WACC constant regardless of capital structure. As shown and explained on page 1 of Sub-Schedule DWD-8, applying the M&M method results in an indicated effect upon common equity cost rate is 2.49% relative to the common equity cost rate based on the Company's actual capital structure. In other words, applying the indicated common equity cost rate of 10.35% (which reflects the financial risk of the average Utility Proxy Group company capital structure), results in a pretax WACC of 15.62%[42] as shown in the top half of page 1 of Sub-Schedule DWD-8. Applying that 15.62% WACC to

42 This WACC includes the implied 14.00% Indian Hills long-term debt cost rate.

Indian Hills' actual capital structure, which contains greater financial risk than the average proxy group company, results in a common equity cost rate of 12.84% which properly reflects the increased financial risk of the Company's capital structure as shown in the lower half of page 1. The indicated effect on common equity cost rate is the difference between the 10.35% and 12.84% common equity cost rates, 2.49%.[43]

B. Business Risk Adjustment

Q. Does Indian Hills have increased business risk relative to the proxy group?

A. Yes. The Company has greater relative risk than the average company in the Utility Proxy Group because of its smaller size compared with the group.

Q. Please explain the risk associated with small size.

A. Both the financial and academic communities have long accepted the proposition that the Cost of Equity for small firms is subject to a "size effect."[44] While empirical evidence of the size effect often is based on studies of industries beyond regulated utilities, utility analysts also have noted the risks associated with small market capitalizations. Specifically, Ibbotson Associates noted: "For small utilities, investors face additional obstacles, such as a smaller customer base, limited financial resources, and a lack of diversification across customers, energy sources, and geography. These obstacles imply the need for a higher investor return."[45] Further evidence of the risk effects of size include the fact that

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43 2.49% = (12.84% - 10.35%).

44 *See* Mario Levis, *The record on small companies: A review of the evidence*, Journal of Asset Management, March 2002, at 368-397, for a review of literature relating to the size effect.

45 Michael Annin, *Equity and the Small-Stock Effect*, Public Utilities Fortnightly, October 15, 1995.

investors demand greater returns to compensate for the lack of marketability and liquidity of the securities of smaller firms. As discussed below, relative to the proxy group Indian Hills' operations are both substantially smaller in size and less diversified.

Q. Is there a way to quantify a relative risk adjustment due to Indian Hills' higher business risk relative to the Utility Proxy Group?

A. Yes. The Company has greater business risk than the companies in the Utility Proxy Group as discussed above. Duff & Phelps' ("D&P") 2017 Valuation Handbook Guide to Cost of Capital – Market Results through 2016 ("D&P 2017") presents a Size Study based on the relationship of various measures of size and return.[46] Relative to the relationship between average annual return and the various measures of size, D&P state:

> **The size of a company is one of the most important risk elements to consider when developing cost of equity estimates for use in valuing** a firm. Traditionally, researchers have used market value of equity (*i.e.*, "market capitalization" or "market cap") as a measure of size in conducting historical rate of return research. For example, the Center for Research in Security Prices (CRSP) "deciles" are developed by sorting U.S. companies by market capitalization. Another example is the Fama-French "Small Minus Big" (SMB) series, which is the difference in return of "small" stocks minus "big" (*i.e.*, large) stocks, as defined by market capitalization. (emphasis added)[47]

The Size Study uses the following eight measures of size, all of which have empirically shown that over the long-term, the smaller the company, the higher the risk:

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[46] Market value of equity, book value of equity, 5-year average net income, market value of invested capital, total assets, 5-year average EBITDA, sales number of employees, and the average of all of these size measures.

[47] D&P 2017, at p. 10-1.

- Market Value of Common Equity (or total capital if no debt / equity);
- Book Value of Common Equity;
- Net Income (five-year average);
- Market Value of Invested Capital;
- Total Assets (Invested Capital);
- Earnings Before Interest, Taxes, Depreciation & Amortization ("EBITDA") (five-year average);
- Sales / Operating Revenues; and
- Number of Employees.

I used the D&P Size Study to determine the approximate magnitude of any necessary risk premium due to the size of Indian Hills relative to the Utility Proxy Group. Sub-Schedule DWD-9 shows the relative size of Indian Hills compared with the water proxy group. Indicated size adjustments based on these relative measures range from 1.34% to 3.94%. averaging 2.38%.

As a result, it is necessary to upwardly adjust the indicated common equity cost rate of 10.35% to reflect Indian Hills' greater risk due to its higher relative business risk. The average size premium from the D&P Size Study indicates an upward adjustment 2.38%, which I will apply to Indian Hills' indicated common equity cost rate.

Q. What is the indicated cost of common equity after your adjustments for financial and size risk?

A. After applying the 2.49% and 2.38% financial and size risk adjustments to the indicated cost of common equity of 10.35%, a financial and size-adjusted cost of common equity of 15.22% results.

XII. CONCLUSION OF COST OF CAPITAL

Q. What is your recommended WACC for Indian Hills?

A. I recommend that the Commission authorize the Company the opportunity to earn a WACC of 14.28% based on its actual capital structure as of the end of the test year. The capital structure consists of 77.12% long-term debt at an embedded debt cost rate of 14.00% and 22.88% common equity at my recommended common equity cost rate of 15.20%. This capital structure and common equity cost rate reflect Indian Hills' significant investment risk compared to the Utility Proxy Group due to its necessary, significant investment in the water system after its acquisition on March 31, 2016 to get the system into environmental compliance.[48]

Staff's recommended WACC of 12.37% ignores the current options for raising capital available to Indian Hills and also ignores the basic financial precept that common equity is a riskier investment than long-term debt, necessitating a higher investor-required return.

My overall rate of return of 14.28% provides enough operating income to service the Company's debt and compensate its equity investors, and is consistent with established financial precepts

Q. Does that conclude your direct testimony?

A. Yes, it does.

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[48] As mentioned above Indian Hills' 2016 capital expenditures of approximately $1.8 million represent almost all of its net book value.

scottmadden
MANAGEMENT CONSULTANTS

Appendix A
Professional Qualifications of
Dylan W. D'Ascendis, CRRA, CVA

Summary

Dylan is an experienced consultant and a Certified Rate of Return Analyst (CRRA) and Certified Valuation Analyst (CVA). He has served as a consultant for investor-owned and municipal utilities and authorities for 9 years. Dylan has extensive experience in rate of return analyses, class cost of service, rate design, and valuation for regulated public utilities. He has testified as an expert witness in the subjects of rate of return, cost of service, rate design, and valuation before 13 regulatory commissions in the U.S. and an American Arbitration Association panel.

He also maintains the benchmark index against which the Hennessy Gas Utility Mutual Fund performance is measured. He serves on the Rates and Regulatory Committee of the National Association of Water Companies (NAWC).

Areas of Specialization

- Regulation and Rates
- Utilities
- Mutual Fund Benchmarking
- Capital Market Risk
- Capital Market Risk
- Financial Modeling
- Valuation
- Regulatory Strategy and Rate Case Support
- Rate of Return
- Cost of Service
- Rate Design

Recent Expert Testimony Submission/Appearances

Jurisdiction	*Topic*
Regulatory Commission of Alaska	Return on Common Equity & Capital Structure
New Jersey Board of Public Utilities	Cost of Service, Rate Design
Pennsylvania Public Utility Commission	Return on Common Equity
South Carolina Public Service Commission	Return on Common Equity
American Arbitration Association	Valuation

Recent Assignments

- Provided expert testimony on the cost of capital for ratemaking purposes before numerous state utility regulatory agencies
- Maintains the benchmark index against which the Hennessy Gas Utility Mutual Fund performance is measured
- Sponsored valuation testimony for a large municipal water company in front of an American Arbitration Association Board to justify the reasonability of their lease payments to the City
- Co-authored a valuation report on behalf of a large investor-owned utility company in response to a new state regulation which allowed the appraised value of acquired assets into rate base

Recent Publications and Speeches

- Co-Author of: "The Impact of Decoupling on the Cost of Capital of Public Utilities", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University and Pauline M. Ahern. (Forthcoming)
- "Past is Prologue: Future Test Year", Presentation before the National Association of Water Companies 2017 Southeast Water Infrastructure Summit, May 2, 2017, Savannah, GA.
- Co-author of: "Comparative Evaluation of the Predictive Risk Premium Model™, the Discounted Cash Flow Model and the Capital Asset Pricing Model", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University, Pauline M. Ahern, and Frank J. Hanley, The Electricity Journal, May, 2013.
- "Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks", before the Society of Utility and Regulatory Financial Analysts: 45th Financial Forum, April 17-18, 2013, Indianapolis, IN.

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Attachment A
Professional Qualifications of
Dylan W. D'Ascendis, CRRA, CVA

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Regulatory Commission of Alaska				
Alaska Power Company	07/16	Alaska Power Company	Docket No. TA857-2	Rate of Return
Delaware Public Service Commission				
Tidewater Utilities, Inc.	11/13	Tidewater Utilities, Inc.	Docket No. 13-466	Capital Structure
Hawaii Public Utilities Commission				
Aqua Engineers, LLC	05/17	Puhi Sewer & Water Company	Docket No. 2017-0118	Cost of Service / Rate Design
Hawaii Resources, Inc.	09/16	Laie Water Company	Docket No. 2016-0229	Cost of Service / Rate Design
Illinois Commerce Commission				
Aqua Illinois, Inc.	04/17	Aqua Illinois, Inc.	Docket No. 17-0259	Rate of Return
Utility Services of Illinois, Inc.	04/15	Utility Services of Illinois, Inc.	Docket No. 14-0741	Rate of Return
Indiana Utility Regulatory Commission				
Aqua Indiana, Inc.	03/16	Aqua Indiana, Inc. Aboite Wastewater Division	Docket No. 44752	Rate of Return
Twin Lakes, Utilities, Inc.	08/13	Twin Lakes, Utilities, Inc.	Docket No. 44388	Rate of Return
Louisiana Public Service Commission				
Louisiana Water Service, Inc.	06/13	Louisiana Water Service, Inc.	Docket No. U-32848	Rate of Return
Massachusetts Department of Public Utilities				
Liberty Utilities	07/15	Liberty Utilities d/b/a New England Natural Gas Company	Docket No. 15-75	Rate of Return
Missouri Public Service Commission				
Raccoon Creek Utility Operating Company, Inc.	09/16	Raccoon Creek Utility Operating Company, Inc.	Docket No. SR-2016-0202	Rate of Return
New Jersey Board of Public Utilities				
Middlesex Water Company				010/17
Middlesex Water Company	03/15	Middlesex Water Company	Docket No. WR15030391	Rate of Return
The Atlantic City Sewerage Company	10/14	The Atlantic City Sewerage Company	Docket No. WR14101263	Cost of Service / Rate Design
Middlesex Water Company	11/13	Middlesex Water Company	Docket No. WR1311059	Capital Structure
Public Utilities Commission of Ohio				
Aqua Ohio, Inc.				05/16

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Attachment A
Professional Qualifications of
Dylan W. D'Ascendis, CRRA, CVA

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT	
Pennsylvania Public Utility Commission					
Columbia Water Company					09/17
Veolia Energy Philadelphia, Inc.	06/17	Veolia Energy Philadelphia, Inc.	Docket No. R-2017-2593142	Rate of Return	
Emporium Water Company	07/14	Emporium Water Company	Docket No. R-2014-2402324	Rate of Return	
Columbia Water Company	07/13	Columbia Water Company	Docket No. R-2013-2360798	Rate of Return	
Penn Estates Utilities, Inc.	12/11	Penn Estates, Utilities, Inc.	Docket No. R-2011-2255159	Capital Structure / Long-Term Debt Cost Rate	
South Carolina Public Service Commission					
Carolina Water Service, Inc.					06/15
Carolina Water Service, Inc.	11/13	Carolina Water Service, Inc.	Docket No. 2013-275-WS	Rate of Return	
United Utility Companies, Inc.	09/13	United Utility Companies, Inc.	Docket No. 2013-199-WS	Rate of Return	
Utility Services of South Carolina, Inc.	09/13	Utility Services of South Carolina, Inc.	Docket No. 2013-201-WS	Rate of Return	
Tega Cay Water Services, Inc.	11/12	Tega Cay Water Services, Inc.	Docket No. 2012-177-WS	Capital Structure	
Virginia State Corporation Commission					
Aqua Virginia, Inc.					7/17
Massanutten Public Service Corp.	08/14	Massanutten Public Service Corp.	PUE-2014-00035	Rate of Return / Rate Design	

Indian Hills Operating Company, Inc.
Table of Contents
to Schedule DWD-01
of Dylan W. D'Ascendis, CRRA, CVA

Indian Hills Utility Operating Company, Inc.
Recommended Capital Structure and Cost Rates
for Ratemaking Purposes
Estimated at December 31, 2017

Type Of Capital	Ratios (1)	Cost Rate	Weighted Cost Rate
Long-Term Debt	77.12%	14.00% (1)	10.80%
Common Equity	22.88%	15.20% (2)	3.48%
Total	100.00%		14.28%

Notes:

(1) Company-Provided.
(2) From page 2 of this Sub-Schedule.

Indian Hills Utility Operating Company, Inc.
Brief Summary of Common Equity Cost Rate

Line No.	Principal Methods	Proxy Group of Eight Water Companies
1.	Discounted Cash Flow Model (DCF) (1)	8.63 %
2.	Risk Premium Model (RPM) (2)	10.75
3.	Capital Asset Pricing Model (CAPM) (3)	10.21
4.	Market Models Applied to Comparable Risk, Non-Price Regulated Companies (4)	11.38
5.	Indicated Common Equity Cost Rate before Adjustment for Business Risks	10.35 %
6.	Financial Risk Adjustment (5)	2.49
7.	Size Risk Adjustment (6)	2.38
8.	Indicated Common Equity Cost Rate	15.22 %
9.	Recommended Common Equity Cost Rate	15.20 %

Notes:
(1) From Sub-Schedule DWD-3.
(2) From page 1 of Sub-Schedule DWD-4.
(3) From page 1 of Sub-Schedule DWD-5.
(4) From page 1 of Sub-Schedule DWD-7.
(5) From Sub-Schedule DWD-8
(6) From Sub-Schedule DWD-9.

Proxy Group of Eight Water Companies
CAPITALIZATION AND FINANCIAL STATISTICS (1)
2012 - 2016, Inclusive

	2016	2015	2014	2013	2012	
			(MILLIONS OF DOLLARS)			
CAPITALIZATION STATISTICS						
AMOUNT OF CAPITAL EMPLOYED						
TOTAL PERMANENT CAPITAL	$2,399.854	$2,269.476	$2,156.407	$2,058.747	$1,998.358	
SHORT-TERM DEBT	$137.724	$95.003	$72.459	$95.589	$60.594	
TOTAL CAPITAL EMPLOYED	$2,537.578	$2,364.479	$2,228.866	$2,154.336	$2,058.952	
INDICATED AVERAGE CAPITAL COST RATES (2)						
TOTAL DEBT	4.73 %	4.89 %	5.01 %	5.19 %	5.36 %	
PREFERRED STOCK	5.42 %	5.42 %	5.30 %	5.51 %	5.53 %	
						5 YEAR
CAPITAL STRUCTURE RATIOS						AVERAGE
BASED ON TOTAL PERMANENT CAPITAL:						
LONG-TERM DEBT	46.13 %	46.25 %	45.71 %	46.24 %	49.32 %	46.73 %
PREFERRED STOCK	0.12	0.12	0.13	0.16	0.18	0.14
COMMON EQUITY	53.75	53.63	54.16	53.60	50.50	53.13
TOTAL	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
BASED ON TOTAL CAPITAL:						
TOTAL DEBT, INCLUDING SHORT-TERM	48.59 %	47.63 %	47.00 %	47.77 %	50.87 %	48.37 %
PREFERRED STOCK	0.11	0.12	0.13	0.15	0.17	0.14
COMMON EQUITY	51.30	52.25	52.87	52.08	48.96	51.49
TOTAL	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
FINANCIAL STATISTICS						
FINANCIAL RATIOS - MARKET BASED						
EARNINGS / PRICE RATIO	4.01 %	4.72 %	5.44 %	4.84 %	5.47 %	4.90 %
MARKET / AVERAGE BOOK RATIO	274.64	224.46	212.84	206.33	187.65	221.18
DIVIDEND YIELD	2.17	2.66	2.76	2.88	3.17	2.73
DIVIDEND PAYOUT RATIO	55.72	56.71	52.46	58.35	60.42	56.73
RATE OF RETURN ON AVERAGE BOOK COMMON EQUITY	10.83 %	10.40 %	11.38 %	10.08 %	10.12 %	10.56 %
TOTAL DEBT / EBITDA (3)	3.63 X	3.64 X	3.40 X	3.65 X	3.83 X	3.63 X
FUNDS FROM OPERATIONS / TOTAL DEBT (4)	22.17 %	24.05 %	25.95 %	22.85 %	20.86 %	23.18 %
TOTAL DEBT / TOTAL CAPITAL	48.59 %	47.63 %	47.00 %	47.77 %	50.87 %	48.37 %

Notes:

(1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group, and are based upon financial statements as originally reported in each year.

(2) Computed by relating actual total debt interest or preferred stock dividends booked to average of beginning and ending total debt or preferred stock reported to be outstanding.

(3) Total debt relative to EBITDA (Earnings before Interest, Income Taxes, Depreciation and Amortization).

(4) Funds from operations (sum of net income, depreciation, amortization, net deferred income tax and investment tax credits, less total AFUDC) plus interest charges as a percentage of total debt.

Source of Information: Company Annual Forms 10-K

Capital Structure Based upon Total Permanent Capital for the
Proxy Group of Eight Water Companies
2012 - 2016, Inclusive

	2016	2015	2014	2013	2012	5 YEAR AVERAGE
American States Water Co.						
Long-Term Debt	39.40 %	41.15 %	39.15 %	40.30 %	42.49 %	40.50 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	60.60	58.85	60.85	59.70	57.51	59.50
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
American Water Works Company Inc						
Long-Term Debt	54.74 %	53.89 %	52.70 %	52.42 %	54.30 %	53.61 %
Preferred Stock	0.09	0.11	0.15	0.17	0.21	0.15
Common Equity	45.17	46.00	47.15	47.41	45.49	46.24
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Aqua America Inc						
Long-Term Debt	50.81 %	50.76 %	49.45 %	50.32 %	53.41 %	50.95 %
Preferred Stock	0.00	0.00	0.00	0.01	0.01	0.00
Common Equity	49.19	49.24	50.55	49.67	46.58	49.05
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
California Water Service Group						
Long-Term Debt	45.83 %	44.69 %	40.46 %	42.03 %	50.39 %	44.68 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	54.17	55.31	59.54	57.97	49.61	55.32
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Connecticut Water Service Inc						
Long-Term Debt	46.02 %	44.54 %	45.91 %	47.34 %	49.03 %	46.57 %
Preferred Stock	0.18	0.19	0.20	0.20	0.21	0.20
Common Equity	53.80	55.27	53.89	52.46	50.76	53.23
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Middlesex Water Co.						
Long-Term Debt	38.91 %	40.44 %	41.55 %	41.36 %	43.53 %	41.16 %
Preferred Stock	0.67	0.69	0.71	0.88	1.02	0.79
Common Equity	60.42	58.87	57.74	57.76	55.45	58.05
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
SJW Corp						
Long-Term Debt	50.69 %	50.03 %	51.66 %	51.09 %	55.39 %	51.77 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	49.31	49.97	48.34	48.91	44.61	48.23
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
York Water Co.						
Long-Term Debt	42.60 %	44.46 %	44.81 %	45.07 %	45.98 %	44.58 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	57.40	55.54	55.19	54.93	54.02	55.42
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Proxy Group of Eight Water Companies						
Long-Term Debt	46.13 %	46.25 %	45.71 %	46.24 %	49.32 %	46.73 %
Preferred Stock	0.12	0.12	0.13	0.16	0.18	0.14
Common Equity	53.75	53.63	54.16	53.60	50.50	53.13
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %

Source of Information
Annual Forms 10-K

Indian Hills Utility Operating Company, Inc.
Indicated Common Equity Cost Rate Using the Discounted Cash Flow Model for
Proxy Group of Eight Water Companies

Proxy Group of Eight Water Companies	[1] Average Dividend Yield (1)	[2] Value Line Projected Five Year Growth in EPS (2)	[3] Reuters Mean Consensus Projected Five Year Growth Rate in EPS	[4] Zack's Five Year Projected Growth Rate in EPS	[5] Yahoo! Finance Projected Five Year Growth in EPS	[6] Average Projected Five Year Growth in EPS (3)	[7] Adjusted Dividend Yield (4)	[8] Indicated Common Equity Cost Rate (5)
American States Water Co.	2.09 %	6.50 %	4.45 %	5.00 %	4.45 %	5.10 %	2.14 %	7.24 %
American Water Works Company Inc	2.06	8.50	8.52	7.40	7.03	7.86	2.14	10.00
Aqua America Inc	2.45	7.00	7.50	6.30	5.50	6.58	2.53	9.11
California Water Service Group	1.92	9.00	NA	5.50	9.70	8.07	2.00	10.07
Connecticut Water Service Inc	2.10	4.50	6.00	6.00	6.00	5.63	2.16	7.79
Middlesex Water Co.	2.18	8.50	NA	NA	2.70	5.60	2.24	7.84
SJW Corp	1.67	3.00	NA	NA	14.00	8.50	1.74	10.24
York Water Co.	1.84	7.00	NA	NA	4.90	5.95	1.89	7.84
							Average	8.77 %
							Median	8.48 %
							Average of Mean and Median	8.63 %

NA= Not Available

Notes:

(1) Indicated dividend at 08/31/2017 divided by the average closing price of the last 60 trading days ending 08/31/2017 for each company.

(2) From pages 2 through 9 of this Sub-Schedule.

(3) Average of columns 2 through 5 excluding negative growth rates.

(4) This reflects a growth rate component equal to one-half the conclusion of growth rate (from column 6) x column 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for American States Water Co., 2.09% x (1+(1/2 x 5.10%)) = 2.14%.

(5) Column 6 + column 7.

Source of Information:

Value Line Investment Survey
www.reuters.com Downloaded on 08/31/201
www.zacks.com Downloaded on 08/31/2017
www.yahoo.com Downloaded on 08/31/2017

AMER. STATES WATER NYSE-AWR

RECENT PRICE 47.84 | P/E RATIO 28.1 (Trailing: 28.5 / Median: 20.0) | RELATIVE P/E RATIO 1.42 | DIV'D YLD 2.1% | VALUE LINE

TIMELINESS 2 Raised 6/30/17
SAFETY 2 Raised 7/20/12
TECHNICAL 2 Raised 7/14/17
BETA .75 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	55	(+15%)	6%
Low	40	(-15%)	-2%

Insider Decisions

	S	O	N	D	J	F	M	A	M
to Buy	0	0	0	0	0	0	0	0	0
Options	5	0	2	2	3	11	11	0	8
to Sell	4	3	4	1	3	2	3	1	4

Institutional Decisions

	3Q2016	4Q2016	1Q2017
to Buy	84	102	87
to Sell	88	87	89
Hld's(000)	23554	24607	29082

	High:	21.9	23.1	21.0	19.4	19.8	18.2	24.1	33.1	38.7	44.1	47.2	50.9
	Low:	15.1	16.8	13.5	14.9	15.6	15.3	17.0	24.0	27.0	35.8	37.3	41.1

LEGENDS
1.25 x Dividends p sh divided by Interest Rate
Relative Price Strength
2-for-1 split 9/13
Options: Yes
Shaded area indicates recession

Target Price Range 2020 | 2021 | 2022

% TOT. RETURN 6/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	10.6	18.8
3 yr.	62.7	20.3
5 yr.	171.6	91.4

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
6.53	6.89	6.99	6.81	7.03	7.88	8.75	9.21	9.74	10.71	11.12	12.12	12.19	12.17	12.56	11.92	*12.40*	*12.65*	Revenues per sh	*15.95*
1.26	1.27	1.04	1.11	1.32	1.45	1.65	1.69	1.70	2.11	2.13	2.48	2.65	2.67	2.81	2.70	*2.85*	*3.05*	"Cash Flow" per sh	*3.85*
.67	.67	.39	.53	.66	.67	.81	.78	.81	1.11	1.12	1.41	1.61	1.57	1.60	1.62	*1.70*	*1.80*	Earnings per sh A	*2.35*
.43	.44	.44	.44	.45	.46	.48	.50	.51	.52	.55	.64	.76	.83	.87	.91	*.98*	*1.05*	Div'd Decl'd per sh B■	*1.35*
1.59	1.34	1.88	2.51	2.12	1.95	1.45	2.23	2.09	2.12	2.13	1.77	2.52	1.89	2.39	3.55	*3.15*	*3.15*	Cap'l Spending per sh	*3.60*
6.61	7.02	6.98	7.51	7.86	8.32	8.77	8.97	9.70	10.13	10.84	11.80	12.72	13.24	12.77	13.52	*14.20*	*14.85*	Book Value per sh	*16.80*
30.24	30.36	30.42	33.50	33.60	34.10	34.46	34.60	37.06	37.26	37.70	38.53	38.72	38.29	36.50	36.57	*36.70*	*36.80*	Common Shs Outst'g C	*37.00*
16.7	18.3	31.9	23.2	21.9	27.7	24.0	22.6	21.2	15.7	15.4	14.3	17.2	20.1	24.6	25.6	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*21.0*
.86	1.00	1.82	1.23	1.17	1.50	1.27	1.36	1.41	1.00	.97	.91	.97	1.06	1.24	1.35			Relative P/E Ratio	*1.30*
3.9%	3.6%	3.5%	3.6%	3.1%	2.5%	2.5%	2.9%	2.9%	3.0%	3.2%	3.1%	2.7%	2.6%	2.2%	2.2%			Avg Ann'l Div'd Yield	*2.8%*
301.4	318.7	361.0	398.9	419.3	466.9	472.1	465.8	458.6	436.1	*455*	*465*	Revenues ($mill)	*590*
28.0	26.8	29.5	41.4	42.0	54.1	62.7	61.1	60.5	59.7	*62.0*	*66.0*	Net Profit ($mill)	*87.0*
42.6%	37.8%	38.9%	43.2%	41.7%	39.9%	36.3%	38.4%	38.4%	36.8%	*36.5%*	*35.0%*	Income Tax Rate	*35.0%*
8.5%	6.9%	3.2%	5.8%	2.0%	2.5%	--	--	2.5%	.5%	*1.5%*	*2.0%*	AFUDC % to Net Profit	*2.5%*
46.9%	46.2%	45.9%	44.3%	45.4%	42.2%	39.6%	39.1%	41.1%	39.4%	*40.0%*	*42.0%*	Long-Term Debt Ratio	*43.5%*
53.1%	53.8%	54.1%	55.7%	54.6%	57.8%	60.2%	60.9%	58.9%	60.6%	*60.0%*	*58.0%*	Common Equity Ratio	*56.5%*
569.4	577.0	665.0	677.4	749.1	787.0	818.4	832.6	791.5	815.3	*870*	*935*	Total Capital ($mill)	*1100*
776.4	825.3	866.4	855.0	896.5	917.8	981.5	1003.5	1060.8	1150.9	*1200*	*1250*	Net Plant ($mill)	*1400*
6.7%	6.4%	5.9%	7.6%	7.1%	8.3%	8.9%	8.6%	9.0%	8.6%	*8.5%*	*8.5%*	Return on Total Cap'l	*9.0%*
9.3%	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.0%	13.0%	12.1%	*12.0%*	*12.0%*	Return on Shr. Equity	*14.0%*
9.3%	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.0%	13.0%	12.1%	*12.0%*	*12.0%*	Return on Com Equity	*14.0%*
3.9%	3.1%	3.2%	5.8%	5.3%	6.6%	6.8%	5.7%	6.0%	5.3%	*5.0%*	*5.5%*	Retained to Com Eq	*6.0%*
58%	64%	61%	47%	49%	45%	47%	53%	54%	56%	*58%*	*58%*	All Div'ds to Net Prof	*57%*

CAPITAL STRUCTURE as of 3/31/17
Total Debt $417.3 mill. Due in 5 Yrs $41.7 mill.
LT Debt $321.0 mill. LT Interest $20.0 mill. (39% of Cap'l)

Leases, Uncapitalized: Annual rentals $2.5 mill.
Pension Assets-12/16 $150.9 mill.
Oblig. $180.4 mill.

Pfd Stock None.

Common Stock 36,616,192 shs.
as of 4/28/17

MARKET CAP: $1.8 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2015	2016	3/31/17
Cash Assets	4.4	.4	.6
Accts Receivable	18.9	20.0	15.5
Other	109.4	146.5	176.0
Current Assets	132.7	166.9	192.1
Accts Payable	50.6	43.7	37.3
Debt Due	28.3	90.3	96.3
Other	44.6	43.9	45.1
Current Liab.	123.5	177.9	178.7

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	5.5%	3.0%	*4.5%*
"Cash Flow"	7.5%	6.5%	*6.0%*
Earnings	10.0%	9.5%	*6.5%*
Dividends	7.0%	10.5%	*7.5%*
Book Value	5.5%	5.0%	*4.0%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	102.0	115.6	138.3	109.9	465.8
2015	100.9	114.6	133.0	110.1	458.6
2016	93.5	112.0	123.8	106.8	436.1
2017	98.8	*115*	*141.2*	*100*	*455*
2018	*100*	*118*	*132*	*115*	*465*

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.28	.39	.54	.36	1.57
2015	.32	.41	.56	.31	1.60
2016	.28	.45	.59	.30	1.62
2017	.34	*.45*	*.60*	*.31*	*1.70*
2018	*.35*	*.47*	*.60*	*.38*	*1.80*

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.1775	.1775	.2025	.2025	.76
2014	.2025	.2025	.213	.213	.83
2015	.213	.213	.224	.224	.87
2016	.224	.224	.224	.242	.91
2017	.242	.242			

BUSINESS: American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Company, it supplies water to 261,002 customers in 75 cities and 10 counties. Service areas include the greater metropolitan areas of Los Angeles and Orange Counties. The company also provides electric utility services to 23,940 customers in the city of Big Bear Lake and in areas of San Bernardino County. Sold Chaparral City Water of Arizona (6/11). Has 736 employees. BlackRock, Inc. owns 11.7% of out. shares; Vanguard, 9.5%;; off. & dir. 1.5%. (4/17 Proxy). Chairman: Lloyd Ross. President & Chief Executive Officer: Robert J. Sprowls. Inc: CA. Address: 630 East Foothill Blvd., San Dimas, CA 91773. Tel: 909-394-3600. Internet: www.aswater.com.

American States Water's profits are on the upswing. The company's per-share earnings have been stuck in a tight range close to $1.60 over the past four years. A combination of rate relief and a greater contribution from the nonregulated business should enable share net to reach $1.70 in 2017, and $1.80 in 2018.

Finances will likely weaken but remain strong through early next decade. The company uses less leverage than any of its peers and is one of the two utilities in the group that carries an (A) Financial Strength rating. Capital spending will be meaningful, but not onerous, over the next five-year period. So, while certain financial metrics may decline, the balance sheet should remain sound.

The nonregulated sector offers the company additional upside potential. Through its ASUS subsidiary, American States has been an active bidder in the privatization of the water systems of U.S. military bases. The most recent win was for the Elgin Air Force Base. The 50-year contract was for a total of $510 million. ASUS now services about 10 installations and will continue to bid on new contracts as the process unfolds. This segment is now responsible for about 20% of American Water's net income, and we think this percentage will continue to rise in the coming years.

There is not too much activity on the regulatory front. Earlier this year, Golden State Water filed a cost of capital application with California regulators. A ruling, which will determine rates for 2018, is expected by yearend. A legal dispute regarding the Ojai Water System also seems to be nearing a resolution. To settle all legal claims, Golden State has agreed to sell the assets for $34.5 million in cash. The sale would result in company taking an $8 million pretax profit, which is excluded from our earnings presentation.

These timely shares have had a nice run, of late. Despite its defensive nature, AWR has risen 9% in value since our April report. By comparison, the S&P 500 was up only 3% over the same time frame. The equity is now trading near the midpoint of our 2020-2022 Target Price Range, which means that it has limited long-term appeal.

James A. Flood *July 14, 2017*

(A) Primary earnings. Excludes nonrecurring gains/(losses): '04, 7¢; '05, 13¢; '06, 3¢; '08, (14¢); '10, (23¢); '11, 10¢. Next earnings report due mid-August.

(B) Dividends historically paid in early March, June, September, and December. ■ Div'd reinvestment plan available.

(C) In millions, adjusted for split.

Company's Financial Strength	A
Stock's Price Stability	80
Price Growth Persistence	75
Earnings Predictability	90

AMERICAN WATER NYSE-AWK

RECENT PRICE 78.07 | P/E RATIO 25.6 (Trailing: 29.0 Median: NMF) | RELATIVE P/E RATIO 1.29 | DIV'D YLD 2.2% | VALUE LINE

TIMELINESS 3 Raised 2/3/17
SAFETY 3 New 7/25/08
TECHNICAL 3 Raised 7/14/17
BETA .60 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	90	(+15%)	6%
Low	60	(-25%)	-3%

Insider Decisions

	S	O	N	D	J	F	M	A	M
to Buy	0	0	1	0	0	0	0	0	0
Options	0	0	0	0	0	9	3	0	7
to Sell	0	0	0	0	0	1	2	0	2

Institutional Decisions

	3Q2016	4Q2016	1Q2017
to Buy	265	316	269
to Sell	289	278	302
Hld's(000)	142186	145668	160388

LEGENDS
0.85 x Dividends p sh divided by Interest Rate
.... Relative Price Strength
Options: Yes
Shaded area indicates recession

High: 23.7 23.0 25.8 32.8 39.4 45.1 56.2 61.2 85.2 82.9
Low: 16.5 16.2 19.4 25.2 31.3 37.0 41.1 48.4 58.9 70.0

Target Price Range 2020 | 2021 | 2022

128 96 80 64 48 40 32 24 16 12

Percent shares traded 21 14 7

% TOT. RETURN 6/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	-5.9	18.8
3 yr.	68.7	20.3
5 yr.	156.7	91.4

2001	2002	2003	2004	2005	2006	2007E	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
--	--	--	--	--	13.08	13.84	14.61	13.98	15.49	15.18	16.25	16.28	16.78	17.72	18.54	*19.40*	*20.45*	Revenues per sh	*23.05*
--	--	--	--	--	.65	d.47	2.87	2.89	3.56	3.73	4.27	4.36	4.75	5.13	5.26	*5.85*	*6.20*	"Cash Flow" per sh	*7.45*
--	--	--	--	--	d.97	d2.14	1.10	1.25	1.53	1.72	2.11	2.06	2.39	2.64	2.62	*3.05*	*3.25*	Earnings per sh A	*4.15*
--	--	--	--	--	--	--	.40	.82	.86	.90	1.21	.84	1.21	1.33	1.47	*1.61*	*1.76*	Div'd Decl'd per sh B■	*2.35*
--	--	--	--	--	4.31	4.74	6.31	4.50	4.38	5.27	5.25	5.50	5.33	6.51	7.36	*6.75*	*6.70*	Cap'l Spending per sh	*6.40*
--	--	--	--	--	23.86	28.39	25.64	22.91	23.59	24.11	25.11	26.52	27.39	28.25	29.24	*30.80*	*32.40*	Book Value per sh D	*39.45*
--	--	--	--	--	160.00	160.00	160.00	174.63	175.00	175.66	176.99	178.25	179.46	178.28	178.10	*178.50*	*179.00*	Common Shs Outst'g C	*187.50*
--	--	--	--	--	--	--	18.9	15.6	14.6	16.8	16.7	19.9	20.0	20.5	27.7	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	*18.0*
--	--	--	--	--	--	--	1.14	1.04	.93	1.05	1.06	1.12	1.05	1.03	1.46			Relative P/E Ratio	*1.15*
--	--	--	--	--	--	--	1.9%	4.2%	3.8%	3.1%	3.4%	2.0%	2.5%	2.5%	2.0%			Avg Ann'l Div'd Yield	*3.1%*
2214.2	2336.9	2440.7	2710.7	2666.2	2876.9	2901.9	3011.3	3159.0	3302.0	*3465*	*3665*	Revenues ($mill)	*4325*
d342.3	187.2	209.9	267.8	304.9	374.3	369.3	429.8	476.0	468.0	*545*	*580*	Net Profit ($mill)	*780*
--	37.4%	37.9%	40.4%	39.5%	40.7%	39.1%	39.4%	39.1%	39.2%	*38.5%*	*38.0%*	Income Tax Rate	*36.5%*
--	--	--	--	--	6.2%	5.1%	--	5.1%	1.4%	*2.0%*	*2.5%*	AFUDC % to Net Profit	*3.5%*
50.9%	53.1%	56.9%	56.8%	55.7%	53.9%	52.4%	52.4%	53.7%	52.4%	*54.0%*	*55.0%*	Long-Term Debt Ratio	*54.0%*
49.1%	46.9%	43.1%	43.2%	44.2%	46.1%	47.6%	47.4%	46.2%	47.5%	*46.0%*	*45.0%*	Common Equity Ratio	*46.0%*
9245.7	8750.2	9289.0	9561.3	9580.3	9635.5	9940.7	10364	10911	10967	*11900*	*12850*	Total Capital ($mill)	*16000*
9318.0	9991.8	10524	11059	11021	11739	12391	12900	13933	14992	*15675*	*16400*	Net Plant ($mill)	*18000*
NMF	3.7%	3.8%	4.4%	4.8%	5.4%	5.1%	5.5%	5.7%	5.6%	*6.0%*	*6.0%*	Return on Total Cap'l	*6.5%*
NMF	4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	*10.0%*	*10.0%*	Return on Shr. Equity	*10.5%*
NMF	4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	*10.0%*	*10.0%*	Return on Com Equity	*10.5%*
NMF	3.0%	1.8%	2.8%	3.5%	3.6%	4.7%	4.3%	4.7%	4.0%	*4.5%*	*4.5%*	Retained to Com Eq	*4.5%*
--	34%	65%	56%	52%	57%	40%	50%	50%	56%	*53%*	*55%*	All Div'ds to Net Prof	*57%*

CAPITAL STRUCTURE as of 3/31/17
Total Debt $7307.0 mil. Due in 5 Yrs $1698.0 mil.
LT Debt $5753.0 mil. LT Interest $300.0 mil. (52% of Cap'l)

Leases, Uncapitalized: Annual rentals $14.0 mill.
Pension Assets 12/16 $1443.0 mill
Oblig. $1864.0 mill.
Pfd Stock $9.0 mill. Pfd Div'd $.5 mill

Common Stock 178,191,126 shs.
as of 4/27/17

MARKET CAP: $13.9 billion (Large Cap)

CURRENT POSITION ($MILL.)	2015	2016	3/31/17
Cash Assets	45.0	75.0	78.0
Accts Receivable	255.0	269.0	250.0
Other	357.0	440.0	439.0
Current Assets	657.0	784.0	767.0
Accts Payable	126.0	154.0	108.0
Debt Due	682.0	1423.0	1554.0
Other	725.0	815.0	756.0
Current Liab.	1533.0	2392.0	2418.0

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	3.0%	3.5%	*4.5%*
"Cash Flow"	23.0%	8.5%	*6.5%*
Earnings	--	11.0%	*8.5%*
Dividends	--	9.0%	*10.0%*
Book Value	1.5%	4.0%	*5.5%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	679.0	754.6	846.1	731.4	3011.3
2015	698.0	782.0	896.0	783.0	3159.0
2016	743.0	827.0	930.0	802.0	3302.0
2017	756.0	*870*	*985*	*854*	*3465*
2018	*810*	*920*	*1045*	*890*	*3665*

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.39	.62	.86	.52	2.39
2015	.44	.68	.96	.56	2.64
2016	.46	.77	.83	.57	2.62
2017	.52	*.80*	*1.05*	*.68*	*3.05*
2018	*.57*	*.88*	*1.09*	*.71*	*3.25*

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.28	.31	.31	.31	1.21
2015	.31	.34	.34	.34	1.33
2016	.34	.375	.375	.375	1.47
2017	.375	.415			

BUSINESS: American Water Works Company, Inc. is the largest investor-owned water and wastewater utility in the U.S., providing services to over 15 million people in over 47 states and Canada. (Regulated presence in 16 states.) Nonregulated business assists municipalities and military bases with the maintenance and upkeep as well. Regulated operations made up 86.5% of 2016 revenues. New Jersey is its largest market accounting for 25.4% of regulated revenues. Has 6,800 employees. The Vanguard Group, owns 9.6% of outstanding shares; BlackRock, Inc., 8.2%; officers & directors, less than 1.0%. (3/17 Proxy). President & CEO: Susan N. Story. Chair.: George MacKenzie. Address: 1025 Laurel Oak Road, Voorhees, NJ 08043. Tel.: 856-346-8200. Internet: www.amwater.com.

American Water Works' operating strategy continues to be quite successful. The U.S. water industry consists of thousands of small municipally run districts that operate independently. Due to an industry-wide deferral of capital expenditures, many of these systems do not have the required financial wherewithal to replace their aging pipelines and wastewater facilities. As the behemoth of the publicly traded entities (AWK's market capitalization is more than double that of the second largest water utility), the company is always buying up these smaller water authorities. Because of the huge amount of synergies prevalent in this industry, AWK can absorb new water authorities and make them much more efficient. By spending to improve the asset base and service to customers, it gets on regulators good side. This policy has enabled the company to increase externally by almost 2% annually.

American Water has about the best earnings growth prospects in the water utility group. The acquisition and cost-cutting strategy has enabled the company to post impressive earnings and dividend growth since 2008. (Last year was an exception, as an unusual expense related to a chemical spill caused a negative year-over-year comparison.) All told, we expect American Water's share net to climb 16% in 2017, to $3.05, and 7% in 2018, to $3.25. What's more, we estimate that the company's bottom line will increase 8.5% yearly through early next decade.

The utility is spending heavily to upgrade its infrastructure. The capital budget for 2017 is about $1.2 billion. Over the next three- to five-year pull, this figure should be almost $6 billion.

Despite all of the company's positive attributes, we think more attractive stock selections can be found elsewhere. Investors have been pouring large amounts of funds into the Water Utility Industry in the recent past. This has lead to the group turning in a solid performance, even though these are defensive stocks and we are currently in a bull market. Indeed, the yield on this income stock is now only 20 basis points higher than the *Value Line* median. Moreover, long-term total return potential is now subpar.

James A. Flood *July 14, 2017*

(A) Diluted earnings. Excludes nonrecurring losses: '08, $4.62; '09, $2.63; '11, $0.07. Discontinued operations: '06, ($0.04); '11, $0.03; '12, ($0.10); '13,($0.01). GAAP used as of 2014. Next earnings report due mid-August. Quarterly earnings do not sum in '16 due to rounding. (B) Dividends paid in March, June, September, and December. ■ Div. reinvestment available. (C) In millions. (D) Includes intangibles. In 12/16: $1.345 billion, $7.55/share. (E) Pro forma numbers for '06 & '07.

Company's Financial Strength	B+
Stock's Price Stability	100
Price Growth Persistence	90
Earnings Predictability	95

AQUA AMERICA NYSE-WTR

RECENT PRICE 33.04 | P/E RATIO 23.9 (Trailing: 25.2 Median: 22.0) | RELATIVE P/E RATIO 1.21 | DIV'D YLD 2.5% | VALUE LINE

TIMELINESS 3 Lowered 8/26/16
SAFETY 2 Raised 4/20/12
TECHNICAL 2 Raised 7/14/17
BETA .70 (1.00 = Market)

2020-22 PROJECTIONS

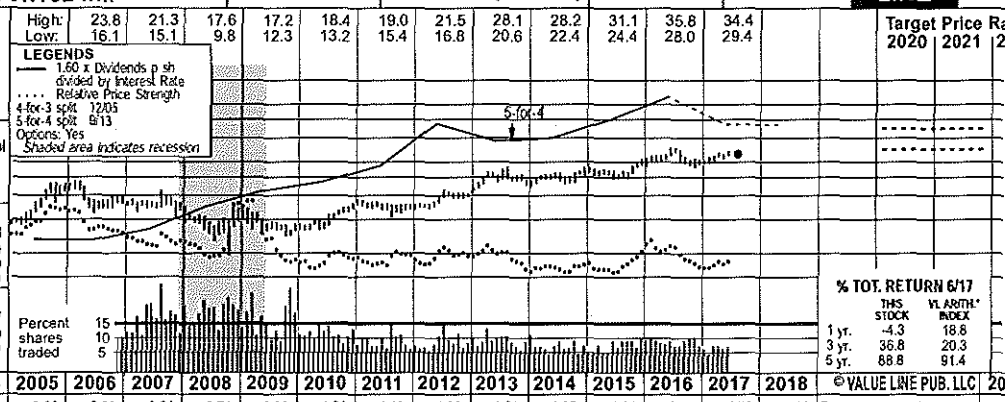
	Price	Gain	Ann'l Total Return
High	45	(+35%)	10%
Low	35	(+5%)	4%

Insider Decisions

	S	O	N	D	J	F	M	A	M
to Buy	0	0	0	0	0	0	0	0	0
Options	0	7	0	0	7	6	7	7	0
to Sell	1	0	0	0	0	0	0	0	0

Institutional Decisions

	3Q2016	4Q2016	1Q2017
to Buy	163	182	179
to Sell	169	171	180
Hld's(000)	85606	88568	103594



% TOT. RETURN 6/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	-4.3	18.8
3 yr.	36.8	20.3
5 yr.	88.8	91.4

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
2.16	2.28	2.38	2.78	3.08	3.23	3.61	3.71	3.93	4.21	4.10	4.32	4.32	4.37	4.61	4.62	*4.70*	*5.00*	Revenues per sh	*6.05*
.69	.76	.77	.87	.97	1.01	1.10	1.14	1.29	1.42	1.45	1.51	1.82	1.89	1.87	2.07	*2.15*	*2.25*	"Cash Flow" per sh	*2.75*
.41	.43	.46	.51	.57	.56	.57	.58	.62	.72	.83	.87	1.16	1.20	1.14	1.32	*1.38*	*1.45*	Earnings per sh A	*1.85*
.24	.26	.28	.29	.32	.35	.38	.41	.44	.47	.50	.54	.58	.63	.69	.74	*.80*	*.85*	Div'd Decl'd per sh B■	*1.15*
.87	.96	1.06	1.23	1.47	1.64	1.43	1.58	1.66	1.89	1.90	1.98	1.73	1.84	2.07	2.16	*2.05*	*2.25*	Cap'l Spending per sh	*2.25*
3.32	3.49	4.27	4.71	5.04	5.57	5.85	6.26	6.50	6.81	7.21	7.90	8.63	9.27	9.78	10.43	*11.10*	*11.75*	Book Value per sh	*14.85*
142.47	141.49	154.31	158.97	161.21	165.41	166.75	169.21	170.61	172.46	173.60	175.43	177.93	178.59	176.54	177.39	*178.00*	*178.50*	Common Shs Outst'g C	*180.00*
23.6	23.6	24.5	25.1	31.8	34.7	32.0	24.9	23.1	21.1	21.3	21.9	21.2	20.8	23.5	23.9	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*21.0*
1.21	1.29	1.40	1.33	1.69	1.87	1.70	1.50	1.54	1.34	1.34	1.39	1.19	1.09	1.18	1.26			Relative P/E Ratio	*1.30*
2.5%	2.5%	2.5%	2.3%	1.8%	1.8%	2.1%	2.8%	3.1%	3.1%	2.8%	2.8%	2.4%	2.5%	2.6%	2.3%			Avg Ann'l Div'd Yield	*2.9%*
						602.5	627.0	670.5	726.1	712.0	757.8	768.6	779.9	814.2	819.9	*840*	*890*	Revenues ($mill)	*1085*
						95.0	97.9	104.4	124.0	144.8	153.1	205.0	213.9	201.8	234.2	*245*	*260*	Net Profit ($mill)	*335*
						38.9%	39.7%	39.4%	39.2%	32.9%	39.0%	10.0%	10.5%	6.9%	8.2%	*9.0%*	*9.0%*	Income Tax Rate	*10.0%*
						--	--	--	--	--	--	1.1%	2.4%	3.1%	3.8%	*3.5%*	*3.0%*	AFUDC % to Net Profit	*3.5%*
						55.4%	54.1%	55.6%	56.6%	52.7%	52.7%	48.9%	48.5%	50.3%	48.4%	*47.0%*	*49.0%*	Long-Term Debt Ratio	*51.0%*
						44.6%	45.9%	44.4%	43.4%	47.3%	47.3%	51.1%	51.5%	49.7%	51.6%	*53.0%*	*51.0%*	Common Equity Ratio	*49.0%*
						2191.4	2306.6	2495.5	2706.2	2646.8	2929.7	3003.6	3216.0	3469.5	3587.7	*3735*	*4100*	Total Capital ($mill)	*5500*
						2792.8	2997.4	3227.3	3469.3	3612.9	3936.2	4167.3	4402.0	4588.9	5001.6	*5080*	*5275*	Net Plant ($mill)	*5800*
						5.9%	5.7%	5.6%	5.9%	6.9%	6.6%	8.0%	7.8%	6.9%	7.6%	*7.5%*	*7.5%*	Return on Total Cap'l	*7.5%*
						9.7%	9.3%	9.4%	10.6%	11.6%	11.0%	13.4%	12.9%	11.7%	12.7%	*12.5%*	*12.5%*	Return on Shr. Equity	*12.5%*
						9.7%	9.3%	9.4%	10.6%	11.6%	11.0%	13.4%	12.9%	11.7%	12.7%	*12.5%*	*12.5%*	Return on Com Equity	*12.5%*
						3.2%	2.8%	2.7%	3.7%	4.6%	4.3%	6.7%	6.1%	4.7%	5.6%	*5.5%*	*5.0%*	Retained to Com Eq	*4.5%*
						67%	70%	72%	65%	60%	61%	50%	52%	60%	56%	*58%*	*59%*	All Div'ds to Net Prof	*62%*

CAPITAL STRUCTURE as of 3/31/17
Total Debt $1944.5 mill. Due in 5 Yrs $430.5 mill.
LT Debt $1797.5 mill. LT Interest $76.3 mill. (49% of Cap'l)

Pension Assets-12/16 $242.4 mill. Oblig. $308.2 mill.

Pfd Stock None
Common Stock 177,601,658 shares as of 4/24/17

MARKET CAP: $5.9 billion (Large Cap)

CURRENT POSITION ($MILL.)	2015	2016	3/31/17
Cash Assets	3.2	3.7	4.4
Receivables	99.1	97.4	89.4
Inventory (AvgCst)	12.4	13.0	14.0
Other	13.7	14.6	14.7
Current Assets	128.4	128.7	122.5
Accts Payable	56.5	59.9	50.2
Debt Due	52.3	157.2	147.0
Other	84.4	84.4	80.4
Current Liab.	193.2	301.5	277.6

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	2.0%	5.0%
"Cash Flow"	7.5%	7.0%	6.0%
Earnings	8.5%	11.0%	7.0%
Dividends	8.0%	8.0%	9.0%
Book Value	7.0%	7.5%	6.5%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	182.7	195.3	210.5	191.4	779.9
2015	190.3	205.8	221.0	197.1	814.2
2016	192.6	203.9	226.6	196.8	819.9
2017	187.8	*210*	*235*	*207.2*	*840*
2018	*200*	*225*	*250*	*215*	*890*

Calendar	EARNINGS PER SHARE A Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.24	.31	.38	.27	1.20
2015	.27	.32	.38	.17	1.14
2016	.29	.34	.41	.28	1.32
2017	.28	*.35*	*.44*	*.31*	*1.38*
2018	*.31*	*.36*	*.47*	*.31*	*1.45*

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.14	.14	.152	.152	.58
2014	.152	.152	.165	.165	.63
2015	.165	.165	.178	.178	.69
2016	.178	.178	.1913	.1913	.74
2017	.1913	.1913			

BUSINESS: Aqua America, Inc. is the holding company for water and wastewater utilities that serve approximately three million residents in Pennsylvania, Ohio, North Carolina, Illinois, Texas, New Jersey, Florida, Indiana, and five other states. Has 1,551 employees. Acquired AquaSource, 7/13; North Maine Utilities, 7/15; and others. Water supply revenues '2016: residential, 59%; commercial, 16%; industrial, wastewater & other, 25%. Off. & dir. own less than 1% of the common stock; Vangurad Group, 8.9%; Blackrock, Inc, 8.1%; State Street Capital, 6.0% (3/17 Proxy). President & Chief Executive Officer: Christopher Franklin. Incorporated: Pennsylvania. Address: 762 West Lancaster Avenue, Bryn Mawr, Pennsylvania 19010. Tel.: 610-525-1400. Internet: www.aquaamerica.com.

Aqua America should enjoy decent near-term bottom line growth. We think the company's share earnings can rise almost 5% to $1.38, in 2017. The gain is more impressive than it sounds due to a difficult 2016 comparison. In 2018, once again, share earnings will probably rise 5% to $1.45.

Capital spending will be greater than previously estimated. Last April, we thought the company's outlays for this year and next would be $365 million and $400 million, respectively. Management recently stated that $450 million will be spent in 2017 and we are assuming the same amount will be required in 2018.

The balance sheet is capable of handling the greater outlays. As one of only two water utilities that carries an (A) Financial Strength rating, Aqua should be able to fund the increased outlays without taking on too much debt and weakening its strong financial position.

Aqua should benefit from the consolidation taking place in the industry. As the second biggest publicly traded water utility, we expect the company to make tuck-in acquisitions to help spur external growth. Since there are thousands of small municipal water districts that can't fund the large capital expenditures required, these entities have been selling themselves to bigger utilities. There is a tremendous amount of redundancies involved in this industry, and economies of scale can be substantial. Hence, this strategy, which has been the modus operandi of industry titan American Water Works (AWK), should help Aqua grow, as well.

Shares of Aqua America may appeal to accounts that must own a water utility. While we believe AWK is the best run company in the industry, WTR seems to offer more on a value basis. The dividend growth prospects are higher than the group average through 2020-2022. This usually means that investors must accept a yield that is below the group norm. That is not the case with WTR, however. It has a high yield and offers annual dividend increases of about 9% through early next decade. Long-term total return potential might not stack up well against the *Value Line* median, but it is more attractive than most equities in this sector.

James A. Flood *July 14, 2017*

(A) Diluted egs. Excl. nonrec. gains: '01, 2¢; '02, 4¢; '03, 3¢; '12, 18¢. Excl. gain from disc. operations: '12, 7¢; '13, 9¢; '14, 11¢. May not sum due to rounding. Next earnings report due mid-August.
(B) Dividends historically paid in early March, June, Sept. & Dec. ■ Div'd. reinvestment plan available (5% discount).
(C) In millions, adjusted for stock splits.

Company's Financial Strength	A
Stock's Price Stability	95
Price Growth Persistence	70
Earnings Predictability	90

CALIFORNIA WATER NYSE-CWT

RECENT PRICE 36.85 | P/E RATIO 27.3 (Trailing: 35.1 / Median: 20.0) | RELATIVE P/E RATIO 1.38 | DIV'D YLD 2.0% | VALUE LINE

TIMELINESS 3 Lowered 12/23/16
SAFETY 3 Lowered 7/21/07
TECHNICAL 3 Lowered 7/14/17
BETA .75 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	50	(+35%)	10%
Low	30	(-20%)	-2%

Insider Decisions

	S	O	N	D	J	F	M	A	M
to Buy	1	1	1	1	1	1	1	1	1
Options	0	0	0	0	0	0	22	0	0
to Sell	0	0	0	0	0	0	1	0	1

Institutional Decisions

	3Q2016	4Q2016	1Q2017
to Buy	75	93	97
to Sell	73	82	83
Hld's(000)	33965	34200	38886

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
	8.13	8.67	8.18	8.59	8.72	8.10	8.88	9.90	10.82	11.05	12.00	13.34	12.23	12.50	12.29	12.70	13.25	13.90	Revenues per sh	14.70
	1.10	1.32	1.26	1.42	1.52	1.36	1.56	1.86	1.93	1.93	2.07	2.32	2.21	2.47	2.22	2.34	2.65	2.80	"Cash Flow" per sh	3.15
	.47	.63	.61	.73	.74	.67	.75	.95	.98	.91	.86	1.02	1.02	1.19	.94	1.01	1.35	1.45	Earnings per sh A	1.75
	.56	.56	.56	.57	.57	.58	.58	.59	.59	.60	.62	.63	.64	.65	.67	.69	.72	.75	Div'd Decl'd per sh B ■	.99
	2.04	2.91	2.19	1.87	2.01	2.14	1.84	2.41	2.66	2.97	2.83	3.04	2.58	2.76	3.69	4.77	3.85	3.65	Cap'l Spending per sh	3.65
	6.48	6.56	7.22	7.83	7.90	9.07	9.25	9.72	10.13	10.45	10.76	11.28	12.54	13.11	13.41	13.75	14.20	14.45	Book Value per sh C	16.00
	30.36	30.36	33.66	36.73	36.78	41.31	41.33	41.45	41.53	41.67	41.82	41.98	47.74	47.81	47.88	47.97	48.25	48.50	Common Shs Outst'g D	50.00
	27.1	19.8	22.1	20.1	24.9	29.2	26.1	19.8	19.7	20.3	21.3	17.9	20.1	19.7	24.8	29.6	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	23.0
	1.39	1.08	1.26	1.06	1.33	1.58	1.39	1.19	1.31	1.29	1.34	1.14	1.13	1.04	1.25	1.56			Relative P/E Ratio	1.45
	4.4%	4.5%	4.2%	3.9%	3.1%	2.9%	3.0%	3.1%	3.1%	3.2%	3.4%	3.5%	3.1%	2.8%	2.9%	2.3%			Avg Ann'l Div'd Yield	2.5%
							367.1	410.3	449.4	460.4	501.8	560.0	584.1	597.5	588.3	609.4	640	675	Revenues ($mill) E	735
							31.2	39.8	40.6	37.7	36.1	42.6	47.3	56.7	45.0	48.7	65.0	70.0	Net Profit ($mill)	88.0
							39.9%	37.7%	40.3%	39.5%	40.5%	37.5%	30.3%	33.0%	36.0%	35.5%	35.0%	35.0%	Income Tax Rate	35.0%
							8.3%	8.6%	7.6%	4.2%	7.6%	8.0%	4.3%	2.7%	4.3%	6.1%	5.0%	5.0%	AFUDC % to Net Profit	5.0%
							42.9%	41.6%	47.1%	52.4%	51.7%	47.6%	41.6%	40.1%	44.4%	44.6%	45.0%	45.0%	Long-Term Debt Ratio	43.0%
							56.6%	58.4%	52.9%	47.6%	48.3%	52.2%	58.4%	59.9%	55.6%	55.4%	55.0%	55.0%	Common Equity Ratio	57.0%
							674.9	690.4	794.9	914.7	931.5	908.2	1024.9	1045.9	1154.4	1191.2	1250	1275	Total Capital ($mill)	1400
							1010.2	1112.4	1198.1	1294.3	1381.1	1457.1	1515.8	1590.4	1701.8	1859.3	1900	1930	Net Plant ($mill)	2000
							5.9%	7.1%	6.5%	5.5%	5.5%	6.3%	6.0%	6.3%	5.2%	5.5%	6.5%	6.5%	Return on Total Cap'l	7.0%
							8.1%	9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	9.5%	10.0%	Return on Shr. Equity	11.0%
							8.1%	9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	9.5%	10.0%	Return on Com Equity	11.0%
							1.8%	3.8%	3.8%	3.0%	2.3%	3.4%	3.4%	4.1%	2.0%	2.4%	4.5%	5.0%	Retained to Com Eq	5.0%
							77%	61%	60%	65%	71%	62%	56%	55%	71%	68%	53%	52%	All Div'ds to Net Prof	56%

CAPITAL STRUCTURE as of 3/31/17
Total Debt $687.9 mill. Due in 5 Yrs $174.0 mill.
LT Debt $521.7 mill. LT Interest $35.0 mill. (44% of Cap'l)

Pension Assets-12/16 $376.5 mill. Oblig. $564.8 mill.

Pfd Stock None

Common Stock 48,022,000 shs.

MARKET CAP: $1.8 billion (Mid Cap)

CURRENT POSITION ($MIL.)	2015	2016	3/31/17
Cash Assets	8.8	25.5	12.0
Other	118.8	116.6	116.2
Current Assets	127.6	142.1	128.2
Accts Payable	66.4	77.8	69.3
Debt Due	40.2	123.3	166.2
Other	41.9	49.1	57.9
Current Liab.	148.5	250.2	293.4

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	2.0%	2.5%
"Cash Flow"	5.0%	3.5%	5.0%
Earnings	4.0%	3.0%	9.0%
Dividends	1.5%	2.0%	6.5%
Book Value	5.0%	5.0%	3.0%

Cal-endar	QUARTERLY REVENUES ($ mill.) E Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	110.5	158.4	191.2	137.4	597.5
2015	122.0	144.4	183.5	138.4	588.3
2016	121.7	152.4	184.3	151.0	609.4
2017	122.0	*165*	*198*	*155*	*640*
2018	*140*	*170*	*205*	*160*	*675*

Cal-endar	EARNINGS PER SHARE A Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	d.11	.36	.70	.24	1.19
2015	.03	.21	.52	.18	.94
2016	d.02	.24	.48	.31	1.01
2017	.02	*.35*	*.66*	*.32*	*1.35*
2018	*.07*	*.38*	*.67*	*.33*	*1.45*

Cal-endar	QUARTERLY DIVIDENDS PAID B ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.16	.16	.16	.16	.64
2014	.1625	.1625	.1625	.1625	.65
2015	.1675	.1675	.1675	.1675	.67
2016	.1725	.1725	.1725	.1725	.69
2017	.18	.18			

(A) Basic EPS. Excl. nonrecurring gain (loss): '01, 2¢; '02, 4¢; '11, 4¢. Next earnings report due late August.
(B) Dividends historically paid in late Feb., May, Aug., and Nov. ■ Div'd reinvestment plan available.
(C) Incl. intangible assets. In '16 : $21.9 mill., $0.46/sh.
(D) In millions, adjusted for splits.
(E) Excludes non-reg. rev.

Company's Financial Strength B++
Stock's Price Stability 85
Price Growth Persistence 35
Earnings Predictability 70

BUSINESS: California Water Service Group provides regulated and nonregulated water service to 482,400 customers in 100 communities in the state of California. Accounts for over 94% of total customers. Also operates in Washington, New Mexico, and Hawaii. Main service areas: San Francisco Bay area, Sacramento Valley, Salinas Valley, San Joaquin Valley & parts of Los Angeles. Acquired Rio Grande Corp; West Hawaii Utilities (9/08). Revenue breakdown, '16: residential, 72%; business, 20%; industrial, 4%; public authorities, 3%; other 1%. Off. and dir. own 1% of common stock (4/17 proxy). Has 1,163 employees. Pres. and CEO: Martin A. Kropelnicki Inc.: DE. Addr.: 1720 North First St., San Jose, CA 95112-4598. Tel.: 408-367-8200. Internet: www.calwatergroup.com.

California Water Service Group was unable to pick up where it left off. Subsequent to a stellar fourth-quarter performance, the West Coast water provider delivered lukewarm results to begin 2017. First-quarter share net of $0.02 missed our mark by $0.03, as positives from rate increases and lower operating expenses were partly offset by higher depreciation and interest costs, as well as a decrease in accrued unbilled revenues. To that end, the top line was essentially flat, year to year, at $122 million. On a brighter note, drought conditions are starting to ease, and associated spending has noticeably declined. Once long-term water use regulations are set, we believe CWT will benefit from its recent rate hikes and increased water usage.

Decent top- and bottom-line expansion is on the horizon. Revenues are poised to advance at a 5% clip this year, while profit growth will likely be more substantial, at about 33%. Lower overall costs, rate increases, and improved operating conditions are key inputs. For 2018, year-over-year growth will probably be less pronounced, but still trending in the right direction.

Capital spending ought to ramp up considerably through late decade, accompanied by a greater potential for acquisitions. Over the span of two to three years, CWT has more than $600 million at its disposal to invest on infrastructure upgrades and system improvements. Management has also indicated a desire to strategically pursue bolt-on acquisitions, should the opportunity arise. Lastly, the company has entered into a long-term agreement with the Department of Defense to acquire water assets and provide service to Travis Air Force Base commencing in 2018.

Neutrally ranked CWT shares have treaded water since our April review. At recent levels, the valuation is still rather lofty, but the dividend yield is on par with the *Value Line* median. Although we think better days lie ahead and near-term earnings prospects are bright, we advise investors to exercise patience at this juncture. On top of that, capital gains potential over the 3- to 5-year stretch leaves much to be desired.

Nicholas P. Patrikis *July 14, 2017*

CONNECTICUT WATER NDQ-CTWS

RECENT PRICE 57.00 | P/E RATIO 25.9 (Trailing: 26.4 / Median: 20.0) | RELATIVE P/E RATIO 1.31 | DIV'D YLD 2.1% | VALUE LINE

TIMELINESS 2 Raised 6/30/17
SAFETY 3 New 1/18/13
TECHNICAL 3 Raised 7/7/17
BETA .65 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	60	(+5%)	4%
Low	40	(-30%)	-5%

Insider Decisions

	S	O	N	D	J	F	M	A	M
to Buy	0	0	0	0	0	0	0	0	0
Options	0	0	0	0	5	0	1	0	0
to Sell	0	0	0	0	0	0	0	0	0

Institutional Decisions

	3Q2016	4Q2016	1Q2017
to Buy	51	59	48
to Sell	48	45	56
Hld's(000)	5226	5436	6170

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
	5.93	5.77	5.91	6.04	5.81	5.68	7.05	7.24	6.93	7.65	7.93	9.47	8.29	8.45	8.58	8.77	9.00	9.60	Revenues per sh	12.80
	1.78	1.78	1.89	1.91	1.62	1.52	1.90	1.95	1.93	2.04	2.11	2.64	2.63	2.97	3.18	3.31	3.40	3.50	"Cash Flow" per sh	3.85
	1.13	1.12	1.15	1.16	.88	.81	1.05	1.11	1.19	1.13	1.13	1.53	1.66	1.92	2.04	2.08	2.20	2.35	Earnings per sh A	2.65
	.80	.81	.83	.84	.85	.86	.87	.88	.90	.92	.94	.96	.98	1.01	1.05	1.12	1.18	1.24	Div'd Decl'd per sh B■	1.40
	1.86	1.98	1.49	1.58	1.96	1.96	2.24	2.44	3.26	3.06	2.61	2.79	3.02	4.11	4.29	5.93	4.50	4.35	Cap'l Spending per sh	3.35
	9.25	10.06	10.46	10.94	11.52	11.60	11.95	12.23	12.67	13.05	13.50	20.95	17.92	18.83	20.01	20.98	21.70	21.65	Book Value per sh D	22.80
	7.65	7.94	7.97	8.04	8.17	8.27	8.38	8.46	8.57	8.68	8.76	8.85	11.04	11.12	11.19	11.25	11.75	12.00	Common Shs Outst'g C	12.50
	21.5	24.3	23.5	22.9	28.6	29.0	23.0	22.2	18.4	20.7	23.0	19.4	18.4	17.5	17.6	23.3	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	19.0
	1.10	1.33	1.34	1.21	1.52	1.57	1.22	1.34	1.23	1.32	1.44	1.23	1.03	.92	.69	1.22			Relative P/E Ratio	1.20
	3.3%	3.0%	3.0%	3.1%	3.4%	3.6%	3.6%	3.6%	4.1%	3.9%	3.6%	3.2%	3.2%	3.0%	2.9%	2.3%			Avg Ann'l Div'd Yield	2.8%
							59.0	61.3	59.4	66.4	69.4	83.8	91.5	94.0	96.0	98.7	106	115	Revenues ($mill)	160
							8.8	9.4	10.2	9.8	9.9	13.6	18.3	21.3	22.8	23.4	26.0	28.0	Net Profit ($mill)	32.0
							32.4%	27.2%	19.5%	35.2%	41.3%	32.0%	28.0%	14.4%	3.5%	9.9%	19.0%	20.0%	Income Tax Rate	28.0%
							--	1.7%	--	--	--	1.7%	2.0%	2.4%	2.3%	5.1%	3.0%	2.5%	AFUDC % to Net Profit	2.5%
							47.8%	46.9%	50.6%	49.5%	53.2%	49.0%	46.9%	45.7%	44.1%	45.4%	46.5%	47.0%	Long-Term Debt Ratio	46.5%
							51.8%	52.7%	49.1%	50.2%	46.5%	50.8%	52.9%	54.1%	55.7%	54.4%	53.5%	53.0%	Common Equity Ratio	53.5%
							193.2	196.5	221.3	225.8	254.2	364.6	373.6	386.8	402.4	433.8	475	490	Total Capital ($mill)	535
							284.3	302.3	325.2	344.2	362.4	447.9	471.9	506.9	546.3	601.4	615	635	Net Plant ($mill)	675
							5.5%	5.9%	5.5%	5.4%	4.9%	4.8%	5.9%	6.4%	6.5%	6.3%	6.0%	6.5%	Return on Total Cap'l	7.0%
							8.7%	9.0%	9.3%	8.6%	8.3%	7.3%	9.2%	10.1%	10.1%	9.9%	10.0%	11.0%	Return on Shr. Equity	11.5%
							8.7%	9.1%	9.4%	8.7%	8.3%	7.3%	9.2%	10.2%	10.1%	9.9%	10.0%	11.0%	Return on Com Equity	11.5%
							1.6%	1.9%	2.3%	1.6%	1.4%	2.8%	3.8%	4.8%	4.9%	4.6%	4.5%	5.0%	Retained to Com Eq	5.5%
							82%	79%	76%	81%	83%	62%	59%	53%	52%	54%	54%	53%	All Div'ds to Net Prof	53%

CAPITAL STRUCTURE as of 3/31/17
Total Debt $210.8 mill. Due in 5 Yrs $19.8 mill.
LT Debt $205.6 mill. LT Interest $7.7 mill. (45% of Cap'l)

Leases, Uncapitalized: Annual rentals $.3 mill.
Pension Assets-12/16 $62.7 mill.
Oblig. $79.3 mill.

Pfd Stock $0.8 mill. Pfd Divd NMF

Common Stock 11,564,346 shs.

MARKET CAP: $650 million (Small Cap)

CURRENT POSITION ($MILL.)	2015	2016	3/31/17
Cash Assets	.7	1.6	3.0
Accounts Receivable	11.0	13.0	11.6
Other	15.3	14.8	16.5
Current Assets	27.0	29.4	31.1
Accts Payable	11.9	13.1	8.4
Debt Due	2.8	4.9	5.2
Other	22.2	37.1	40.2
Current Liab.	36.9	55.1	53.8

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	3.0%	7.0%
"Cash Flow"	6.5%	9.5%	3.5%
Earnings	8.0%	12.0%	4.5%
Dividends	2.5%	3.0%	4.5%
Book Value	6.0%	9.0%	2.5%

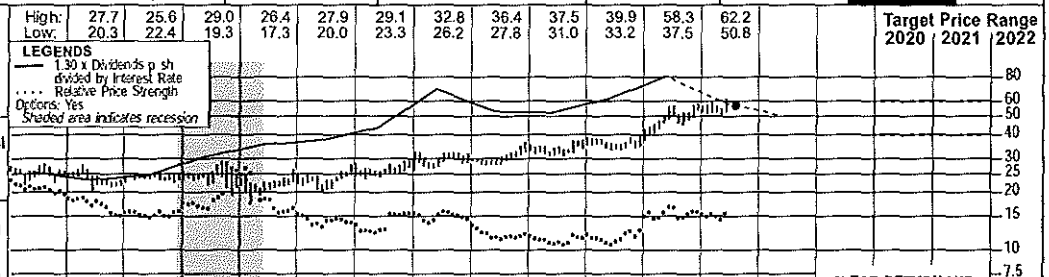
Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	20.3	25.4	27.6	20.7	94.0
2015	20.0	26.6	28.4	21.0	96.0
2016	21.6	26.1	29.5	21.5	98.7
2017	22.5	28.5	32.0	23.0	106
2018	25.0	30.0	35.0	25.0	115

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.27	.67	.76	.22	1.92
2015	.28	.77	.79	.20	2.04
2016	.28	.89	.84	.07	2.08
2017	.36	.78	.86	.20	2.20
2018	.35	.80	.90	.30	2.35

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.2425	.2425	.2475	.2475	.98
2014	.2475	.2475	.2575	.2575	1.01
2015	.2575	.2575	.2675	.2675	1.05
2016	.2675	.2825	.2825	.2825	1.12
2017	.2825	.2975			

(A) Diluted earnings. Next earnings report due late August.
(B) Dividends historically paid in mid-March, June, September, and December. ■ Div'd reinvestment plan available.
(C) In millions
(D) Includes intangibles. In 2016: $30.4 million/$2.70 a share.

Company's Financial Strength	B+
Stock's Price Stability	90
Price Growth Persistence	50
Earnings Predictability	90



BUSINESS: Connecticut Water Service, Inc. is a non-operating holding company, whose income is derived from earnings of its wholly-owned subsidiary companies (regulated water utilities). In 2016, 95% of net income was derived from these activities. Provides water services to 440,000 people in 79 municipalities throughout Connecticut and Maine. Acquired The Maine Water Company, January, 2012; Biddeford and Saco Water, December, 2012; Heritage Village, February, 2017. Inc.: Conn.. Has 266 employees. Chairman/President/Chief Executive Officer: Eric W. Thornburg. Officers and directors own 2.5% of the common stock; BlackRock, Inc., 7.2% (4/17 proxy). Address: 93 West Main Street, Clinton, CT 06413. Telephone: (860) 669-8636. Internet: www.ctwater.com.

Connecticut Water Service completed its purchase of The Avon Water Company. The cash-and-stock deal reflects a total enterprise value of just over $40 million. Approval by the Connecticut Public Utilities Regulatory Authority was received in April, and the deal is in effect as of July 1st. Avon serves about 4,800 water customers across several communities and will retain its name, service locations, and employees. This deal comes shortly after its addition of Heritage Village (February, 2017), a transaction that is already contributing to its financials.

Connecticut's first-quarter showing is encouraging. Revenues of $22.5 million, while slightly below our call improved nicely, year over year. This result was aided by recovery costs for completed infrastructure upgrades (WICA), higher water surcharges (WISC), specifically in Maine, and the abovementioned benefit of Heritage Village. Meanwhile, operating costs declined 50 basis points compared to the previous year, thanks to lower pension and compensation expenses, as well as a continued overall focus on cost reduction. As a result, profitability rose sharply for the March period, to $0.36 a share. For this year and next, we remain optimistic that a high single-digit rate of growth is achievable for both the top and bottom lines.

Elevated capital spending and acquisitions are likely to be the main growth drivers through decade's end. Connecticut has guided an investment budget of more than $55 million for 2017, and is poised to reap the rewards of qualifying infrastructure upgrades and replacements through WICA and WISC. Furthermore, we expect several small-to-midsize acquisitions to surface in the coming years, as CTWS' balance sheet is fundamentally sound and can support additional tuck-in purchases.

Short-term-minded investors may find something to like here. The issue is now ranked to outperform the year-ahead broader market averages (Timeliness: 2). However, the recent valuation gives us pause. Shares of CTWS are already trading near the high end of our 3- to 5-year Target Price Range, thus limiting their appeal over the pull to 2020-2022.

Nicholas P. Patrikis *July 14, 2017*

MIDDLESEX WATER NDQ-MSEX

RECENT PRICE 40.28 | P/E RATIO 26.9 (Trailing: 29.6 Median: 20.0) | RELATIVE P/E RATIO 1.36 | DIV'D YLD 2.1% | VALUE LINE

TIMELINESS 4 Lowered 7/7/17
SAFETY 2 New 10/21/11
TECHNICAL 3 Raised 7/14/17
BETA .75 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	50	(+25%)	8%
Low	35	(-15%)	-1%

Insider Decisions

	S	O	N	D	J	F	M	A	M
to Buy	0	0	0	0	0	0	0	0	0
Options	0	0	0	0	0	0	0	7	0
to Sell	0	2	1	0	0	1	1	0	0

Institutional Decisions

	3Q2016	4Q2016	1Q2017
to Buy	50	40	45
to Sell	56	62	51
Hld's(000)	7495	7874	9400

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
High:	20.5	20.2	19.8	17.9	19.3	19.4	19.6	22.5	23.7	28.0	44.5	42.8								
Low:	16.5	16.9	12.0	11.6	14.7	16.5	17.5	18.6	19.1	21.2	25.0	32.2								
Revenues per sh	5.87	5.98	6.12	6.25	6.44	6.16	6.50	6.79	6.75	6.60	6.50	6.98	7.19	7.26	7.77	8.16	8.35	8.65	Revenues per sh	9.40
"Cash Flow" per sh	1.18	1.20	1.15	1.28	1.33	1.33	1.49	1.53	1.40	1.55	1.46	1.56	1.72	1.84	1.97	2.17	2.35	2.50	"Cash Flow" per sh	3.10
Earnings per sh A	.66	.73	.61	.73	.71	.82	.87	.89	.72	.96	.84	.90	1.03	1.13	1.22	1.38	1.50	1.60	Earnings per sh A	2.05
Div'd Decl'd per sh B■	.62	.63	.65	.66	.67	.68	.69	.70	.71	.72	.73	.74	.75	.76	.78	.81	.84	.87	Div'd Decl'd per sh B■	1.02
Cap'l Spending per sh	1.25	1.59	1.87	2.54	2.18	2.31	1.66	2.12	1.49	1.90	1.50	1.36	1.26	1.40	1.59	2.91	1.80	1.90	Cap'l Spending per sh	2.05
Book Value per sh	7.11	7.39	7.60	8.02	8.26	9.52	10.05	10.03	10.33	11.13	11.27	11.48	11.82	12.24	12.74	13.40	13.95	14.35	Book Value per sh	16.45
Common Shs Outst'g C	10.17	10.36	10.48	11.36	11.58	13.17	13.25	13.40	13.52	15.57	15.70	15.82	15.96	16.12	16.23	16.30	16.50	16.75	Common Shs Outst'g C	17.00
Avg Ann'l P/E Ratio	24.6	23.5	30.0	26.4	27.4	22.7	21.6	19.8	21.0	17.8	21.7	20.8	19.7	18.5	19.1	25.6	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	21.0
Relative P/E Ratio	1.26	1.28	1.71	1.39	1.46	1.23	1.15	1.19	1.40	1.13	1.36	1.32	1.11	.97	.96	1.35			Relative P/E Ratio	1.30
Avg Ann'l Div'd Yield	3.8%	3.7%	3.5%	3.4%	3.5%	3.7%	3.7%	4.0%	4.7%	4.2%	4.0%	4.0%	3.7%	3.7%	3.3%	2.3%			Avg Ann'l Div'd Yield	2.4%
Revenues ($mill)							86.1	91.0	91.2	102.7	102.1	110.4	114.8	117.1	126.0	132.9	138	145	Revenues ($mill)	160
Net Profit ($mill)							11.8	12.2	10.0	14.3	13.4	14.4	16.6	18.4	20.0	22.7	25.0	27.0	Net Profit ($mill)	35.0
Income Tax Rate							32.6%	33.2%	34.1%	32.1%	32.7%	33.9%	34.1%	35.0%	34.5%	34.0%	35.0%	36.0%	Income Tax Rate	37.0%
AFUDC % to Net Profit							--	--	--	6.8%	6.1%	3.4%	1.9%	1.7%	1.9%	2.7%	2.0%	2.0%	AFUDC % to Net Profit	2.5%
Long-Term Debt Ratio							49.0%	45.6%	46.6%	43.1%	42.3%	41.5%	40.4%	40.5%	39.4%	37.9%	37.5%	37.5%	Long-Term Debt Ratio	37.5%
Common Equity Ratio							49.6%	51.8%	52.1%	55.8%	56.6%	57.4%	58.7%	58.8%	59.8%	61.5%	62.0%	62.0%	Common Equity Ratio	62.0%
Total Capital ($mill)							268.8	259.4	267.9	310.5	312.5	316.5	321.4	335.8	345.4	355.4	370	385	Total Capital ($mill)	455
Net Plant ($mill)							333.9	366.3	376.5	405.9	422.2	435.2	446.5	465.4	481.9	517.8	525	535	Net Plant ($mill)	575
Return on Total Cap'l							5.6%	5.8%	5.0%	5.7%	5.2%	5.4%	5.9%	6.3%	6.6%	7.1%	7.5%	7.5%	Return on Total Cap'l	8.0%
Return on Shr. Equity							8.6%	8.6%	7.0%	8.1%	7.5%	7.8%	8.7%	9.2%	9.6%	10.3%	10.5%	11.0%	Return on Shr. Equity	12.5%
Return on Com Equity							8.7%	8.9%	7.0%	8.2%	7.5%	7.8%	8.7%	9.3%	9.6%	10.3%	11.0%	11.0%	Return on Com Equity	12.5%
Retained to Com Eq							1.8%	2.0%	.1%	2.1%	1.0%	1.4%	2.4%	3.1%	3.5%	4.3%	5.0%	5.0%	Retained to Com Eq	6.0%
All Div'ds to Net Prof							79%	78%	98%	75%	87%	83%	73%	67%	63%	58%	56%	54%	All Div'ds to Net Prof	50%

% TOT. RETURN 6/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	-6.6	18.8
3 yr.	103.9	20.3
5 yr.	145.2	91.4

CAPITAL STRUCTURE as of 3/31/17
Total Debt $156.8 mill. Due in 5 Yrs $32.1 mill.
LT Debt $136.2 mill. LT Interest $4.0 mill.
(Total interest coverage: 11.2x)
(38% of Cap'l)

Pension Assets-12/16 $59.4 mill.
Oblig. $78.6 mill.
Pfd Stock $2.4 mill. Pfd Div'd: $.1 mill.

Common Stock 16,303,741 shs.
as of 4/30/17

MARKET CAP: $650 million (Small Cap)

CURRENT POSITION ($MILL.)	2015	2016	3/31/17
Cash Assets	3.5	3.9	5.6
Other	20.9	22.8	21.4
Current Assets	24.4	26.7	27.0
Accts Payable	6.5	12.3	9.0
Debt Due	8.7	18.2	20.6
Other	13.1	16.6	19.9
Current Liab.	28.3	47.1	49.5

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	2.0%	3.0%	3.5%
"Cash Flow"	4.5%	6.5%	7.5%
Earnings	5.0%	8.0%	8.5%
Dividends	1.5%	1.5%	4.5%
Book Value	4.0%	3.0%	4.5%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	27.1	29.2	32.7	28.1	117.1
2015	28.8	31.7	34.7	30.8	126.0
2016	30.6	32.7	37.8	31.8	132.9
2017	30.1	34.0	39.0	34.9	138
2018	33.0	37.0	40.0	35.0	145

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.20	.29	.42	.22	1.13
2015	.22	.31	.41	.28	1.22
2016	.29	.36	.54	.19	1.38
2017	.27	.37	.55	.31	1.50
2018	.33	.38	.57	.32	1.60

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.1875	.1875	.1875	.19	.75
2014	.19	.19	.19	.1925	.76
2015	.1925	.1925	.1925	.19875	.78
2016	.19875	.19875	.19875	.21125	.81
2017	.21125	.21125			

BUSINESS: Middlesex Water Company engages in the ownership and operation of regulated water utility systems in New Jersey, Delaware, and Pennsylvania. It also operates water and wastewater systems under contract on behalf of municipal and private clients in NJ and DE. Its Middlesex System provides water services to 61,000 retail customers, primarily in Middlesex County, New Jersey. In 2016, the Middlesex System accounted for 60% of operating revenues. At 12/31/16, the company had 309 employees. Incorporated: NJ. President, CEO, and Chairman: Dennis W. Doll. Officers & directors own 3.5% of the common stock; BlackRock Institutional Trust Co., 7.2% (4/17 proxy). Add.: 1500 Ronson Road, Iselin, NJ 08830. Tel.: 732-634-1500. Internet: www.middlesexwater.com.

Middlesex Water Company posted weaker-than-anticipated financial results for the March quarter. Indeed, the first few months of the year historically leaves MSEX prone to lighter customer water usage due to the colder weather. Thus, unpredictable top-and bottom-line results are not uncommon early in the year, especially considering the company largely operates in the Northeast region of the U.S., an area that is no stranger to volatile temperatures and weather conditions. Year over year, first-quarter revenues contracted modestly, to $30.1 million, owing to weaker consumption from New Jersey residents and commercial operators. However, its customer base expanded in its Delaware System. Earnings slipped on an annual basis, as well. Middlesex delivered share profits of $0.27 for the period, two pennies less than the previous year.

We are tempering our 2017 top-line expectation, while keeping intact our bottom-line forecast. While comparisons through yearend will likely be decent, its weaker first-quarter showing has spurred us to shave $2 million from our full-year revenue outlook, to $138 million. At this time, our $1.50 per share earnings estimate remains.

Infrastructure upgrades ought to be the priority going forward. Under its recently established RENEW program (part of its overall spending initiatives), the company plans to allocate nearly $12 million in each of the next three years to bolster its water transmission capabilities by replacing old water mains, valves, and services lines throughout New Jersey. Moreover, total capital spending is poised to exceed $200 million by the end of the decade, as upgrades to its distribution and production systems, along with some information technology updates are necessary for the long haul.

The dividend yield is about average at the recent quotation. Middlesex shares have increased sharply in price since early 2016, pulling its annual dividend yield closer to that of the *Value Line* median.

Investors would be better served looking elsewhere. This issue is unfavorably ranked (4) for the year-ahead, and offers limited upside out to 2020-2022.

Nicholas P. Patrikis *July 14, 2017*

(A) Diluted earnings. Next earnings report due early August.
(B) Dividends historically paid in mid-Feb., May, Aug., and November. ■ Div'd reinvestment plan available.
(C) In millions, adjusted for split.

Company's Financial Strength	B++
Stock's Price Stability	60
Price Growth Persistence	40
Earnings Predictability	85

SJW GROUP NYSE-SJW

RECENT PRICE 49.91 | P/E RATIO 22.7 (Trailing: 19.3 / Median: 23.0) | RELATIVE P/E RATIO 1.15 | DIV'D YLD 1.7% | VALUE LINE

TIMELINESS 3 Raised 6/30/17
SAFETY 3 New 4/22/11
TECHNICAL 3 Lowered 6/16/17
BETA .70 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	75	(+50%)	12%
Low	50	(Nil)	2%

Insider Decisions

	S	O	N	D	J	F	M	A	M
to Buy	0	0	0	0	0	0	0	0	0
Options	0	0	0	0	8	0	6	8	0
to Sell	2	1	1	1	1	1	0	0	0

Institutional Decisions

	3Q2016	4Q2016	1Q2017
to Buy	50	81	83
to Sell	70	59	59
Hld's(000)	9513	9218	10726

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
	7.45	7.97	8.20	9.14	9.86	10.35	11.25	12.12	11.68	11.62	12.85	14.01	13.73	15.76	14.97	16.61	16.45	15.90	Revenues per sh	19.55
	1.49	1.55	1.75	1.89	2.21	2.38	2.30	2.44	2.21	2.38	2.60	2.97	2.90	4.42	3.86	4.76	4.40	4.40	"Cash Flow" per sh	4.90
	.77	.78	.91	.87	1.12	1.19	1.04	1.08	.81	.84	1.11	1.18	1.12	2.54	1.85	2.57	2.20	2.35	Earnings per sh A	2.75
	.43	.46	.49	.51	.53	.57	.61	.65	.66	.68	.69	.71	.73	.75	.78	.81	.87	.93	Div'd Decl'd per sh B■	1.12
	2.63	2.06	3.41	2.31	2.83	3.87	6.62	3.79	3.17	5.65	3.75	5.67	4.68	5.02	5.24	6.95	6.00	5.50	Cap'l Spending per sh	5.00
	8.17	8.40	9.11	10.11	10.72	12.48	12.90	13.99	13.66	13.75	14.20	14.71	15.92	17.75	18.83	20.61	21.20	21.60	Book Value per sh	23.90
	18.27	18.27	18.27	18.27	18.27	18.28	18.36	18.18	18.50	18.55	18.59	18.67	20.17	20.29	20.38	20.46	21.00	22.00	Common Shs Outst'g C	23.00
	18.5	17.3	15.4	19.6	19.7	23.5	33.4	26.2	28.7	29.1	21.2	20.4	24.3	11.2	16.6	15.7	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	22.0
	.95	.94	.88	1.04	1.05	1.27	1.77	1.58	1.91	1.85	1.33	1.30	1.37	.59	.84	.83			Relative P/E Ratio	1.40
	3.0%	3.4%	3.5%	3.0%	2.4%	2.0%	1.7%	2.3%	2.8%	2.8%	2.9%	3.0%	2.7%	2.6%	2.5%	2.0%			Avg Ann'l Div'd Yield	1.8%
							206.6	220.3	216.1	215.6	239.0	261.5	276.9	319.7	305.1	339.7	345	350	Revenues ($mill)	450
							19.3	20.2	15.2	15.8	20.9	22.3	23.5	51.8	37.9	52.8	46.0	52.0	Net Profit ($mill)	63.0
							39.4%	39.5%	40.4%	38.8%	41.1%	41.1%	38.7%	32.5%	38.1%	38.8%	39.0%	39.0%	Income Tax Rate	39.0%
							2.7%	2.3%	2.0%	--	--	--	--	--	2.0%	1.0%	1.5%	1.5%	AFUDC % to Net Profit	1.5%
							47.7%	46.0%	49.4%	53.7%	56.6%	55.0%	51.1%	51.6%	49.8%	50.7%	49.0%	48.5%	Long-Term Debt Ratio	49.0%
							52.3%	54.0%	50.6%	46.3%	43.4%	45.0%	48.9%	48.4%	50.2%	49.3%	51.0%	51.5%	Common Equity Ratio	51.0%
							453.2	470.9	499.6	550.7	607.9	610.2	656.2	744.5	764.6	855.0	870	925	Total Capital ($mill)	1075
							645.5	684.2	718.5	785.5	756.2	831.6	898.7	963.0	1036.8	1146.4	1200	1250	Net Plant ($mill)	1325
							5.7%	5.8%	4.4%	4.3%	4.9%	5.0%	5.0%	8.3%	6.3%	7.4%	6.5%	6.5%	Return on Total Cap'l	7.0%
							8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	10.5%	11.0%	Return on Shr. Equity	11.5%
							8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	10.5%	11.0%	Return on Com Equity	11.5%
							3.5%	3.3%	1.2%	1.2%	3.1%	3.3%	2.8%	10.2%	5.7%	8.6%	6.5%	6.5%	Retained to Com Eq	7.0%
							57%	59%	80%	80%	61%	59%	62%	29%	42%	31%	40%	40%	All Div'ds to Net Prof	41%

% TOT. RETURN 6/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	27.2	18.8
3 yr.	93.7	20.3
5 yr.	132.1	91.4

CAPITAL STRUCTURE as of 3/31/17
Total Debt $433.5 mill. Due in 5 Yrs $14.3 mill.
LT Debt $433.4 mill. LT Interest $20.0 mill. (51% of Cap'l)

Leases, Uncapitalized: Annual rentals $6.6 mill.

Pension Assets-12/16 $113.9 mill.
Oblig. $174.1 mill.

Pfd Stock None.

Common Stock 20,498,733 shs.

MARKET CAP: $1.0 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2015	2016	3/31/17
Cash Assets	5.2	25.3	7.1
Accts Receivable	16.4	16.4	28.5
Other	51.8	57.9	38.1
Current Assets	73.4	99.6	73.7
Accts Payable	16.2	18.7	20.7
Debt Due	38.1	14.3	.1
Other	25.3	30.6	30.0
Current Liab.	79.6	63.6	50.8

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	5.0%	5.5%	3.5%
"Cash Flow"	7.0%	12.0%	2.0%
Earnings	8.0%	20.5%	3.0%
Dividends	4.0%	3.0%	6.0%
Book Value	5.5%	6.5%	4.0%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	54.6	70.4	125.4	69.3	319.7
2015	62.1	72.4	83.0	87.6	305.1
2016	61.1	86.9	112.3	79.4	339.7
2017	69.0	90.0	100	86.0	345
2018	68.0	92.0	103	87.0	350

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.04	.34	1.88	.28	2.54
2015	.23	.36	.46	.80	1.85
2016	.16	.82	.92	.67	2.57
2017	.18	.65	.75	.62	2.20
2018	.27	.67	.78	.63	2.35

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.1825	.1825	.1825	.1825	.73
2014	.1875	.1875	.1875	.1875	.75
2015	.1950	.1950	.1950	.1950	.78
2016	.2025	.2025	.2025	.2025	.81
2017	.2175	.2175			

BUSINESS: SJW Group engages in the production, purchase, storage, purification, distribution, and retail sale of water. It provides water service to approximately 229,000 connections with a total population of roughly one million people in the San Jose area and 13,000 connections that reaches about 39,000 residents in the region between San Antonio and Austin, Texas. The company also offers nonregulated water-related services and owns and operates commercial real estate investments. Has about 406 employees. Officers and directors (including Nancy O. Moss) own 26.9% of outstanding shares (3/17 proxy). Chairman & C.E.O.: Richard Roth. Inc.: California. Address: 110 West Taylor Street, San Jose, CA 95110. Telephone: (408) 279-7800. Internet: www.sjwater.com.

SJW Group's top line increased handsomely in the first quarter. On an annual basis, revenues advanced about 13%, to $69 million, besting our $65 million call. Higher cumulative rates from the latest California rate case decision was the main driver in the outperformance, supplemented by half a million in recorded revenues in its Water Conservation Memorandum Account (this figure can change drastically quarter to quarter). These positives easily outweighed lower customer water usage during the period ($1.6 million). All told, we are tacking $5 million onto our current-year revenue estimate, to $345 million.

But profits are being squeezed, at the moment. Indeed, the company has been under pressure from several angles in recent months. Specifically, water production expenses, including higher per-unit costs for purchased water and rising groundwater extraction and energy expenses, continue to be a factor. On the operating front, SJW is experiencing loftier depreciation expenses, surging administrative costs, and unexpectedly higher property taxes. As a result, March-period share net came in at $0.18, drastically lower than our expectation, spurring us to shave a nickel from our 2017 bottom-line estimate, to $2.20 a share.

Nevertheless, we are maintaining our sanguine long-term outlook. In our view, some of the abovementioned operational headwinds should dissipate in the coming years. Meanwhile, we think a pick-up in West Coast water consumption is probable. Lastly, the company's robust capital spending initiatives (approximately $300 million to upgrade infrastructure and water systems) ought to help boost operating margins through decade's end.

SJW shares have been raised one notch for Timeliness, to 3 (Average). However, the stock's recent valuation leaves much to be desired. The dividend yield (1.7%) is 30 basis points below that of the broader market average, and among the lower returners in its peer group. Furthermore, much of the gains we envision over the pull to 2020-2022 appear to already be reflected in the stock price. Thus, investors would be wise to wait for a more attractive entry point.

Nicholas P. Patrikis *July 14, 2017*

(A) Diluted earnings. Excludes nonrecurring losses: '03, $1.97; '04, $3.78; '05, $1.09; '06, $16.36; '08, $1.22; '10, $0.46. GAAP accounting as of 2013. Next earnings report due late August. Quarterly earnings may not add due to rounding.
(B) Dividends historically paid in early March, June, September, and December. ■ Div'd reinvestment plan available.
(C) In millions, adjusted for stock splits.

Company's Financial Strength	B+
Stock's Price Stability	75
Price Growth Persistence	25
Earnings Predictability	45

YORK WATER NDQ-YORW

RECENT PRICE 35.25 | P/E RATIO 34.2 (Trailing: 37.9 / Median: 24.0) | RELATIVE P/E RATIO 1.73 | DIV'D YLD 1.8% | VALUE LINE

TIMELINESS 4 Raised 6/2/17
SAFETY 3 Lowered 7/17/15
TECHNICAL 3 Lowered 6/23/17
BETA .60 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	40	(+15%)	6%
Low	25	(-30%)	-5%

Insider Decisions

	S	O	N	D	J	F	M	A	M
to Buy	0	0	0	1	1	1	1	1	2
Options	0	0	0	1	0	0	0	0	3
to Sell	0	0	0	0	0	0	0	0	0

Institutional Decisions

	3Q2016	4Q2016	1Q2017
to Buy	37	46	38
to Sell	36	34	33
Hld's(000)	4033	4284	5127

High: 21.0 18.5 16.5 18.0 18.0 18.1 18.5 22.0 24.3 26.7 39.8 39.9
Low: 15.3 15.5 6.2 9.7 12.8 15.8 16.8 17.6 18.8 19.7 23.8 31.7

LEGENDS
1.10 x Dividends p sh divided by Interest Rate
Relative Price Strength
3-for-2 split 9/06
Options: Yes
Shaded area indicates recession

Target Price Range 2020 | 2021 | 2022

% TOT. RETURN 6/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	10.8	18.8
3 yr.	79.1	20.3
5 yr.	119.2	91.4

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
2.05	2.05	2.17	2.18	2.58	2.56	2.79	2.89	2.95	3.07	3.18	3.21	3.27	3.58	3.68	3.70	3.85	4.15	Revenues per sh	5.65
.59	.57	.65	.65	.79	.77	.86	.88	.95	1.07	1.09	1.12	1.19	1.36	1.45	1.42	1.65	1.70	"Cash Flow" per sh	2.05
.43	.40	.47	.49	.56	.58	.57	.57	.64	.71	.71	.72	.75	.89	.97	.92	1.03	1.10	Earnings per sh A	1.40
.34	.35	.37	.39	.42	.45	.48	.49	.51	.52	.53	.54	.55	.57	.60	.63	.66	.70	Div'd Decl'd per sh B	.90
.75	.66	1.07	2.50	1.69	1.85	1.69	2.17	1.18	.63	.74	.94	.76	1.10	1.11	1.03	1.50	1.25	Cap'l Spending per sh	.85
3.79	3.90	4.06	4.65	4.85	5.84	5.97	6.14	6.92	7.19	7.45	7.73	7.98	8.15	8.51	8.88	9.10	9.55	Book Value per sh	11.00
9.46	9.55	9.63	10.33	10.40	11.20	11.27	11.37	12.56	12.69	12.79	12.92	12.98	12.83	12.81	12.85	13.00	12.75	Common Shs Outst'g C	12.00
17.8	26.9	24.5	25.7	26.3	31.2	30.3	24.6	21.9	20.7	23.9	24.4	26.3	23.1	23.5	32.8	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	22.5
.91	1.47	1.40	1.36	1.40	1.68	1.61	1.48	1.46	1.32	1.50	1.55	1.48	1.22	1.18	1.72			Relative P/E Ratio	1.40
4.4%	3.3%	3.2%	3.1%	2.9%	2.5%	2.8%	3.5%	3.6%	3.5%	3.1%	3.1%	2.8%	2.8%	2.6%	2.1%			Avg Ann'l Div'd Yield	2.8%
						31.4	32.8	37.0	39.0	40.6	41.4	42.4	45.9	47.1	47.6	50.0	53.0	Revenues ($mill)	68.0
						6.4	6.4	7.5	8.9	9.1	9.3	9.7	11.5	12.5	11.8	13.5	14.0	Net Profit ($mill)	17.0
						36.5%	36.1%	37.9%	38.5%	35.3%	37.6%	37.6%	29.8%	27.5%	31.3%	30.0%	30.0%	Income Tax Rate	32.5%
						3.6%	10.1%	--	1.2%	1.1%	1.1%	.6%	1.8%	1.6%	1.9%	1.5%	1.5%	AFUDC % to Net Profit	1.0%
						46.5%	54.5%	45.7%	48.3%	47.1%	46.0%	45.1%	44.8%	44.4%	42.6%	43.5%	44.0%	Long-Term Debt Ratio	45.0%
						53.5%	45.5%	54.3%	51.7%	52.9%	54.0%	54.9%	55.2%	55.6%	57.4%	56.5%	56.0%	Common Equity Ratio	55.0%
						125.7	153.4	160.1	176.4	180.2	184.8	188.4	189.4	196.3	198.7	210	215	Total Capital ($mill)	240
						191.6	211.4	222.0	228.4	233.0	240.3	244.2	253.2	261.4	270.9	275	280	Net Plant ($mill)	295
						6.7%	5.7%	6.2%	6.5%	6.4%	6.4%	6.5%	7.4%	7.6%	7.2%	7.5%	7.5%	Return on Total Cap'l	8.0%
						9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	11.5%	11.5%	Return on Shr. Equity	12.5%
						9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	11.5%	11.5%	Return on Com Equity	12.5%
						1.7%	1.4%	1.9%	2.7%	2.5%	2.4%	2.4%	3.9%	4.4%	3.4%	4.0%	4.0%	Retained to Com Eq	4.5%
						82%	85%	78%	72%	73%	74%	74%	64%	62%	67%	64%	64%	All Div'ds to Net Prof	64%

CAPITAL STRUCTURE as of 3/31/17
Total Debt $84.6 mill. Due in 5 Yrs $30.5 mill.
LT Debt $84.6 mill. LT Interest $5.4 mill.
(43% of Cap'l)

Pension Assets 12/16 $35.5 mill.
Oblig. $40.8 mill.

Pfd Stock None

Common Stock 12,643,000 shs.

MARKET CAP: $450 million (Small Cap)

CURRENT POSITION ($MILL.)	2015	2016	3/31/17
Cash Assets	2.9	4.2	.4
Accounts Receivable	3.5	4.3	4.0
Inventory (Avg. Cost)	.8	.7	.9
Other	4.6	3.4	3.7
Current Assets	11.8	12.6	9.0
Accts Payable	1.8	3.7	3.4
Debt Due	--	--	--
Other	4.4	4.5	4.7
Current Liab.	6.2	8.2	8.1

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	3.5%	7.5%
"Cash Flow"	6.5%	6.5%	6.5%
Earnings	5.5%	6.0%	7.0%
Dividends	3.5%	3.0%	7.0%
Book Value	5.0%	3.5%	4.5%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	10.6	11.8	12.0	11.5	45.9
2015	11.2	11.9	12.4	11.6	47.1
2016	11.3	11.8	12.6	11.9	47.6
2017	11.3	12.2	13.5	13.0	50.0
2018	12.5	13.0	14.0	13.5	53.0

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.16	.22	.23	.28	.89
2015	.20	.22	.28	.27	.97
2016	.19	.23	.27	.23	.92
2017	.20	.25	.30	.28	1.03
2018	.23	.26	.32	.29	1.10

Calendar	QUARTERLY DIVIDENDS PAID B Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.138	.138	.138	.138	.552
2014	.1431	.1431	.1431	.1431	.572
2015	.1495	.1495	.1495	.1555	.604
2016	.1555	.1555	.1555	.1602	.627
2017	.1602	.1602			

BUSINESS: The York Water Company is the oldest investor-owned regulated water utility in the United States. It has operated continuously since 1816. As of December 31, 2016, the company's average daily availability was 35.4 million gallons and its service territory had an estimated population of 196,000. Has more than 67,000 customers. Residential customers accounted for 63% of 2016 revenues; commercial and industrial (29%); other (8%). It also provides sewer billing services. Incorporated: PA. York had 105 full-time employees at 12/31/16. President/CEO: Jeffrey R. Hines. Officers/directors own 1.1% of the common stock (3/17 proxy). Address: 130 East Market Street, York, Pennsylvania 17401. Telephone: (717) 845-3601. Internet: www.yorkwater.com.

York Water was unable to generate any meaningful growth in the first quarter. Year over year, its top- and bottom-line figures of $11.3 million and $0.20 a share, respectively, were relatively flattish. March-period revenues were likely held back due to lower consumption (seasonality), more than offsetting positive contributions from its recent acquisition of West York Borough sewer. Meanwhile, its penny improvement on the bottom line can largely be attributed to a lower effective tax rate (discussed below), as operating costs in the first quarter were nearly 40% of total revenues.

We still think the company is on track to post solid gains this year. However, we are lowering our estimates. We now look for revenues of $50 million, or a 5% annual advance, and earnings of $1.03 a share, representing a 12% improvement over the prior-year tally.

Higher capital expenditures should trigger favorable tax deductions under the IRS tangible property rules. We are beginning to see this bear fruit, as York's effective tax rate in the first quarter declined significantly thanks to greater qualifying expenditures (first-quarter capex rose three times, year over year.) Looking forward, the company's plan to ramp up spending to approximately $23 million this year remains in reach, with next year's investment allocation slowing slightly, to $16 million. Moreover, capital spending on pipes, facilities, and pumping stations ought to help lift operating margins this year and next.

At this juncture, the issue does not fit the needs of income-seekers quite like it has in the past. As a result of the stock's year-and-a-half-long run-up in price, YORW shares presently offer a yield that is below the broader market average, even though the company has raised its annual payout, year after year.

Based on our Timeliness Ranking System, York stock is an unfavorable selection for relative year-ahead price performance (4). What's more, appreciation potential three to five years hence is unenticing, as much of the gains we foresee over that time frame have already been factored into the price. Thus, we advise investors to take a pass, for now.

Nicholas P. Patrikis *July 14, 2017*

(A) Diluted earnings. Next earnings report due late August.
(B) Dividends historically paid in late-December, February, June, and September.
(C) In millions, adjusted for splits.

Company's Financial Strength	B+
Stock's Price Stability	70
Price Growth Persistence	55
Earnings Predictability	95

Indian Hills Utility Operating Company, Inc.
Summary of Risk Premium Models for the
Proxy Group of Eight Water Companies

	Proxy Group of Eight Water Companies
Predictive Risk Premium Model (PRPM) (1)	11.81 %
Risk Premium Using an Adjusted Total Market Approach (2)	9.68 %
Average	10.75 %

Notes:
(1) From page 2 of this Sub-Schedule.
(2) From page 3 of this Sub-Schedule.

Indian Hills Utility Operating Company, Inc.
Indicated ROE
Derived by the Predictive Risk Premium Model (1)

Proxy Group of Eight Water Companies	[1] LT Average Predicted Variance	[2] Spot Predicted Variance	[3] Average Predicted Variance	[4] GARCH Coefficient	[5] Predicted Risk Premium (2)	[6] Risk-Free Rate (3)	[7] Indicated ROE (4)
American States Water Co.	0.39%	0.32%	0.35%	1.75220	7.61%	3.56%	11.17%
American Water Works Company Inc	NMF	NMF	NMF	5.62006	NMF	3.56%	NMF
Aqua America Inc	0.45%	0.24%	0.35%	2.28087	10.01%	3.56%	13.57%
California Water Service Group	0.32%	0.29%	0.30%	1.93020	7.17%	3.56%	10.73%
Connecticut Water Service Inc	0.29%	0.22%	0.26%	1.88384	6.04%	3.56%	9.60%
Middlesex Water Co.	0.29%	0.43%	0.36%	2.01400	9.06%	3.56%	12.62%
SJW Corp	0.42%	0.41%	0.41%	1.56705	7.99%	3.56%	11.55%
York Water Co.	0.47%	0.42%	0.44%	2.09126	11.62%	3.56%	15.18%
						Average	12.06%
						Median	11.55%
						Average of Mean and Median	11.81%

NMF = Not Meaningful Figure

Notes:

(1) The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums for the first available trading month as reported by Bloomberg Professional Service.

(2) $(1+(\text{Column [3]} * \text{Column [4]})^{12}) - 1$.

(3) From note 2 on page 2 of Sub-Schedule DWD-5.

(4) Column [5] + Column [6].

Indian Hills Utility Operating Company, Inc.
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Eight Water Companies
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	4.57 %
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A Rated Public Utility Bonds	0.26 (2)
3.	Adjusted Prospective Yield on A Rated Public Utility Bonds	4.83 %
4.	Adjustment to Reflect Bond Rating Difference of Proxy Group	0.06 (3)
5.	Adjusted Prospective Bond Yield	4.89 %
6.	Equity Risk Premium (4)	4.79
7.	Risk Premium Derived Common Equity Cost Rate	9.68 %

Notes:
(1) Consensus forecast of Moody's Aaa Rated Corporate bonds from Blue Chip Financial Forecasts (see pages 10-11 of this Sub-Schedule).
(2) The average yield spread of A rated public utility bonds over Aaa rated corporate bonds of 0.26% from page 4 of this Sub-Schedule.
(3) Adjustment to reflect the A2 / A3 Moody's LT issuer rating of the proxy group of eight water companies as shown on page 5 of this Sub-Schedule. The 0.06% upward adjustment is derived by taking 1/6 of the spread between A2 and A3 Public Utility Bonds (1/6 * 0.37% = 0.06%) as derived from page 4 of this Sub-Schedule.
(4) From page 7 of this Sub-Schedule.

Indian Hills Utility Operating Company, Inc.
Interest Rates and Bond Spreads for
Moody's Corporate and Public Utility Bonds

Selected Bond Yields

	[1] Aaa Rated Corporate Bond	[2] A Rated Public Utility Bond	[3] Baa Rated Public Utility Bond
Aug-2017	3.63 %	3.86 %	4.23 %
Jul-2017	3.70	3.99	4.36
Jun-2017	3.68	3.94	4.32
Average	3.67 %	3.93 %	4.30 %

Selected Bond Spreads

A Rated Public Utility Bonds Over Aaa Rated Corporate Bonds:
0.26 % (1)

Baa Rated Public Utility Bonds Over A Rated Public Utility Bonds:
0.37 % (2)

Notes:
(1) Column [2] - Column [1].
(2) Column [3] - Column [2].

Source of Information:
Bloomberg Professional Service

Indian Hills Utility Operating Company, Inc.
Comparison of Long-Term Issuer Ratings for
Proxy Group of Eight Water Companies

	Moody's Long-Term Issuer Rating August 2017		Standard & Poor's Long-Term Issuer Rating August 2017	
Proxy Group of Eight Water Companies	Long-Term Issuer Rating	Numerical Weighting(1)	Long-Term Issuer Rating	Numerical Weighting(1)
American States Water Co. (2)	A2	6.0	A+	5.0
American Water Works Company Inc (3)	A3	7.0	A	6.0
Aqua America Inc (4)	NR	--	A+	5.0
California Water Service Group (5)	NR	--	A+	5.0
Connecticut Water Service Inc (6)	NR	--	A	6.0
Middlesex Water Co.	NR	--	A	6.0
SJW Corp (7)	NR	--	A	6.0
York Water Co.	NR	--	A-	7.0
Average	A2/A3	6.5	A	5.8

Notes:

(1) From page 6 of this Sub-Schedule.
(2) Ratings that of Golden State Water Company.
(3) Ratings that of New Jersey and Pennsylvania American Water Companies.
(4) Ratings that of Aqua Pennsylvania, Inc.
(5) Ratings that of California Water Service Company.
(6) Ratings that of Connecticut Water Company.
(7) Ratings that of San Jose Water Company.

Source Information: Moody's Investors Service
Standard & Poor's Global Utilities Rating Service

Numerical Assignment for
Moody's and Standard & Poor's Bond Ratings

Moody's Bond Rating	Numerical Bond Weighting	Standard & Poor's Bond Rating
Aaa	1	AAA
Aa1	2	AA+
Aa2	3	AA
Aa3	4	AA-
A1	5	A+
A2	6	A
A3	7	A-
Baa1	8	BBB+
Baa2	9	BBB
Baa3	10	BBB-
Ba1	11	BB+
Ba2	12	BB
Ba3	13	BB-
B1	14	B+
B2	15	B
B3	16	B-

Indian Hills Utility Operating Company, Inc.
Judgment of Equity Risk Premium for
Proxy Group of Eight Water Companies

Line No.		Proxy Group of Eight Water Companies
1.	Calculated equity risk premium based on the total market using the beta approach (1)	5.60 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A rated bonds (2)	3.98
3.	Average equity risk premium	4.79 %

Notes: (1) From page 8 of this Sub-Schedule.
(2) From page 12 of this Sub-Schedule.

Indian Hills Utility Operating Company, Inc.
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Eight Water Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Eight Water Companies
	Ibbotson-Based Equity Risk Premiums:	
1.	Ibbotson Equity Risk Premium (1)	5.56 %
2.	Regression on Ibbotson Risk Premium Data (2)	7.41
3.	Ibbotson Equity Risk Premium based on PRPM (3)	5.96
4.	Average Ibbotson Equity Risk Premium	6.31
	Value Line-Based Equity Risk Premiums:	
5.	Equity Risk Premium Based on Value Line Summary and Index (4)	5.07
6.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	9.56
7.	Average Value Line Equity Risk Premium	7.32
	Bloomberg-Based Equity Risk Premium:	
8.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	9.08
9.	Conclusion of Equity Risk Premium (7)	7.57 %
10.	Adjusted Beta (8)	0.74
11.	Forecasted Equity Risk Premium	5.60 %

Notes provided on page 9 of this Sub-Schedule.

Indian Hills Utility Operating Company, Inc.
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Eight Water Companies

Notes:

(1) Based on the arithmetic mean historical monthly returns on large company common stocks from Ibbotson® SBBI® 2017 Market Report minus the arithmetic mean monthly yield of Moody's average Aaa and Aa corporate bonds from 1926-2016.

(2) This equity risk premium is based on a regression of the monthly equity risk premiums of large company common stocks relative to Moody's average Aaa and Aa rated corporate bond yields from 1928-2016 referenced in Note 1 above.

(3) The Predictive Risk Premium Model (PRPM) is discussed in the accompanying direct testimony. The Ibbotson equity risk premium based on the PRPM is derived by applying the PRPM to the monthly risk premiums between Ibbotson large company common stock monthly returns and average Aaa and Aa corporate monthly bond yields, from January 1928 through August 2017.

(4) The equity risk premium based on the Value Line Summary and Index is derived by subtracting the average consensus forecast of Aaa corporate bonds of 4.57% (from page 3 of this Sub-Schedule) from the projected 3-5 year total annual market return of 9.64% (described fully in note 1 on page 2 of Sub-Schedule DWD-5).

(5) Using data from Value Line for the S&P 500, an expected total return of 14.13% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 4.57% results in an expected equity risk premium of 9.56%.

(6) Using data from the Bloomberg Professional Service for the S&P 500, an expected total return of 13.65% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 4.57% results in an expected equity risk premium of 9.08%.

(7) Average of lines 4, 7, and 8.

(8) Average of mean and median beta from Sub-Schedule DWD-5.

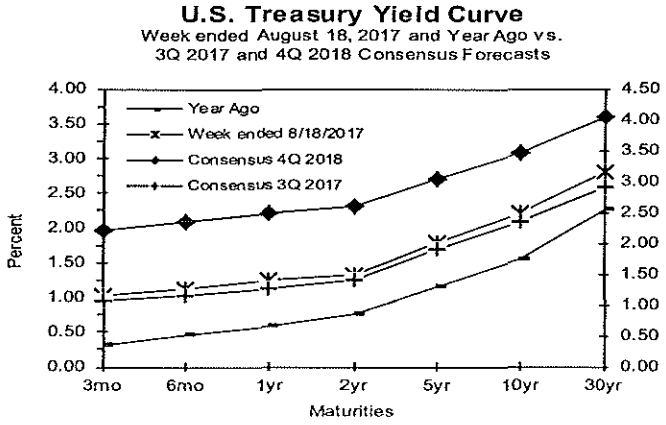
Sources of Information:

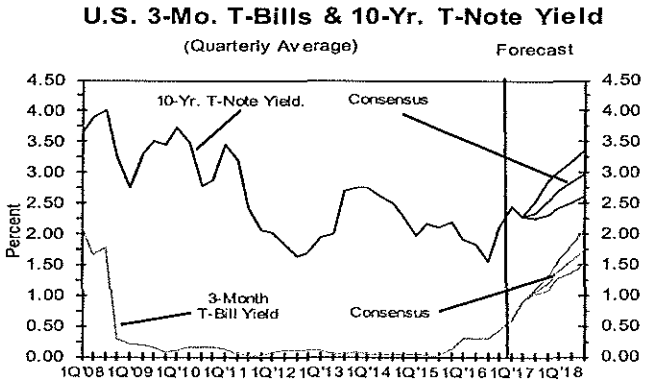
Stocks, Bonds, Bills, and Inflation - 2017 SBBI Yearbook, John Wiley & Sons, Inc.
Industrial Manual and Mergent Bond Record Monthly Update.
Value Line Summary and Index
Blue Chip Financial Forecasts, June 1, 2017 and September 1, 2017
Bloomberg Professional Services

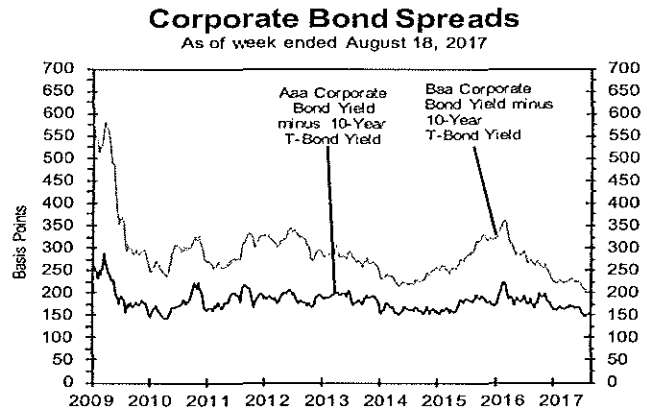
Consensus Forecasts Of U.S. Interest Rates And Key Assumptions[1]

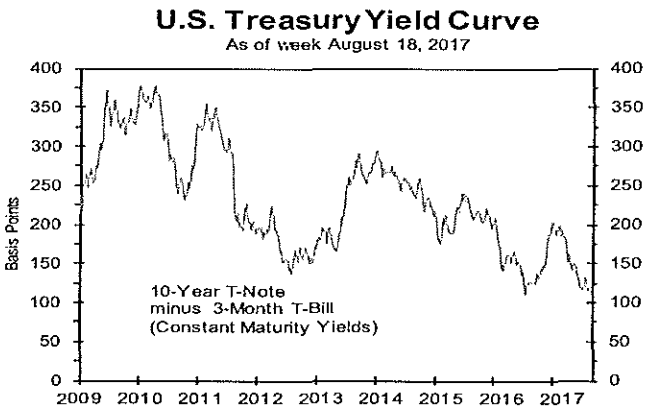
	History								Consensus Forecasts-Quarterly Avg.					
	Average For Week Ending				Average For Month			Latest Qtr	3Q	4Q	1Q	2Q	3Q	4Q
Interest Rates	Aug 18	Aug 11	Aug 4	Jul 28	Jul	Jun	May	2Q 2017	2017	2017	2018	2018	2018	2018
Federal Funds Rate	1.16	1.16	1.15	1.16	1.15	1.03	0.90	0.94	1.15	1.25	1.46	1.63	1.84	2.03
Prime Rate	4.25	4.25	4.25	4.25	4.25	4.13	4.00	4.04	4.25	4.34	4.53	4.70	4.90	5.09
LIBOR, 3-mo.	1.32	1.31	1.31	1.31	1.31	1.26	1.18	1.20	1.33	1.47	1.68	1.86	2.06	2.27
Commercial Paper, 1-mo.	1.09	1.11	1.10	1.11	1.10	1.00	0.84	0.89	1.15	1.27	1.48	1.67	1.89	2.11
Treasury bill, 3-mo.	1.02	1.04	1.08	1.13	1.09	1.00	0.90	0.90	1.06	1.18	1.38	1.56	1.76	1.95
Treasury bill, 6-mo.	1.13	1.15	1.14	1.13	1.13	1.11	1.03	1.03	1.15	1.30	1.51	1.68	1.90	2.09
Treasury bill, 1 yr.	1.24	1.22	1.23	1.23	1.23	1.20	1.12	1.12	1.26	1.44	1.65	1.83	2.03	2.20
Treasury note, 2 yr.	1.33	1.34	1.35	1.37	1.38	1.33	1.31	1.29	1.41	1.60	1.79	1.96	2.16	2.31
Treasury note, 5 yr.	1.78	1.80	1.81	1.85	1.88	1.77	1.85	1.82	1.90	2.09	2.26	2.40	2.57	2.70
Treasury note, 10 yr.	2.22	2.24	2.27	2.30	2.32	2.19	2.31	2.27	2.34	2.52	2.69	2.83	2.98	3.08
Treasury note, 30 yr.	2.80	2.82	2.85	2.89	2.89	2.81	2.97	2.91	2.91	3.06	3.24	3.36	3.50	3.59
Corporate Aaa bond	3.77	3.77	3.77	3.79	3.81	3.81	3.99	3.93	3.81	4.00	4.22	4.41	4.57	4.66
Corporate Baa bond	4.36	4.35	4.34	4.36	4.39	4.39	4.57	4.52	4.49	4.70	4.93	5.12	5.29	5.44
State & Local bonds	3.33	3.35	3.39	3.38	3.43	3.37	3.51	3.48	3.51	3.69	3.92	4.08	4.22	4.34
Home mortgage rate	3.89	3.90	3.93	3.92	3.97	3.90	4.01	3.99	3.99	4.14	4.34	4.48	4.64	4.77
	History								Consensus Forecasts-Quarterly					
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Key Assumptions	2015	2015	2016	2016	2016	2016	2017	2017	2017	2017	2018	2018	2018	2018
Major Currency Index	91.8	93.1	93.3	89.6	90.3	93.7	94.4	93.0	89.6	89.5	89.7	89.8	89.8	89.8
Real GDP	1.6	0.5	0.6	2.2	2.8	1.8	1.2	2.6	2.7	2.4	2.3	2.4	2.3	2.2
GDP Price Index	1.4	0.8	0.3	2.4	1.4	2.0	2.0	1.0	1.7	2.0	2.1	2.0	2.1	2.1
Consumer Price Index	1.5	0.4	0.1	2.3	1.8	3.0	3.1	-0.3	1.5	2.2	2.2	2.1	2.2	2.4

Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index and Consumer Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data: Treasury rates from the Federal Reserve Board's H.15; AAA-AA and A-BBB corporate bond yields from Bank of America-Merrill Lynch and are 15+ years, yield to maturity; State and local bond yields from Bank of America-Merrill Lynch, A-rated, yield to maturity; Mortgage rates from Freddie Mac, 30-year, fixed; LIBOR quotes from Intercontinental Exchange. All interest rate data is sourced from Haver Analytics. Historical data for Fed's Major Currency Index is from FRSR H.10. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS).









Long-Range Survey:

The table below contains the results of our twice-annual long-range CONSENSUS survey. There are also Top 10 and Bottom 10 averages for each variable. Shown are consensus estimates for the years 2019 through 2023 and averages for the five-year periods 2019-2023 and 2024-2028. Apply these projections cautiously. Few if any economic, demographic and political forces can be evaluated accurately over such long time spans.

		——Average For The Year——					Five-Year Averages	
Interest Rates		**2019**	**2020**	**2021**	**2022**	**2023**	**2019-2023**	**2024-2028**
1. Federal Funds Rate	**CONSENSUS**	**2.6**	**2.9**	**2.9**	**2.9**	**2.9**	**2.8**	**3.0**
	Top 10 Average	3.1	3.5	3.4	3.5	3.5	3.4	3.5
	Bottom 10 Average	2.0	2.3	2.3	2.3	2.4	2.3	2.4
2. Prime Rate	**CONSENSUS**	**5.6**	**5.9**	**5.9**	**5.9**	**5.9**	**5.8**	**6.0**
	Top 10 Average	6.1	6.5	6.5	6.5	6.5	6.4	6.5
	Bottom 10 Average	5.0	5.3	5.3	5.2	5.3	5.2	5.4
3. LIBOR, 3-Mo.	**CONSENSUS**	**2.9**	**3.1**	**3.2**	**3.1**	**3.2**	**3.1**	**3.2**
	Top 10 Average	3.4	3.7	3.7	3.7	3.8	3.7	3.8
	Bottom 10 Average	2.4	2.6	2.6	2.5	2.6	2.5	2.6
4. Commercial Paper, 1-Mo.	**CONSENSUS**	**2.7**	**3.0**	**3.0**	**3.0**	**3.1**	**3.0**	**3.1**
	Top 10 Average	3.2	3.5	3.5	3.6	3.6	3.5	3.6
	Bottom 10 Average	2.2	2.5	2.5	2.4	2.5	2.4	2.6
5. Treasury Bill Yield, 3-Mo.	**CONSENSUS**	**2.5**	**2.8**	**2.8**	**2.8**	**2.9**	**2.8**	**2.9**
	Top 10 Average	3.1	3.4	3.4	3.4	3.5	3.3	3.5
	Bottom 10 Average	1.9	2.2	2.3	2.2	2.3	2.2	2.3
6. Treasury Bill Yield, 6-Mo.	**CONSENSUS**	**2.6**	**2.9**	**3.0**	**3.0**	**3.0**	**2.9**	**3.0**
	Top 10 Average	3.2	3.6	3.5	3.6	3.6	3.5	3.6
	Bottom 10 Average	2.0	2.4	2.4	2.4	2.4	2.3	2.4
7. Treasury Bill Yield, 1-Yr.	**CONSENSUS**	**2.8**	**3.1**	**3.1**	**3.1**	**3.1**	**3.0**	**3.2**
	Top 10 Average	3.4	3.7	3.7	3.7	3.7	3.6	3.7
	Bottom 10 Average	2.1	2.5	2.5	2.5	2.5	2.4	2.5
8. Treasury Note Yield, 2-Yr.	**CONSENSUS**	**2.9**	**3.2**	**3.3**	**3.3**	**3.3**	**3.2**	**3.3**
	Top 10 Average	3.5	3.9	3.9	3.9	3.9	3.8	4.0
	Bottom 10 Average	2.3	2.6	2.7	2.6	2.6	2.6	2.7
10. Treasury Note Yield, 5-Yr.	**CONSENSUS**	**3.3**	**3.5**	**3.5**	**3.6**	**3.6**	**3.5**	**3.6**
	Top 10 Average	3.9	4.2	4.2	4.2	4.2	4.1	4.3
	Bottom 10 Average	2.7	2.9	2.9	3.0	3.0	2.9	3.0
11. Treasury Note Yield, 10-Yr.	**CONSENSUS**	**3.6**	**3.8**	**3.8**	**3.9**	**3.9**	**3.8**	**3.9**
	Top 10 Average	4.2	4.5	4.4	4.5	4.5	4.4	4.6
	Bottom 10 Average	2.9	3.1	3.1	3.2	3.3	3.1	3.3
12. Treasury Bond Yield, 30-Yr.	**CONSENSUS**	**4.2**	**4.3**	**4.4**	**4.4**	**4.4**	**4.3**	**4.5**
	Top 10 Average	4.9	5.0	5.0	5.0	5.0	5.0	5.1
	Bottom 10 Average	3.5	3.7	3.7	3.8	3.8	3.7	3.8
13. Corporate Aaa Bond Yield	**CONSENSUS**	**5.2**	**5.4**	**5.4**	**5.4**	**5.5**	**5.4**	**5.5**
	Top 10 Average	5.7	5.9	5.9	6.0	5.9	5.9	6.0
	Bottom 10 Average	4.7	4.9	4.9	4.9	5.0	4.9	5.1
13. Corporate Baa Bond Yield	**CONSENSUS**	**6.1**	**6.3**	**6.3**	**6.3**	**6.3**	**6.3**	**6.4**
	Top 10 Average	6.8	7.0	6.9	7.0	6.9	6.9	7.0
	Bottom 10 Average	5.5	5.6	5.7	5.6	5.8	5.6	5.7
14. State & Local Bonds Yield	**CONSENSUS**	**4.6**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.8**
	Top 10 Average	5.1	5.3	5.2	5.3	5.3	5.2	5.3
	Bottom 10 Average	4.2	4.2	4.2	4.1	4.1	4.2	4.2
15. Home Mortgage Rate	**CONSENSUS**	**5.3**	**5.5**	**5.5**	**5.5**	**5.5**	**5.4**	**5.6**
	Top 10 Average	5.9	6.2	6.1	6.2	6.1	6.1	6.2
	Bottom 10 Average	4.6	4.8	4.8	4.7	4.9	4.8	4.9
A. FRB - Major Currency Index	**CONSENSUS**	**93.8**	**93.2**	**93.1**	**93.0**	**92.7**	**93.2**	**92.5**
	Top 10 Average	96.5	96.6	96.9	97.1	97.2	96.9	97.1
	Bottom 10 Average	91.0	89.7	89.2	88.7	88.1	89.3	88.1
		——Year-Over-Year, % Change——					Five-Year Averages	
		2019	**2020**	**2021**	**2022**	**2023**	**2019-2023**	**2024-2028**
B. Real GDP	**CONSENSUS**	**2.2**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.1**
	Top 10 Average	2.6	2.4	2.4	2.4	2.3	2.4	2.3
	Bottom 10 Average	1.7	1.6	1.6	1.6	1.6	1.6	1.8
C. GDP Chained Price Index	**CONSENSUS**	**2.2**	**2.1**	**2.1**	**2.0**	**2.0**	**2.1**	**2.0**
	Top 10 Average	2.5	2.3	2.3	2.2	2.2	2.3	2.3
	Bottom 10 Average	1.9	1.9	1.9	1.9	1.7	1.8	1.9
D. Consumer Price Index	**CONSENSUS**	**2.3**	**2.3**	**2.3**	**2.3**	**2.2**	**2.2**	**2.2**
	Top 10 Average	2.6	2.6	2.5	2.5	2.4	2.5	2.4
	Bottom 10 Average	1.9	2.0	2.0	2.1	1.8	2.0	2.0

Indian Hills Utility Operating Company, Inc.
Derivation of Mean Equity Risk Premium Based Studies
Using Holding Period Returns and
Projected Market Appreciation of the S&P Utility Index

Line No.		Implied Equity Risk Premium
	Equity Risk Premium based on S&P Utility Index Holding Period Returns (1):	
1.	Historical Equity Risk Premium	3.96 %
2.	Regression of Historical Equity Risk Premium (2)	5.62
3.	Forecasted Equity Risk Premium Based on PRPM (3)	4.03
4.	Average Equity Risk Premium Using S&P Holding Period Returns	4.53 %
	Equity Risk Premium based on Projected Market Appreciation of the S&P Utility Index	
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Value Line Data) (4)	4.15
6.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Bloomberg Data) (5)	3.27
7.	Average Equity Risk Premium (6)	3.98 %

Notes:
(1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility Bond average monthly yields from 1928-2016. Holding period returns are calculated based upon income received (dividends and interest) plus the relative change in the market value of a security over a one-year holding period.

(2) This equity risk premium is based on a regression of the monthly equity risk premiums of the S&P Utility Index relative to Moody's A rated public utility bond yields from 1928 - 2016 referenced in note 1 above.

(3) The Predictive Risk Premium Model (PRPM) is applied to the risk premium of the monthly total returns of the S&P Utility Index and the monthly yields on Moody's A rated public utility bonds from January 1928 - August 2017.

(4) Using data from Value Line for the S&P Utilities Index, an expected return of 8.98% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A rated public utility bond yield of 4.83%, calculated on line 3 of page 3 of this Sub-Schedule results in an equity risk premium of 4.15%. (8.98% - 4.83% = 4.15%)

(5) Using data from Bloomberg Professional Service for the S&P Utilities Index, an expected return of 8.10% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A rated public utility bond yield of 4.83%, calculated on line 3 of page 3 of this Sub-Schedule results in an equity risk premium of 3.27%. (8.10% - 4.83% = 3.27%)

(6) Average of Lines 4 through 6.

Indian Hills Utility Operating Company, Inc.
Indicated Common Equity Cost Rate Through Use
of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Eight Water Companies	Value Line Adjusted Beta	Bloomberg Adjusted Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
American States Water Co.	0.75	0.71	0.73	8.60 %	3.56 %	9.84 %	10.42 %	10.13 %
American Water Works Company Inc	0.60	0.57	0.59	8.60	3.56	8.63	9.52	9.08
Aqua America Inc	0.70	0.62	0.66	8.60	3.56	9.24	9.97	9.60
California Water Service Group	0.75	0.75	0.75	8.60	3.56	10.01	10.55	10.28
Connecticut Water Service Inc	0.65	0.70	0.68	8.60	3.56	9.41	10.10	9.75
Middlesex Water Co.	0.75	0.94	0.85	8.60	3.56	10.87	11.19	11.03
SJW Corp	0.70	0.84	0.77	8.60	3.56	10.18	10.68	10.43
York Water Co.	0.80	1.00	0.90	8.60	3.56	11.30	11.52	11.41
Mean			0.74			9.94 %	10.49 %	10.21 %
Median			0.74			9.92 %	10.48 %	10.21 %
Average of Mean and Median			0.74			9.93	10.49	10.21 %

Notes on page 2 of this Sub-Schedule.

Indian Hills Utility Operating Company, Inc.
Notes to Accompany the Application of the CAPM and ECAPM

Notes:

(1) The market risk premium (MRP) is derived by using six different measures from three sources: Ibbotson, Value Line, and Bloomberg as illustrated below:

Historical Data MRP Estimates:

Measure 1: Ibbotson Arithmetic Mean MRP (1926-2016)

Arithmetic Mean Monthly Returns for Large Stocks 1926-2016:	11.97 %
Arithmetic Mean Income Returns on Long-Term Government Bonds:	5.17
MRP based on Ibbotson Historical Data:	6.80 %

Measure 2: Application of a Regression Analysis to Ibbotson Historical Data (1926-2016) 8.62 %

Measure 3: Application of the PRPM to Ibbotson Historical Data: (January 1926 - August 2017) 6.75 %

Average Historical Data MRP 7.39 %

Value Line MRP Estimates:

Measure 4: Value Line Projected MRP (Thirteen weeks ending September 01, 2017)

Total projected return on the market 3-5 years hence*:	9.64 %
Projected Risk-Free Rate (see note 2):	3.56
MRP based on Value Line Summary & Index:	6.08 %

*Forcasted 3-5 year capital appreciation plus expected dividend yield

Measure 5: Value Line Projected Return on the Market based on the S&P 500

Total return on the Market based on the S&P 500:	14.13 %
Projected Risk-Free Rate (see note 2):	3.56
MRP based on Value Line data	10.57 %

Average Value Line MRP: 8.33 %

Measure 6: Bloomberg Projected MRP

Total return on the Market based on the S&P 500:	13.65 %
Projected Risk-Free Rate (see note 2):	3.56
MRP based on Bloomberg data	10.09 %

Average of Value Line, Ibbotson, and Bloomberg MRP: 8.60 %

(2) For reasons explained in the direct testimony, the appropriate risk-free rate for cost of capital purposes is the average forecast of 30 year Treasury Bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts. (See pages 10-11 of Sub-Schedule DWD-4.) The projection of the risk-free rate is illustrated below:

Third Quarter 2017	2.91 %
Fourth Quarter 2017	3.06
First Quarter 2018	3.24
Second Quarter 2018	3.36
Third Quarter 2018	3.50
Fourth Quarter 2018	3.59
2019-2023	4.30
2024-2028	4.50
	3.56 %

(3) Average of Column 6 and Column 7.

Sources of Information:

Value Line Summary and Index
Blue Chip Financial Forecasts, June 1, 2017 and September 1, 2017
Stocks, Bonds, Bills, and Inflation - 2017 SBBI Yearbook, John Wiley & Sons, Inc.
Bloomberg Professional Services

Indian Hills Operating Company, Inc.
Basis of Selection of the Group of Non-Price Regulated Companies
Comparable in Total Risk to the Utility Proxy Group

The criteria for selection of the proxy group of seventeen non-price regulated companies was that the non-price regulated companies be domestic and reported in Value Line Investment Survey (Standard Edition).

The proxy group of seventeen non-price regulated companies were then selected based on the unadjusted beta range of 0.34 – 0.70 and residual standard error of the regression range of 2.3533 – 2.8069 of the water proxy group.

These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression. Plus or minus two standard deviations captures 95.50% of the distribution of unadjusted betas and residual standard errors of the regression.

The standard deviation of the water industry's residual standard error of the regression is 0.1134. The standard deviation of the standard error of the regression is calculated as follows:

$$\text{Standard Deviation of the Std. Err. of the Regr.} = \frac{\text{Standard Error of the Regression}}{\sqrt{2N}}$$

where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

$$\text{Thus, } 0.1134 = \frac{2.5801}{\sqrt{518}} = \frac{2.5801}{22.7596}$$

Source of Information: Value Line, Inc., June 2017
Value Line Investment Survey (Standard Edition)

Indian Hills Utility Operating Company, Inc.
Basis of Selection of Comparable Risk
Domestic Non-Price Regulated Companies

Proxy Group of Eight Water Companies	[1] Value Line Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
American States Water Co.	0.75	0.58	2.7924	0.0973
American Water Works Company Inc	0.60	0.39	1.9839	0.0691
Aqua America Inc	0.70	0.47	2.2248	0.0775
California Water Service Group	0.75	0.56	2.5374	0.0884
Connecticut Water Service Inc	0.65	0.41	2.3746	0.0827
Middlesex Water Co.	0.75	0.57	2.8058	0.0978
SJW Corp	0.70	0.53	2.9297	0.1021
York Water Co.	0.80	0.62	2.9920	0.1042
Average	0.71	0.52	2.5801	0.0899
Beta Range (+/- 2 std. Devs. of Beta)	0.34	0.70		
2 std. Devs. of Beta	0.18			
Residual Std. Err. Range (+/- 2 std. Devs. of the Residual Std. Err.)	2.3533	2.8069		
Std. dev. of the Res. Std. Err.	0.1134			
2 std. devs. of the Res. Std. Err.	0.2268			

Source of Information: Valueline Proprietary Database, June 2017

Indian Hills Utility Operating Company, Inc.
Proxy Group of Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Eight Water Companies

Proxy Group of Seventeen Non-Price Regulated Companies	[1] VL Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
ABM Industries Inc.	0.80	0.65	2.4419	0.0851
Bright Horizons Fami	0.85	0.70	2.4641	0.0949
Cheesecake Factory	0.85	0.70	2.5709	0.0896
CBOE Holdings	0.70	0.50	2.5345	0.0883
Chemed Corp.	0.85	0.70	2.8000	0.0976
CME Group	0.75	0.60	2.4401	0.0850
Forrester Research	0.70	0.53	2.7803	0.0969
Genpact Limited	0.75	0.57	2.7009	0.0941
Hormel Foods	0.75	0.58	2.4245	0.0845
Intercontinental Exc	0.80	0.63	2.3619	0.0823
Lancaster Colony	0.80	0.65	2.3708	0.0826
Lilly (Eli)	0.75	0.60	2.5343	0.0883
Mercury General	0.70	0.53	2.5576	0.0891
O'Reilly Automotive	0.80	0.69	2.6083	0.0909
Pinnacle Foods	0.80	0.67	2.5855	0.1007
Target Corp.	0.80	0.67	2.5354	0.0883
WD-40 Co.	0.80	0.64	2.4838	0.0865
Average	0.78	0.62	2.5400	0.0900
Proxy Group of Eight Water Companies	0.71	0.52	2.5801	0.0899

Source of Information: Valueline Proprietary Database, June 2017

Indian Hills Utility Operating Company, Inc.
Summary of Cost of Equity Models Applied to
Proxy Group of Seventeen Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Eight Water Companies

Principal Methods	Proxy Group of Seventeen Non-Price Regulated Companies
Discounted Cash Flow Model (DCF) (1)	12.73 %
Risk Premium Model (RPM) (2)	11.18
Capital Asset Pricing Model (CAPM) (3)	10.79
Mean	11.57 %
Median	11.18 %
Average of Mean and Median	11.38 %

Notes:
(1) From page 2 of this Sub-Schedule.
(2) From page 3 of this Sub-Schedule.
(3) From page 6 of this Sub-Schedule.

Indian Hills Utility Operating Company, Inc.
DCF Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Eight Water Companies

Proxy Group of Seventeen Non-Price Regulated Companies	[1] Average Dividend Yield	[2] Value Line Projected Five Year Growth in EPS	[3] Reuters Mean Consensus Projected Five Year Growth Rate in EPS	[4] Zack's Five Year Projected Growth Rate in EPS	[5] Yahoo! Finance Projected Five Year Growth in EPS	[6] Average Projected Five Year Growth Rate in EPS	[7] Adjusted Dividend Yield	[8] Indicated Common Equity Cost Rate (1)
ABM Industries Inc.	1.58 %	14.50 %	NA %	NA %	5.10 %	9.80 %	1.66 %	11.46 %
Bright Horizons Fami	-	19.50	17.19	20.00	NA	18.90	-	NA
Cheesecake Factory	1.77	8.50	10.55	14.30	10.55	10.98	1.87	12.85
CBOE Holdings	1.15	12.50	NA	16.80	18.28	15.86	1.24	17.10
Chemed Corp.	0.56	13.50	NA	10.00	NA	11.75	0.59	12.34
CME Group	2.12	8.50	8.90	10.60	8.90	9.23	2.22	11.45
Forrester Research	1.90	10.00	12.00	12.00	12.00	11.50	2.01	13.51
Genpact Limited	0.85	13.00	11.12	10.00	11.12	11.31	0.90	12.21
Hormel Foods	2.02	10.50	3.94	9.30	3.95	6.92	2.09	9.01
Intercontinental Exc	1.22	12.00	13.45	11.00	13.45	12.48	1.30	13.78
Lancaster Colony	1.79	7.00	NA	NA	3.00	5.00	1.83	6.83
Lilly (Eli)	2.54	11.00	11.25	10.60	11.25	11.03	2.68	13.71
Mercury General	4.43	14.00	26.50	26.50	26.50	23.38	4.95	28.33
O'Reilly Automotive	-	13.00	14.14	13.80	14.14	13.77	-	NA
Pinnacle Foods	2.16	NA	11.03	9.30	11.03	10.45	2.27	12.72
Target Corp.	4.56	4.50	(3.33)	4.70	(3.33)	4.60	4.66	9.26
WD-40 Co.	1.81	8.00	NA	10.00	13.00	10.33	1.90	12.23
							Mean	13.12 %
							Median	12.34 %
							Average of Mean and Median	12.73 %

NA= Not Available
NMF= Not Meaningful Figure

(1) The application of the DCF model to the domestic, non-price regluated comparable risk companies is identical to the application of the DCF to the utility proxy group. The dividend yield is derived by using the 60 day average price and the spot indicated dividend as of August 31, 2017. The dividend yield is then adjusted by 1/2 the average projected growth rate in EPS, which is calculated by averaging the 5 year projected growth in EPS provided by Value Line, www.reuters.com, www.zacks.com, and www.yahoo.com (excluding any negative growth rates) and then adding that growth rate to the adjusted dividend yield.

Source of Information:
Value Line Investment Survey:
www.reuters.com Downloaded on 08/31/2017
www.zacks.com Downloaded on 08/31/2017
www.yahoo.com Downloaded on 08/31/2017

Indian Hills Utility Operating Company, Inc.
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Seventeen Non-Price Regulated Companies
1.	Prospective Yield on Baa Rated Corporate Bonds (1)	5.33 %
2.	Adjustment to Reflect Bond rating Difference of Non-Price Regulated Companies (2)	(0.36)
3.	Adjusted Prospective Bond Yield	4.97
4.	Equity Risk Premium (3)	6.21
5.	Risk Premium Derived Common Equity Cost Rate	11.18 %

Notes: (1) Average forecast of Baa corporate bonds based upon the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated June 1, 2017 and September 1, 2017 (see pages 10 and 11 of Sub-Schedule DWD-4). The estimates are detailed below.

Third Quarter 2017	4.49 %
Fourth Quarter 2017	4.70
First Quarter 2018	4.93
Second Quarter 2018	5.12
Third Quarter 2018	5.29
Fourth Quarter 2018	5.44
2019-2023	6.30
2024-2028	6.40
Average	5.33 %

(2) The average yield spread of Baa rated corporate bonds over A corporate bonds for the three months ending August 2017 . To reflect the A2/A3 average rating of the non-utility proxy group, the prosepctive yield on Baa corporate bonds must be adjusted by 5/6 of the spread between A and Baa corporate bond yields as shown below:

	A Corp. Bond Yield	Baa Corp. Bond Yield	Spread
Aug-2017	3.88 %	4.31 %	0.43 %
Jul-2017	3.98	4.39	0.41
Jun-2017	3.93	4.37	0.44
		Average yield spread	0.43 %
		5/6 of spread	0.36 %

(3) From page 5 of this Sub-Schedule.

Indian Hills Utility Operating Company, Inc.
Comparison of Long-Term Issuer Ratings for the
Proxy Group of Seventeen Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Eight Water Companies

	Moody's Long-Term Issuer Rating August 2017		Standard & Poor's Long-Term Issuer Rating August 2017	
Proxy Group of Seventeen Non-Price Regulated Companies	Long-Term Issuer Rating	Numerical Weighting (1)	Long-Term Issuer Rating	Numerical Weighting (1)
ABM Industries Inc.	NR	--	NR	--
Bright Horizons Fami	NR	--	NR	--
Cheesecake Factory	NR	--	NR	--
CBOE Holdings	Baa1	8.0	BBB+	8.0
Chemed Corp.	WR	--	NR	--
CME Group	Aa3	4.0	AA-	4.0
Forrester Research	NR	--	NR	--
Genpact Limited	NR	--	BBB-	10.0
Hormel Foods	A1	5.0	A	6.0
Intercontinental Exc	A2	6.0	A	6.0
Lancaster Colony	NR	--	NR	--
Lilly (Eli)	A2	6.0	AA-	4.0
Mercury General	Baa2	9.0	NR	--
O'Reilly Automotive	Baa1	8.0	BBB+	8.0
Pinnacle Foods	NR	--	BB-	13.0
Target Corp.	A2	6.0	A	6.0
WD-40 Co.	NR	--	NR	--
Average	A2/A3	6.5	A-	7.2

Notes:
(1) From page 6 of Sub-Schedule DWD-4.

Source of Information:
Bloomberg Professional Services

Indian Hills Utility Operating Company, Inc.
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for
Proxy Group of Seventeen Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Eight Water Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Seventeen Non-Price Regulated Companies
	Ibbotson-Based Equity Risk Premiums:	
1.	Ibbotson Equity Risk Premium (1)	5.56 %
2.	Regression on Ibbotson Risk Premium Data (2)	7.41
3.	Ibbotson Equity Risk Premium based on PRPM (3)	5.96
4.	Average Ibbotson Equity Risk Premium	6.31
	Value Line-Based Equity Risk Premiums:	
5.	Equity Risk Premium Based on Value Line Summary and Index (4)	5.07
6.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	9.56
7.	Average Value Line Equity Risk Premium	7.32
	Bloomberg-Based Equity Risk Premium:	
8.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	9.08
9.	Conclusion of Equity Risk Premium (7)	7.57 %
10.	Adjusted Beta (8)	0.82
11.	Forecasted Equity Risk Premium	6.21 %

Notes:
(1) From note 1 of page 9 of Sub-Schedule DWD-4.
(2) From note 2 of page 9 of Sub-Schedule DWD-4.
(3) From note 3 of page 9 of Sub-Schedule DWD-4.
(4) From note 4 of page 9 of Sub-Schedule DWD-4.
(5) From note 5 of page 9 of Sub-Schedule DWD-4.
(6) From note 6 of page 9 of Sub-Schedule DWD-4.
(7) Average of lines 4, 7, and 8.
(8) Average of mean and median beta from page 6 of this Sub-Schedule.

Sources of Information:
Stocks, Bonds, Bills, and Inflation - 2017 SBBI Yearbook, John Wiley & Sons, Inc.
Value Line Summary and Index
Blue Chip Financial Forecasts, June 1, 2017 and September 1, 2017
Bloomberg Professional Services

Indian Hills Utility Operating Company, Inc.
Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Eight Water Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Seventeen Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
ABM Industries Inc.	0.80	0.91	0.86	8.60 %	3.56 %	10.96 %	11.26 %	11.11 %
Bright Horizons Fami	0.85	1.03	0.94	8.60	3.56	11.65	11.77	11.71
Cheesecake Factory	0.75	0.84	0.79	8.60	3.56	10.35	10.81	10.58
CBOE Holdings	0.70	0.79	0.74	8.60	3.56	9.92	10.48	10.20
Chemed Corp.	0.85	1.09	0.97	8.60	3.56	11.90	11.97	11.94
CME Group	0.75	0.90	0.83	8.60	3.56	10.70	11.06	10.88
Forrester Research	0.70	1.06	0.88	8.60	3.56	11.13	11.39	11.26
Genpact Limited	0.70	0.76	0.73	8.60	3.56	9.84	10.42	10.13
Hormel Foods	0.75	0.60	0.67	8.60	3.56	9.32	10.03	9.68
Intercontinental Exc	0.80	0.89	0.85	8.60	3.56	10.87	11.19	11.03
Lancaster Colony	0.80	0.76	0.78	8.60	3.56	10.27	10.74	10.51
Lilly (Eli)	0.75	0.77	0.76	8.60	3.56	10.10	10.61	10.35
Mercury General	0.70	0.95	0.82	8.60	3.56	10.61	11.00	10.81
O'Reilly Automotive	0.80	0.94	0.87	8.60	3.56	11.04	11.32	11.18
Pinnacle Foods	0.80	0.73	0.76	8.60	3.56	10.10	10.61	10.35
Target Corp.	0.80	0.85	0.82	8.60	3.56	10.61	11.00	10.81
WD-40 Co.	0.80	0.79	0.79	8.60	3.56	10.35	10.81	10.58
Mean			0.82			10.57 %	10.97 %	10.77 %
Median			0.82			10.61 %	11.00 %	10.81 %
Average of Mean and Median			0.82			10.59 %	10.99 %	10.79 %

Notes:
(1) From Sub-Schedule DWD-5, note 1.
(2) From Sub-Schedule DWD-5, note 2.
(3) Average of CAPM and ECAPM cost rates.

Company Cost of Capital Calculation
Indicated Return on Common Equity based on
Differences in Leverage
and Weighted Average Cost of Capital

[A]	[B]	[C]		[D]		[E]	
Description	Weight (%) (1)	Cost		Weighted Cost (2)		Pre-Tax Weighted Cost	
ROE Applicable to the Proxy Group of Eight Water Companies							
Long-Term Debt	46.13%	14.00%	(3)	6.46%		6.46%	
Equity	53.87%	10.35%	(4)	5.58%		9.16%	(5)
Weighted Average Cost of Capital				12.04%		15.62%	
	Weight (%) (6)	Cost		Weighted Cost (2)		Pre-Tax Weighted Cost	
ROE Applicable to Indian Hills Capital Structure							
Long-Term Debt	77.12%	14.00%	(3)	10.80%		10.80%	
Common Equity	22.88%	12.84%	(9)	2.94%	(8)	4.82%	(7)
Weighted Average Cost of Capital				13.73%		15.62%	
Indicated Financial Risk Adjustment		2.490%					

Notes:
(1) Average capital structure maintained by the Proxy Group of Eqight Water Utilities used to derive the indicated cost of common equity.
(2) Column [B] * Column [C].
(3) Actual cost of long-term debt of Indian Hills.
(4) Indicated common equity cost rate derived from the market data of the Proxy Group of Eight Water Companies from page 2 of Sub-Schedule DWD-1.
(5) Assuming a composite Federal and State income tax rate of 39.06%, the pre-tax weighted cost of common equity based on the recommended common equity cost rate of 10.35% and average proxy group capital structure is: 9.16%. 9.16% = 5.58%/(1 - 0.3906).
(6) From page 1 of Sub-Schedule DWD-1
(7) Pre-tax weighted cost rate of common equity equals the pre-tax overall weighted cost rate (15.62%) minus the weighted cost rate of debt (10.80%). 15.62% - 10.80% = 4.82%.
(8) Pre-tax weighted overall cost of capital multiplied by (1 - effective tax rate). 4.82% x (1 - 39.06%) = 2.94%
(9) Weighted cost of common equity calculated as the pre-tax weighted cost of common equity, 2.94%, divided by the Company's actual equity ratio, 22.88%. 12.84% = 2.94% / 22.88%.

Indian Hills Utility Operating Company, Inc.
Portfolio Ranks by Size and Risk Premiums over CAPM Results
as Compiled by Duff and Phelps 2017 Guide to Cost of Capital

	B-1		B-2		B-3		B-4		B-5		B-6		B-7		B-8	
Portfolio Rank by Size	Average Mkt. Value (in $millions)	Smoothed Premium over CAPM	Average Book Val. (in $millions)	Smoothed Premium over CAPM	5 yr Average Net Inc. (in $millions)	Smoothed Premium over CAPM	MVIC (in $millions)	Smoothed Premium over CAPM	Total Assets (in $millions)	Smoothed Premium over CAPM	5 yr Average EBITDA (in $millions)	Smoothed Premium over CAPM	Sales (in $millions)	Smoothed Premium over CAPM	Average Number of Employees	Smoothed Premium over CAPM
1	$ 238,299	-1.78%	$ 67,532	0.98%	$ 10,101	0.54%	$ 277,921	-1.02%	$ 161,117	52.00%	$ 22,452	0.87%	$ 123,791	0.88%	341,434	0.43%
2	60,613	-0.16%	21,719	1.68%	2,747	1.48%	77,365	0.28%	51,936	1.39%	6,905	1.65%	38,382	1.75%	107,466	1.40%
3	35,630	0.47%	14,074	1.95%	1,735	1.81%	46,877	0.79%	35,110	1.69%	4,343	1.96%	22,044	2.17%	64,944	1.82%
4	23,756	0.95%	9,200	2.22%	1,183	2.08%	32,471	1.16%	25,351	1.95%	3,136	2.17%	17,114	2.35%	46,747	2.09%
5	17,471	1.32%	6,875	2.40%	853	2.31%	24,248	1.45%	18,141	2.20%	2,192	2.41%	13,286	2.54%	34,256	2.35%
6	13,871	1.59%	5,488	2.54%	627	2.53%	18,506	1.73%	14,376	2.38%	1,632	2.60%	10,376	2.73%	26,595	2.57%
7	11,594	1.80%	4,590	2.65%	516	2.67%	15,426	1.91%	11,035	2.59%	1,338	2.74%	8,400	2.88%	22,447	2.71%
8	9,463	2.04%	3,716	2.78%	408	2.84%	13,457	2.05%	9,004	2.74%	1,133	2.85%	6,977	3.02%	18,590	2.86%
9	7,822	2.27%	3,112	2.89%	340	2.97%	10,762	2.28%	7,861	2.85%	934	2.97%	5,938	3.14%	15,489	3.02%
10	6,482	2.49%	2,586	3.01%	295	3.07%	8,658	2.50%	6,771	2.96%	799	3.08%	5,106	3.25%	13,344	3.14%
11	5,637	2.66%	2,266	3.09%	244	3.21%	7,453	2.65%	5,710	3.09%	667	3.20%	4,435	3.36%	11,841	3.24%
12	4,791	2.85%	2,012	3.16%	213	3.31%	6,455	2.79%	4,998	3.19%	578	3.29%	3,740	3.48%	10,389	3.35%
13	3,915	3.09%	1,751	3.25%	185	3.41%	5,466	2.96%	4,290	3.31%	478	3.42%	3,184	3.60%	9,004	3.47%
14	3,329	3.28%	1,500	3.34%	160	3.51%	4,718	3.11%	3,661	3.43%	411	3.52%	2,771	3.71%	7,588	3.61%
15	2,897	3.45%	1,303	3.43%	141	3.60%	4,043	3.27%	3,160	3.55%	371	3.59%	2,509	3.78%	6,511	3.74%
16	2,508	3.62%	1,174	3.50%	119	3.73%	3,541	3.40%	2,735	3.66%	327	3.67%	2,276	3.85%	5,710	3.85%
17	2,130	3.81%	1,030	3.58%	100	3.85%	3,075	3.55%	2,345	3.78%	287	3.76%	1,980	3.96%	4,908	3.98%
18	1,842	3.99%	861	3.69%	84	3.97%	2,587	3.72%	1,927	3.93%	253	3.84%	1,670	4.08%	4,194	4.11%
19	1,584	4.17%	711	3.81%	67	4.14%	2,109	3.93%	1,621	4.06%	211	3.96%	1,412	4.21%	3,507	4.26%
20	1,313	4.39%	577	3.94%	52	4.31%	1,696	4.15%	1,363	4.19%	164	4.13%	1,181	4.34%	2,908	4.42%
21	1,023	4.69%	479	4.05%	42	4.47%	1,323	4.40%	1,069	4.38%	125	4.31%	696	4.49%	2,328	4.60%
22	731	5.08%	385	4.19%	34	4.62%	1,014	4.67%	801	4.60%	94	4.49%	797	4.63%	1,797	4.82%
23	532	5.46%	303	4.34%	24	4.86%	738	4.99%	600	4.82%	74	4.66%	589	4.86%	1,281	5.10%
24	370	5.89%	207	4.57%	15	5.20%	513	5.36%	429	5.08%	51	4.90%	407	5.13%	871	5.42%
25	121	7.22%	76	5.19%	5	6.02%	163	6.52%	161	5.83%	17	5.63%	129	5.99%	305	6.30%

	B-1 Value	Portfolio Ranking	B-2 Value	Portfolio Ranking	B-3 Value	Portfolio Ranking	B-4 Value	Portfolio Ranking	B-5 Value	Portfolio Ranking	B-6 Value	Portfolio Ranking	B-7 Value	Portfolio Ranking	B-8 Value	Portfolio Ranking
Proxy Group of Eight Water Companies	$ 3,383	14	$ 1,152	16	$ 104	17	$ 4,769	14	$ 3,961	13-14	$ 302	16-17	$ 723	21-22	1,417	22-23
Indian Hills Utility Operating Company, Inc.	$ 1.30	25	$ 0.43	25	NA	NA	$ 2.94	25	$ 2.23	25	NA	NA	$ 0.07	25	6	25
Indicated Risk Premium Relative to Ms. Freetly's Water Proxy Group	3.94%		1.69%		NA		3.41%		2.46%		NA		1.43%		1.34%	
							Indicated Size Risk Premium		2.38%							

Sources of Information:
Duff & Phelps 2017 Valuation Handbook Exhibit B-1 through B-8
SNL Financial
Company Form 10-K

Schedule DWD-01
Sub-Schedule DWD-9
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