THE OFFICE OF REGULATORY STAFF

DIRECT TESTIMONY & EXHIBITS

OF

DR. DOUGLAS H. CARLISLE

MARCH 12, 2018

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DOCKET NO. 2017-292-WS

Application of Carolina Water Service, Incorporated for Approval of an Increase in Its Rates for Water and Sewer Services

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1 **DIRECT TESTIMONY AND EXHIBITS OF**

2 **DR. DOUGLAS H. CARLISLE**

3 **ON BEHALF OF**

4 **THE SOUTH CAROLINA OFFICE OF REGULATORY STAFF**

5 **DOCKET NO. 2017-292-WS**

6 **IN RE: APPLICATION OF CAROLINA WATER SERVICE,**

7 **INCORPORATED FOR APPROVAL OF AN INCREASE IN ITS RATES FOR**

8 **WATER AND SEWER SERVICES**

9

10 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND OCCUPATION.**

11 **A.** My name is Douglas H. Carlisle. My business address is 1401 Main Street, Suite

12 900, Columbia, South Carolina 29201. I am employed by the State of South Carolina as an

13 Economist for the Office of Regulatory Staff ("ORS").

14 **Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

15 **A.** I received a Bachelor of Arts from Brown University, a Master's Degree in Public

16 Administration and a Ph.D. in Government and International Relations, both from the

17 University of Virginia. I have previously testified before the Public Service Commission

18 of South Carolina concerning rate of return. I am a Certified Rate of Return Analyst. After

19 graduate school, I was employed as an evaluator and evaluator-in-charge for about seven

20 years at the United States Government Accountability Office in Washington, D.C. After

21 leaving the GAO, I worked as a market consultant and instructor at Midlands Technical

22 College in South Carolina. Next, I began my employment with the State of South Carolina

23 at the State Reorganization Commission, which functioned as an audit follow-up entity. I

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moved to my next position with the South Carolina House Education & Public Works Committee. Before joining ORS, I worked five years for the State Chief Economist as an analyst in the Economist Research Section and as an adjunct to the Board of Economist Advisors. I assumed my current position at ORS in 2005.

Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My purpose is to recommend the appropriate range for return on equity for Carolina Water Service, Inc. ("CWS" or "the Company"). I will present my conclusions and their bases for the appropriate return on equity for CWS.

Q. WHAT IS YOUR RECOMMENDED RETURN ON EQUITY ("ROE")?

A. I recommend an ROE of 9.04%, based on the calculated average of my results using three methods of determining an appropriate ROE (Exhibits DHC-9, DHC-11, and DHC-13, p. 3 of 3, respectively). The following table summarizes my results:

Method	Indicated Cost of Equity
DCF	**8.68%**
CEM	**8.89%**
CAP-M	**9.54%**
Average	**9.04%**

Q. WHAT STANDARDS GOVERN RATE OF RETURN?

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A. The Supreme Court of the United States set standards in two landmark decisions. In the first case, involving a water company, the Court declared:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its duties.[1]

The *Bluefield* decision, was later reinforced by the decision in another case, *Federal Power Commission v. Hope Natural Gas Company*:

> The fixing of "just and reasonable" rates, involves a balancing of the investor and consumer interests.... From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital cost of the business. These include service on the debt and dividends on the stock.... By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and attract capital.[2]

Q. DOES CWS HAVE TRADED COMMON STOCK?

A. No, its stock is entirely held by Utilities, Inc. of Northbrook, Illinois, which also has no publicly traded stock. Utilities, Inc. was purchased by Corix Utilities in 2012. Corix is owned by the British Columbia Investment Management Corporation.

[1] *Bluefield Water Works & Improvement Company. v. Public Service Commission of West Virginia,* 262 U.S. 679, 692-3 (1923).
[2] *Federal Power Commission v. Hope Natural Gas Company,* 320 U.S. 591, 603 (1944).

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Q. IF NEITHER THE COMPANY NOR ITS PARENT HAS TRADED STOCK, HOW DID YOU PERFORM YOUR ANALYSIS TO RECOMMEND A RETURN ON EQUITY?

A. To develop a fair rate of return recommendation for CWS, I evaluated the return requirements of investors on the common stock of three groups: publicly held water and sewerage service companies and two Comparable Earnings Model ("CEM") groups. I then applied to the first group, two well-known and generally accepted methods for determining a recommended return on equity, the Discounted Cash Flow ("DCF") Model and Capital Asset Pricing Methods ("CAP-M").

Q. WHY DID YOU EXAMINE DATA ON COMPANIES WITH TRADED STOCK?

A. First, CWS has asked for its rates to be determined using the rate-of-return on rate-base methodology. Second, publicly traded water utilities are, after all, in the same line of business as CWS and so share similar risks. Third, data is far more readily available about publicly traded companies, so it is practical to use them.

Q. HOW DID YOU SELECT THESE COMPANIES AND GROUPS?

A. For my DCF analysis I selected those companies classified as "water utilities" by Value Line or by *Yahoo! Finance* that engage in water distribution to customers and obtain most of their revenues from utility services, which include water and sewerage. For my CEM analysis I selected companies with comparable β's to those of the companies in my DCF Proxy Group.

Q. WHAT CAPITAL STRUCTURE DID YOU USE FOR YOUR ANALYSIS OF CWS?

A. I used the Capital Structure from the application, 51.89% Equity and 48.11% Long-Term Debt. I, adjusted the Cost of Debt from 6.60% to 6.58% to protect the ratepayer

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from the unfavorable terms of the Long-Term Debt as structured by the Company. This position is consistent with my position in Docket Nos. 2013-201-WS, 2013-275-WS and 2015-199-WS.

The objectionable features of the Cost of Debt arise from multiple factors: consolidation of Utilities Inc.'s ("UI,"'s, the parent company's) debt into one (1) flotation when interest rates were very high; a make-whole provision, which has prevented UI from refinancing its Long-Term Debt at more favorable rates; and a ten (10) year interest-only period, which greatly increased the overall cost of Debt by adding $59 million to the cost paid by customers of UI's various subsidiaries. See Exhibit DHC-14.

Q. COMPARE THE THREE METHODS THAT YOU USED TO CALCULATE AN APPROPRIATE COST OF EQUITY FOR CWS.

A. The three methods I used have different strengths. DCF focuses on money coming into and flowing out of companies. Specifically, the DCF focuses on the flow of money out through dividends and the flow of money into companies through revenues, which are then netted to Earnings per Share ("EPS") and allocated to Book Value per Share ("BVPS") and Dividends per Share ("DPS"). By contrast, the CEM focuses on changes in Book Value of non-regulated companies and adjusts for risk to reveal an appropriate ROE. The CEM itself does not expressly have a generally accepted approach to this adjustment, but I have developed a method that uses well-known types of data. CEM is intuitive in that, other things being equal, more assets should mean more production. The CAP-M, by contrast, focuses on the "hurdle rate," that rate of return that an investor must realize to surpass competing potential investments of comparable risk. All three methods focus on what investment accomplishes and not upon corporate preferences.

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Q. WHAT IS THE BASIS FOR THE DCF MODEL?

A. This model's basic premise is that investors value stocks based on the stream of cash flows they can enjoy for the indefinite future and that the only certain flow of cash is the value of dividends received. The DCF is a perpetuity, so cash must flow indefinitely; therefore, in the long run, dividend growth cannot exceed company growth. If dividends were to grow faster than the underlying company growth, the dividend would eventually become unsustainable, and the model's basic assumptions would be violated. The growth in dividends, therefore, cannot exceed the growth in earnings. In fact, all indicators of growth must, in the long run, grow at rates compatible with each other. The DCF model is expressed by this formula:

$$K = D_1/P_0 + g;$$

where K = cost of equity capital (ROE); D_1 = current yearly Dividends per Share ("DPS"); P_0 = purchase price; and g = growth.

Q. HOW DO YOU TAKE INTO ACCOUNT THE ASSUMPTIONS ABOUT GROWTH IN YOUR ANALYSIS?

A. There are several steps for applying the assumptions of the DCF Model. Each strategy, in logical order, points to the next.

First, the DCF is a long-term model, so some temporary departures from a straight-line estimate of ROE are to be expected. This reasoning implies that having several indicators of growth is better than having just one. Such data is readily available (Exhibit DHC-3) and useful to reinforce comparability, since the Proxy Group companies do vary in their characteristics. See Exhibit DHC-4. My analysis uses four indicators: 1) EPS

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(Exhibit DHC-5); 2) BVPS (Exhibit DHC-6); 3) DPS (Exhibit DHC-7); and, 4) Revenue or Sales (Exhibit DHC-8).

Second, my analysis adheres to a steady-state model by using several periods to calculate historical trends and to dampen any temporary divergences. This method provides a more reliable guide to long-term growth. For that reason, I have used three- five- and ten-year averages/means and medians. This approach lessens the impact of any transient phenomena. Such reasoning appeals to common sense. For example, an investor would need some convincing evidence to believe that a company whose earnings and book value having been growing at 5% would suddenly grow at 25%. On the other hand, true departures from the trend must be recognized in a way that a naïve straight-line projection from the past will not.

Third, my approach recognizes the importance of analysts' opinions. Although it might seem that analysts make their living discovering new trends or departures from old ones, their predictions also moderate analyses based strictly on historical data and add some balance to the estimation of growth. Investors know about analysts and may consult them and be influenced by estimates.

Q. HOW DOES YOUR DCF ANALYSIS CONFORM TO THE MODEL WITH REGARD TO THE OTHER TERMS OF THE BASIC DCF EQUATION?

A. The term, D_1/P_0, finds a simple expression as Dividend Yield. A very narrow interpretation of the formula would insist upon using a price from the previous year and determining the yearly dividend paid as of a year later. Investors know about companies' histories of dividend increases and they expect increases if a company has a history of increasing dividends. Companies announce their intention to maintain or increase their

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dividends during the year and price data tends to be an average of prices over time. The current dividend yield reflects what has happened leading up to the current moment. Thus, the problem with the dividend yield is not, knowing what it is at a given moment, but rather that investors expect it to grow. Since investors know that a company may announce an increase in its dividend in the upcoming twelve months after the dividend yield information is available, a simple convention to recognize such a possible increase is to multiply the yield by half-again the growth rate, producing this modified equation in which K is the Cost of Equity:

$$K = ([D_1/P_0]*(1+(\tfrac{1}{2}\, g)]) + g$$

While this equation may seem to violate the assumptions of the DCF by having dividends outpace growth ("g") or by restricting dividends to a growth rate below companies' growth rates, in fact it is consistent with the model. Expectations of growth are simply applied to dividend yield in this equation. Dividend yield is brought into balance with growth because expectations are incorporated into both parts. The difference between how expectations are incorporated is that, for growth, they are incorporated in the development of the "g" number, whereas, in the dividend yield, they are incorporated in the equation itself.

Q. WHAT TRENDS DOES YOUR DCF ANALYSIS INDICATE?

A. Exhibits DHC-5, DHC-7, and DHC-9 reveal high EPS growth, slightly lower DPS growth, and relatively low Dividend Yields, respectively. In the long run, EPS growth will be constrained by Sales growth and BVPS will need to be more comparable to the future EPS growth. Meanwhile, if the stock prices of the companies in the Proxy Group growth moderately, remain level, or fall, DPS growth will eventually raise Dividend Yields. The

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recent changes in taxes, however, mean that many investors will get to keep more of their dividends because they will pay lower taxes on them. Accordingly, in the long-run, companies will not have to pay as high dividends to meet investors' demand.

Q. WHAT WAS YOUR DCF RESULT?

A. My DCF indicates a cost of Equity of 8.68% shown in my DCF summary calculation in Exhibit DHC-9.

Q. WHAT IS THE BASIC PREMISE OF THE CEM?

A. This Model focuses on the costs of goods and services that generate earnings. For this reason, CEM analyses look at changes in book value (Exhibits DHC-10 and DHC-11). Changes in book value indicate a greater capacity to produce. The logic of CEM is analogous to that of the DCF. The change in book value comes from the store of value in retained equity. With prudent management and no revolutionary developments, the greater the book value of a company, the greater the resulting ROE.

Q. WHAT ARE THE MAJOR CONSIDERATIONS IN IMPLEMENTING THE CEM AND HOW DID YOU ADDRESS THEM?

A. The Model does not indicate a single approach to ascertaining what is comparable and so analyses often look at great quantities of data over long periods of time. Analyses may use whole sectors of the economy, several sectors of the economy, or even stock indices and show several decades of results. While such approaches mitigate threats to the Model, there is no single standard for comparability. The lack of a benchmark makes conclusions from the data judgmental. Although there is nothing wrong with applying judgment to interpret results, I have used a more transparent approach.

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The standard I used to select comparable stocks was the range of β that Value Line provides for the companies in my DCF Proxy Group. Leaving aside academic arguments about its predictive value, β has intuitive appeal because stocks whose prices vary in the same manner as those of traded water and water and sewer companies probably have something in common with respect to their earning capacity. As I pursued my method following the CEM, however, I encountered challenges.

Q. WHAT CHALLENGES DID YOU ENCOUNTER IN CALCULATING THE CEM?

A. My procedure for calculating the CEM is challenging in two respects: (1) the number of companies with predicted BVPS growth has shrunk to such an extent that there are very few companies when the CEM proxy group is highly stratified by β; (2) a disconnection has developed between β and BVPS. The dearth of companies weakens generalizations about companies making them less reliable and the deterioration in the usefulness of highly stratified β's hampers risk-adjustment and comparability. Accordingly, I have changed my method to make my results more reliable.

The underlying cause of these challenges is the lingering effects of the Great Recession, when asset values dropped and there was a net decline in Owners' Equity, viz., Book Value, for three quarters. See Exhibit DHC-12.

Q. HOW HAVE YOU ADDRESSED THESE CHALLENGES?

A. I have reduced the number of β strata, substituted five-year β's for ten-year β's, used only current β's, and used different groups for my retrospective CEM and prospective CEM. These techniques make my analysis less vulnerable to threats of reliability by avoiding a very small and perhaps unrepresentative selection of companies and by

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sidestepping the period of the Great Recession, when unregulated companies shed assets and total manufacturing equity fell.

Q. WHAT WERE THE RESULTS OF YOUR CEM ANALYSIS?

A. The retrospective part of my analysis produced a 9.15% cost of Equity (Exhibit DHC-10). The prospective portion produced an 8.63% cost of Equity (Exhibit DHC-11). The average of the retrospective or historical result and the prospective or projected results is my CEM result of 8.89% (Exhibit DHC-11).

Q. WHAT IS THE BASIC PREMISE OF THE CAP-M?

A. This model assumes that there is a knowable Risk-Free Rate of Return ("R_f"), Market Rate of Return ("R_m"), and Equity Risk Premium ("ERP"). In this respect, the CAP-M belongs to a family of models and methods for which a risk premium is central. The CAP-M uses the β statistic to adjust the ERP for the risk of particular companies, sectors, or even portions of companies.

Q. HOW IS THE PREMISE REALIZED IN CAP-M ANALYSIS?

A. At the basic, general level, CAP-M uses the following formula:

$$K = R_f + (\beta * (R_m - R_f)),$$

Where K is ROE and the other notations are those I have discussed. The innermost parentheses contain the ERP, which is adjusted for risk by β, with the assumption that all risks not captured by β can be diversified away.

Q. WHAT ARE SOME OF THE ISSUES SURROUNDING THE CAP-M AND ITS APPLICATION?

A. There have been debates about whether β properly measures systematic risk, with some researchers finding that it does not and others finding that it does. Some people have

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1 taken issue with whether β should be adjusted, which is not an issue with my analysis, since
2 I use Value Line's adjusted β's. Another set of issues turns on whether the R_m is properly
3 measured by the source, Stocks, Bonds, Bills and Inflation, 2017 ("SBBI") or whether
4 different periods of time should be used. Within that debate is another issue related to the
5 use of the arithmetic mean ("simple average") or the geometric mean ("compound annual
6 growth rate"). I use the latter because it reflects the long-term returns[3] that an investor
7 could actually have realized.

8 **Q. DESCRIBE YOUR APPROACH REGARDING THE DATA YOU USED FOR THE**
9 **R_f.**

10 **A.** The data often used for computing the CAPM cost of equity has undergone certain
11 changes that deserve emphasis. The database from the Center for Research and Security
12 Prices ("CRSP") in SBBI, which provides the typical long-term return of companies, was
13 originally based upon the New York Stock Exchange, but has added more data from more
14 exchanges. This change over the years after the initial construction of the deciles, which
15 in turn were constructed from data first assembled by CRSP. The change was far from
16 merely technical. The argument that there is a Small Company Premium rests logically
17 first upon being able to stratify companies' returns by companies' sizes in the form of
18 capitalization. Originally, CRSP organized companies into deciles, groups of tenths of the
19 total number of companies or "equally populated groups." When companies from other
20 exchanges were added, they were assigned by equivalency to the capitalization range of
21 the existing deciles. As a result, the deciles were no longer equally populated. In short,

[3] Ravi Jagannathan and Ellen R. McGrattan, "The CAPM Debate," Federal Reserve Bank of Minneapolis Quarterly Review, Vol. 19, No. 4, fall 1995, pp. 2-17.

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they were no longer true deciles, but rather some sort of "decile-hybrids." See Exhibit DHC-1.

To adjust for the change in SBBI, I weight the decile-hybrids by the number of companies in them. Since each of the ten (10) groups comprises companies in a range of capitalization, this treatment does not lessen whatever impact company size may have, but it does configure the data to resemble the investment menu that investors face. After all, investors, be they individuals or professional investors working for an investment entity, invest in discrete companies, not in capitalizations. I am aware that the size of a company is alleged to influence the total return an investor may receive from it and I calculated the average SBBI-decile return to make my results resemble one that investors over a long period might face. See Exhibit DHC-13.

Q. IF YOU DISAGREE WITH THE SMALL COMPANY PREMIUM, WHY DID YOU USE THE DECILE-HYBRIDS?

A. The main reason I used decile-hybrids is because they are embedded in the main source of data often used in CAP-M analyses. I used decile-hybrids in my analysis to be consistent with my practice in previous cases.

Q. HOW DID YOU PERFORM YOUR CAP-M?

A. My first calculation treated each SBBI decile as equal. For the R_f I used the projected 30-year Treasury bond yield, using a projection from a poll of economists conducted by Blue Chip™. This consensus forecast looks 18 months into the future. It is currently 3.7% (Exhibit DHC-2). For the R_m, I used the compound average growth rate for stocks as published in SBBI. I averaged the returns for the deciles of company size and obtained an average (geometric mean or compound annual growth rate) of 11.27% (Exhibit

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DHC-13, p. 3 of 3). The ERP is the difference of these two numbers, or 7.57%. The median β for the water companies in my DCF Proxy Group is 0.75 (Exhibit DHC-13, p. 1 of 3. When one multiplies 7.57% by 0.75, which is water-company β, the result is 5.68%, which is the risk-adjusted ERP. This step recognizes the relative risk of water companies compared to R_m. The calculation shows that a company comparable to CWS should receive 3.70% points (the R_f) above the ERP, which produces 9.38% (Exhibit DHC-13).

My second calculation weighted each SBBI CRSP decile by the number of companies in it. The weighted average was 11.70%, which resulted in an ERP of 8.00% after subtracting the R_f of 3.7%. Adjusting the ERP for risk produced 6.00% for a total cost of Equity of 9.70%. See Exhibit DHC-13.

Given the reasons I have discussed, my CAP-M has a range of 9.38%-9.70%. I have averaged my two CAP-M results for a final CAP-M of 9.54%.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

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Office of Regulatory Staff
SBBI: 2013 Valuation Handbook Excerpt
Carolina Water Service, Inc.
Docket No. 2017-292-WS

DECILES ARE NOT REALLY DECILES AND "DECILE" PORTFOLIOS HAVE TO BE REBALANCED FOUR TIMES A YEAR

The term "decile" holds methodological appeal until one realizes that it is a questionable construct for two reasons. First, the deciles in SBBI do not really hold equal numbers of companies (as shown in Exhibit DHC-13). Second, since it is time-series data, the Center for Research and Security Prices ("CRSP") companies are constantly changing "deciles" due to company growth, merger, bankruptcy, or company shrinkage. The absence of data indicating a -100% change in stock value and a concomitant change in any dividends, as would occur from a corporate bankruptcy is called Survivorship Bias. Even if bankruptcy was not the cause for a stock's being delisted and even if returns were higher than listed stocks', the lack of assignment of a stock to a decile, even if were not a true decile, would distort the data on returns and the relationship of returns to capitalization.

The following quotation is from Ibbotson SBBI: 2013 Valuation Handbook, p.85. I have broken a single paragraph into two halves, the first relevant to the "decile" issue and the second to how dynamic and potentially distorting the capitalization-decile may be.

> *All companies on the NYSE [New York Stock Exchange] are ranked by the combined market capitalization of their eligible equity securities. The companies are then split into 10 equally populated groups, or deciles. Eligible companies traded on the NYSE, the NYSE Amex (AMEX), and Nasdaq National Market (NASDAQ) are then assigned to the appropriate deciles according to their capitalization in relation to the NYSE breakpoints.*
>
> *The portfolios are rebalanced, using closing prices for the last trading day of March, June, September, and December. Securities added during the quarter are assigned to the appropriate portfolio when two consecutive month-end prices are available. If the final NYSE price of a security that becomes delisted is a month-end price, then that month's return is included in the quarterly return of the security's portfolio. When a month-end NYSE price is missing, the month-end value of the security is derived from merger terms, quotations on regional exchanges, and other sources.*

Office of Regulatory Staff

Blue Chip Financial Forecasts March 1, 2018

Carolina Water Service, Inc.

Docket No. 2017-292-WS

EXHIBIT DHC-2

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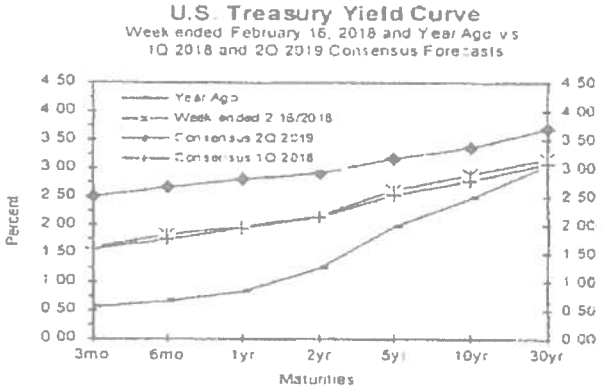
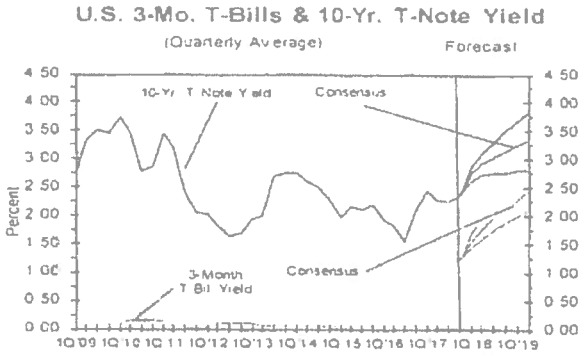
Consensus Forecasts Of U.S. Interest Rates And Key Assumptions[1]

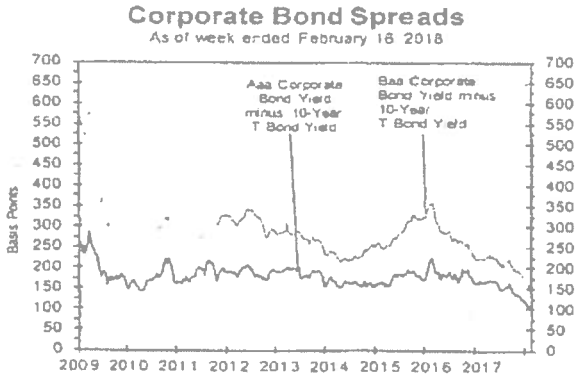
Interest Rates	History: Average For Week Ending Feb. 16	Feb. 9	Feb. 2	Jan. 26	Average For Month Jan	Dec	Nov	Latest Qtr 4Q 2017	Consensus Forecasts-Quarterly Avg. 1Q 2018	2Q 2018	3Q 2018	4Q 2018	1Q 2019	2Q 2019
Federal Funds Rate	1.42	1.42	1.42	1.41	1.41	1.29	1.16	1.20	1.5	1.7	1.9	2.2	2.3	2.5
Prime Rate	4.50	4.50	4.50	4.50	4.50	4.38	4.25	4.29	4.6	4.8	5.0	5.2	5.4	5.6
LIBOR, 3-mo.	1.86	1.80	1.78	1.75	1.73	1.59	1.42	1.46	1.8	2.0	2.2	2.4	2.6	2.8
Commercial Paper, 1-mo.	1.53	1.50	1.50	1.52	1.50	1.38	1.15	1.22	1.5	1.7	2.0	2.2	2.4	2.5
Treasury bill, 3-mo.	1.60	1.54	1.46	1.43	1.43	1.33	1.23	1.22	1.6	1.8	2.0	2.1	2.3	2.5
Treasury bill, 6-mo.	1.82	1.71	1.65	1.64	1.62	1.49	1.37	1.37	1.7	1.9	2.1	2.3	2.5	2.6
Treasury bill, 1 yr.	1.97	1.89	1.87	1.79	1.80	1.69	1.54	1.54	1.9	2.1	2.3	2.5	2.6	2.8
Treasury note, 2 yr.	2.15	2.10	2.14	2.09	2.02	1.83	1.68	1.68	2.1	2.3	2.5	2.6	2.8	2.9
Treasury note, 5 yr	2.61	2.54	2.53	2.44	2.36	2.17	2.04	2.06	2.5	2.7	2.8	2.9	3.1	3.2
Treasury note, 10 yr.	2.87	2.82	2.75	2.65	2.56	2.40	2.36	2.37	2.8	2.9	3.0	3.1	3.3	3.3
Treasury note, 30 yr.	3.14	3.10	2.99	2.91	2.86	2.77	2.81	2.82	3.1	3.2	3.4	3.5	3.6	3.7
Corporate Aaa bond	3.97	3.89	3.79	3.73	3.68	3.63	3.70	3.69	3.8	4.1	4.3	4.4	4.6	4.7
Corporate Baa bond	4.54	4.45	4.31	4.26	4.24	4.21	4.29	4.27	4.5	4.8	5.0	5.2	5.3	5.4
State & Local bonds	3.58	3.57	3.53	3.45	3.42	3.46	3.41	3.41	3.6	3.8	3.9	4.1	4.2	4.3
Home mortgage rate	4.38	4.32	4.22	4.15	4.03	3.95	3.92	3.92	4.3	4.5	4.6	4.7	4.9	5.0

Key Assumptions	History: 1Q 2016	2Q 2016	3Q 2016	4Q 2016	1Q 2017	2Q 2017	3Q 2017	4Q 2017	Consensus Forecasts-Quarterly 1Q 2018	2Q 2018	3Q 2018	4Q 2018	1Q 2019	2Q 2019
Major Currency Index	93.3	89.6	90.3	93.7	94.4	93.0	88.3	88.9	86.5	86.5	86.5	86.4	86.4	86.3
Real GDP	0.6	2.2	2.8	1.8	1.2	3.1	3.2	2.6	2.7	3.0	2.9	2.7	2.5	2.4
GDP Price Index	0.3	2.4	1.4	2.0	2.0	1.0	2.1	2.4	2.1	2.0	2.2	2.1	2.2	2.2
Consumer Price Index	0.1	2.3	1.8	3.0	3.1	-0.3	2.0	3.7	3.0	2.0	2.3	2.1	2.3	2.3

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. [1] 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).







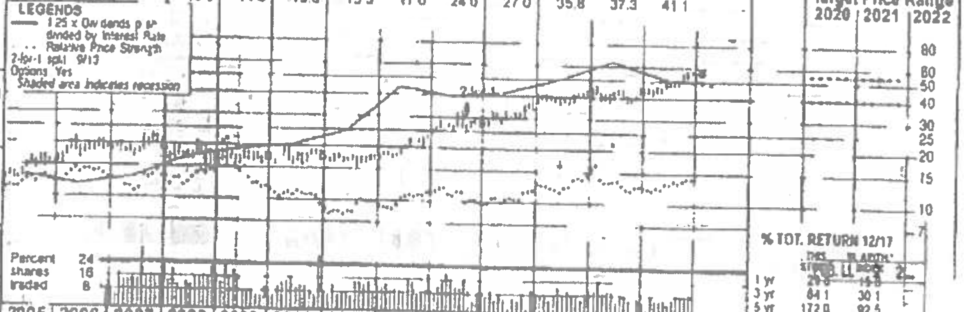
Office of Regulatory Staff
Value Line
Carolina Water Service, Inc.
Docket No. 2017-292-WS

AMER. STATES WATER NYSE-AWR | RECENT PRICE 56.40 | P/E RATIO 32.0 (Trailing: 30.8 Median: 20.0) | RELATIVE P/E RATIO 1.56 | DIV'D YLD 1.9% | VALUE LINE

TIMELINESS 2 Raised 12/1/17
SAFETY 2 Raised 7/20/12
TECHNICAL 2 Raised 12/29/17
BETA .60 (1.00 = Market)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
High	21.9	23.1	21.0	19.4	19.8	18.2	24.1	33.1	38.7	44.1	47.2	58.4
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

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	55	(Nil)	2%
Low	40	(-30%)	-5%

Insider Decisions

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

Institutional Decisions

	1Q2017	2Q2017	3Q2017
to Buy	87	96	104
to Sell	89	84	79
Hld's(000)	29062	28355	27880

Percent shares traded 24 16 8

% TOT. RETURN 12/17

	THIS STOCK	VL ARITH.* INDEX
1 yr	29.6	15.8
3 yr	64.1	30.1
5 yr	172.0	92.5

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	8.81	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	12.85	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	.8	1.11	1.12	1.41	1.61	1.57	1.60	1.62	1.85	1.85	Earnings per sh A	2.35
.43	.44	.44	.44	.45	.46	.48	.50	.51	.52	.55	.64	.76	.83	.87	.91	.99	1.06	Div'd Decl'd per sh B	1.35
1.59	1.34	1.68	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	7.88	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	25.8	28.1		Avg Ann'l P/E Ratio	21.0
.86	1.00	1.82	1.23	1.17	1.50	1.27	1.36	1.4	1.00	.97	.91	.97	1.06	1.24	1.35	1.27		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%	2.0%		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	445	470	Revenues ($mill)	590
						26.0	26.8	29.5	41.4	42.0	54.1	62.7	61.1	60.5	59.7	62.0	66.0	Net Profit ($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%	21.0%	Income Tax Rate	21.0%
						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%	39.8%	39.1%	41.1	39.4%	40.0%	42.0%	Long-Term Debt Ratio	43.5%
						53.1%	53.8%	54 %	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	925	Total Capital ($mill)	1100
						778.4	825.3	866.4	855.0	896.5	917.8	981.5	1003.5	1060.8	1150.9	1200	1250	Net Plant ($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 9/30/17
Total Debt $367.3 mill. Due in 5 Yrs $41.7 mill.
LT Debt $321.0 mill. LT Interest $21.3 mill.
(38% 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 36,679,175 shs. as of 10/1/17

MARKET CAP: $2.1 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2015	2016	9/30/17
Cash Assets	4.4	4	6.7
Accts Receivable	18.9	20.0	29.4
Other	109.4	146.5	110.6
Current Assets	132.7	168.9	146.7
Accts Payable	50.6	43.7	53.8
Debt Due	28.3	90.3	46.3
Other	44.6	43.9	51.8
Current Liab.	123.5	177.9	151.9

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%

Cal-endar	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	113.2	124.4	108.6	445
2018	102	118	135	115	470

Cal-endar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.28	.33	.54	.38	1.57
2015	.32	.41	.56	.31	1.60
2016	.28	.45	.59	.30	1.62
2017	.34	.62	.57	.32	1.85
2018	.39	.48	.60	.38	1.85

Cal-endar	QUARTERLY DIVIDENDS PAID B Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.2025	.2025	.213	.213	.83
2015	.213	.2 3	.224	.224	.87
2016	.224	.224	.224	.242	.91
2017	.242	.242	.255	.255	.99
2018					

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 has solid earnings prospects. We estimate that the water utility earned $1.85 per share in 2017, thanks, in part, to an unusual gain resulting from the sale of certain assets. Even without this windfall, however, the company would still have likely recorded a 6% increase in its share net. The positive momentum from its core water operations should enable the company's share net to reach $1.85 once again in 2018.

Our earnings forecasts are based upon constructive regulatory treatment. As is the protocol in California, a utility petitions state authorities for rate relief every three years. The company's Golden Gate Water subsidiary filed a general case in July of last year. The application is for the years 2019, 2020, and 2021. A final decision is expected by the end of 2018. The California Public Utility Commission has been reasonable in the past, as it has worked with utilities that have had to spend heavily to upgrade antiquated pipeline systems as well as successfully get customers to reduce consumption because of droughts.

The nonregulated business provides opportunity for growth. No matter how efficiently a utility is run, its profitability is limited to what state regulators allow. Through its ASUS business, which represents about 20% of net income, the company has been involved in taking over the management of water systems of major U.S. military installation. ASUS has already signed several 50 year contracts and we expect to see more agreements reached in the coming years as privatization in this sector increases.

Timely shares of American States have been doing well, of late. Since our last report three months ago, AWR has increased over 10%. By comparison, the S&P 500 has risen only about 6%. Typically, water stocks have been defensive investments for those seeking income. This pattern has changed, possibly due to the limited amount of shares available in the large-cap sector of the water industry. Indeed, AWR is now trading above our projected 2020-2022 Target Price Range. Also, potential interest rates hikes by the Federal Reserve may now make this group less suitable for conservative accounts.

James A. Flood *January 12, 2018*

(A) Primary earnings. Excludes nonrecurring gains/(losses): '04, 7¢; '05, 13¢; '06, 3¢; '08, (4¢); '10, (23¢); '11, 10¢. Next earnings report due early February.
(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	75
Price Growth Persistence	75
Earnings Predictability	85

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Value Line

Carolina Water Service, Inc.

Docket No. 2017-292-WS

ACCEPTED FOR PROCESSING - 2018 March 12 5:19 PM - SCPSC - Docket # 2017-292-WS - Page 19 of 87

AMERICAN WATER NYSE-AWK

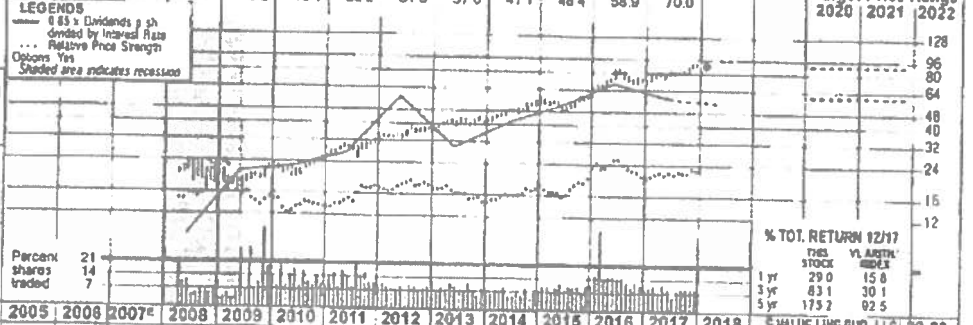
RECENT PRICE 89.08 | P/E RATIO 28.1 (Trailing: 30.2; Median: NMF) | RELATIVE P/E RATIO 1.37 | DIV'D YLD 2.0% | VALUE LINE

TIMELINESS 2 Raised 1/7/17
SAFETY 3 New 7/25/08
TECHNICAL 3 Lowered 1/12/18
BETA .65 (1.00 = Market)

High	23.7	23.0	25.8	32.8	39.4	45.1	56.2	61.2	85.2	92.4		
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

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



2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	90	(Nil)	3%
Low	60	(-35%)	-6%

Insider Decisions

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

Institutional Decisions

	1Q2017	2Q2017	3Q2017
to Buy	269	281	282
to Sell	302	291	292
Hld's(000)	160359	159865	160782

Percent shares traded 21 14 7

% TOT. RETURN 12/17

	THIS STOCK	VL ARITH. INDEX
1 yr	29.0	15.8
3 yr	83.1	30.1
5 yr	173.2	92.5

2001	2002	2003	2004	2005	2006	2007	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	18.95	20.10	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	5.80	6.20	"Cash Flow" per sh	7.50
..	..		..	..	d.97	d2.14	1.10	1.25	1.53	1.72	2.11	2.06	2.39	2.84	2.62	3.00	3.30	Earnings per sh A	4.15
..	..	..	..	..	..		.40	.82	.88	.90	1.21	.84	1.21	1.33	1.47	1.62	1.78	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	8.51	7.36	7.20	7.25	Cap'l Spending per sh	8.85
..	..	..	..	..	23.86	28.39	25.64	22.91	23.59	24.11	25.11	28.52	27.39	28.25	29.24	30.90	32.40	Book Value per sh D	39.45
..	..	..	..	..	160.00	160.00	160.00	174.83	175.00	175.66	176.99	178.25	179.46	178.28	178.10	179.30	179.00	Common Shs Outst'g C	187.50
..	..	..	..	..	..	..	18.9	15.6	14.6	16.8	18.7	19.9	20.0	20.5	27.7	28.8		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	1.31		Relative P/E Ratio	1.15
..	..	..	..	..	..	..	1.9%	4.2%	3.8%	3.1%	3.4%	2.0%	2.5%	2.5%	2.0%	2.0%		Avg Ann'l Div'd Yield	3.1%
						2214.2	2336.9	2440.7	2710.7	2656.2	2876.9	2901.9	3011.3	3159.0	3302.0	3280	3600	Revenues ($mill)	4325
						d342.3	187.2	209.9	287.8	304.9	374.3	369.3	429.8	478.0	468.0	535	590	Net Profit ($mill)	780
						..	37.4%	37.9%	40.4%	39.5%	40.7%	39.1%	39.4%	39.1%	39.2%	40.0%	21.0%	Income Tax Rate	21.0%
						..	..	..	..	..	8.2%	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%	53.5%	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%	46.5%	45.0%	Common Equity Ratio	46.0%
						9245.7	8750.2	9289.0	9581.3	9580.3	9635.5	9940.7	10364	10911	10967	11600	12350	Total Capital ($mill)	18000
						9318.0	9991.8	10524	11059	11021	11739	12391	12900	13933	14992	15675	16400	Net Plant ($mill)	18000
						NMF	3.7%	3.8%	4.4%	4.8%	5.4%	5.1%	5.5%	5.7%	5.6%	6.0%	9.0%	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%	9.5%	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%	9.5%	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%	57%	55%	All Div'ds to Net Prof	57%

CAPITAL STRUCTURE as of 9/30/17
Total Debt $7462.0 mil — Due in 5 Yrs $1696.0 mil
LT Debt $6672.0 mil — LT Interest $349.0 mil (55% of Cap'l)

Leases, Uncapitalized: Annual rentals $14.0 mil
Pension Assets 12/16 $1443.0 mil — Oblig. $1664.0 mil
Pfd Stock 39.0 mil — Pfd Div'd $.5 mil

Common Stock 178,375,400 shs as of 10/26/17

MARKET CAP: $15.9 billion (Large Cap)

CURRENT POSITION ($MILL.)	2015	2016	9/30/17
Cash Assets	45.0	75.0	93.0
Accts Receivable	255.0	269.0	312.0
Other	357.0	440.0	455.0
Current Assets	657.0	784.0	860.0
Accts Payable	126.0	154.0	144.0
Debt Due	682.0	1423.0	790.0
Other	725.0	815.0	813.0
Current Liab	1533.0	2392.0	1747.0

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%	9.5%	6.5%
Earnings	..	11.0%	8.5%
Dividends	..	9.0%	10.0%
Book Value	1.5%	4.0%	5.5%

Cal-endar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	679.0	754.8	848.1	731.4	3011.3
2015	698.0	782.0	895.0	783.0	3159.0
2016	743.0	827.0	930.0	802.0	3302.0
2017	756.0	844.0	936.0	844	3380
2018	770	895	1040	895	3600

Cal-endar	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	.73	1.13	.62	3.00
2018	.58	.84	1.19	.69	3.30

Cal-endar	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	.415	.415	1.62
2018					

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' prospects are bright. In a December investor presentation, management stated once again that the in-house target for annual growth over the next five-year period for both earnings and dividends is at the high end of the 7% to 10% range. This is well above the projected industry average.

Acquisitions and cost controls will likely remain the twin pillars of the utility's operating strategy. The water industry in the United States is very fragmented and inefficient. As a result, there are many small and midsize water authorities that do not have the funds required to make the necessary upgrades to their aging water facilities. Hence, American Water has a continual pipeline of purchases in the works. The company is able to integrate these new additions into its asset base while achieving substantial cost savings. Moreover, regulators are happy (more below) when utilities can provide better service at a lower price.

Regulators will probably have a major say in the company's future performance. As the utility continues to expand, its relationship with different state water authorities should become even more important as it will have to file more rate cases. On the positive side of the ledger, American Water's internal (non-GAAP) operating expense margin continues to decline. Indeed, the ratio has decreased from 44% in 2010 to about 34% this year. The goal is 32.5% by 2020-2022. In any case, being able to quantify savings keeps a utility in the good graces of those ruling on rate filings.

The capital budget has been raised substantially. Even though the company is already in the midst of a major construction program, management just increased the estimated outlays by about $1 billion to bring the new expected five-year total to somewhere between $8.0 billion and $8.6 billion. American Water's finances are average, and probably will remain so for the next several years.

These timely shares will most likely not interest long-term investors. AWK has outperformed the broader market averages, of late. Indeed, the stock recently traded above our projected 2020-2022 Target Price Range.

James A. Flood — *January 12, 2018*

(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-February. 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. On 9/30/17: $1.373 billion, $7.70/share. (E) Pro forma numbers for '06 & '07.

Company's Financial Strength	B+
Stock's Price Stability	100
Price Growth Persistence	85
Earnings Predictability	90

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AQUA AMERICA NYSE-WTR

RECENT PRICE 38.65 | P/E RATIO 27.4 (Trailing: 29.1; Median: 22.0) | RELATIVE P/E RATIO 1.34 | DIV'D YLD 2.2% | VALUE LINE

TIMELINESS 2 Raised 11/17/17
SAFETY 2 Raised 4/2012
TECHNICAL 3 Lowered 1/5/18
BETA .75 (1.00 = Market)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
High:	23.6	21.3	17.6	17.2	18.4	19.0	21.5	28.1	28.2	31.1	35.8	39.6
Low:	18.1	15.1	9.6	12.3	13.2	15.4	16.8	20.6	22.4	24.4	28.0	29.4

2020-22 PROJECTIONS

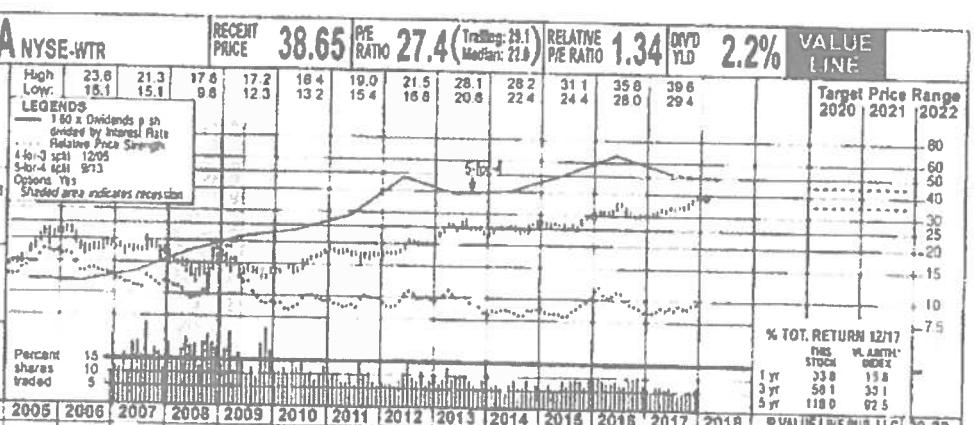
	Price	Gain	Ann'l Total Return
High	46	(+15%)	6%
Low	36	(-10%)	Nil

Insider Decisions

	M	A	M	J	J	A	S	O	N
to Buy	0	0	0	0	0	0	0	0	0
Options	7	7	0	1	7	0	1	6	0
to Sell	0	0	0	2	0	0	1	0	1

Institutional Decisions

	1Q2017	2Q2017	3Q2017
to Buy	179	172	187
to Sell	180	155	120
Hld's(000)	103594	104564	105795



% TOT. RETURN 12/17

	THIS STOCK	VL ARITH. INDEX
1 yr	33.8	19.8
3 yr	58.1	33.1
5 yr	118.0	92.5

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	3.00	3.23	3.61	3.71	3.93	4.21	4.10	4.32	4.32	4.37	4.61	4.62	4.50	4.70	Revenues per sh	6.05
.63	.76	.77	.87	.97	1.01	1.10	1.14	1.29	1.42	1.45	1.51	1.62	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	1.34	1.45	Earnings per sh A	1.85
.24	.26	.28	.29	.32	.35	.38	.41	.44	.47	.50	.54	.58	.63	.69	.74	.79	.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	2.35	2.45	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	2.1	21.3	21.9	21.2	20.8	23.5	23.9	24.5		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	1.20		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%	2.4%		Avg Ann'l Div'd Yield	2.8%
						802.5	627.0	670.5	728.1	712.0	757.8	768.8	779.9	814.2	819.9	800	840	Revenues ($mill)	1085
						96.0	97.9	104.4	124.0	144.6	153.1	205.0	213.9	201.8	234.2	245	280	Net Profit ($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%	56.8%	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	4160	Total Capital ($mill)	5300
						2792.8	2997.4	3227.3	3489.3	3612.9	3936.2	4187.3	4402.0	4688.9	5001.6	5080	5275	Net Plant ($mill)	5800
						5.9%	5.7%	5.8%	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%	5.5%	5.5%	5.0%	Retained to Com Eq	4.5%
						67%	70%	72%	65%	60%	61%	50%	52%	60%	58%	58%	53%	All Div'ds to Net Prof	62%

CAPITAL STRUCTURE as of 9/30/17
Total Debt $2058.2 mill. Due in 5 Yrs $430.5 mill.
LT Debt $1952.5 mill. LT Interest $80.0 mill.
(50% of Cap'l)

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

Pfd Stock None

Common Stock 177,690,598 shares as of 10/20/17

MARKET CAP: $6.9 billion (Large Cap)

CURRENT POSITION ($MILL.)	2015	2016	9/30/17
Cash Assets	3.2	3.7	4.1
Receivables	99.1	97.4	104.9
Inventory (AvgCst)	12.4	13.0	16.8
Other	13.7	14.6	12.7
Current Assets	128.4	128.7	138.3
Accts Payable	56.5	59.9	63.4
Debt Due	52.3	157.2	105.7
Other	84.4	84.4	83.9
Current Liab	193.2	301.5	253.0

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%

Cal-endar	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	203.4	215.0	193.8	800
2018	195	215	225	205	840

Cal-endar	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	.34	.43	.31	1.36
2018	.30	.37	.46	.32	1.45

Cal-endar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.152	.152	.165	.165	.63
2015	.165	.165	.178	.178	.69
2016	.178	.178	.1913	.1913	.74
2017	.1913	.1913	.2047	.2047	.79
2018					

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; Vanguard 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.: 610-526-1400. Internet: www.aquaamerica.com.

Our earnings estimates for Aqua America remain unchanged. But we have lowered our revenue forecast for both last year's fourth quarter and 2018 as water sales have been declining. On the positive side, the water utility's operating expenses have been decreasing at a higher rate thanks to lower power and chemical costs. Indeed, we think Aqua's 2017 share net came in at $1.36, versus 2016's tough $1.32 comparison. Rate relief granted by several states over the past 12 months will be in effect all of this year. This, plus expected new hikes in Virginia and Indiana, should enable Aqua's share earning to climb a healthy 7%, to $1.45.

Acquisitions are being made at a modest pace. Due to the fragmentation in the market (there are over 100,000 separate water districts in the U.S.), large-cap water utilities such as Aqua are continuously buying small water entities. Also, most of these authorities do not have the funds required to replace and upgrade their aging network of pipes and waste systems. Not only do the bigger water entities have the funds available for the needed capital outlays, they are also able to realize significant cost saving because the industry is rife with redundancies. The company's acquisitions made through September of last year combined with organic growth, led to only a 0.8% increase in the customer base. Management has targeted annual growth to be approximately 1.5%-2.0%, so we expect the pace to possible accelerate here.

Aqua has a healthy balance sheet. Of the nine members in this group, only two merit an "A" Financial Strength rating. This leaves the company with the capacity to borrow to buy more water assets. In addition, Aqua's policy of hardly issuing any new equity is a real positive. With the stock near its all-time high, a new equity offering would probably be well received, as institutional demand for large-cap water utilities stock remains strong.

These shares are timely. Also, even though WTR's long-term total return potential isn't great, it is more attractive than most other mid- and large-cap stocks in this group. So, investors that must own a water utility equity may find WTR of interest.

James A. Flood *January 12, 2018*

(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-February.
(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	65
Earnings Predictability	90

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Docket No. 2017-292-WS

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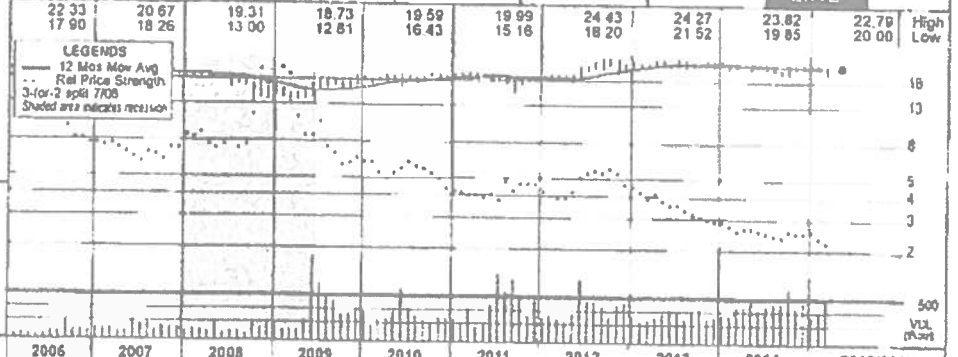
ARTESIAN RES. CORP. NDQ-ARTNA | RECENT PRICE 21.74 | TRAILING P/E RATIO 20.3 | RELATIVE P/E RATIO 1.01 | DIV'D YLD 4.0% | VALUE LINE

	22.33 / 17.90	20.67 / 18.26	19.31 / 13.00	18.73 / 12.81	19.59 / 16.43	19.99 / 15.16	24.43 / 18.20	24.27 / 21.52	23.82 / 19.85	22.79 / 20.00	High / Low

RANKS

PERFORMANCE	4	Below Average
Technical	4	Below Average
SAFETY	3	Average
BETA .55		(1.00 = Market)

Financial Strength	B
Price Stability	95
Price Growth Persistence	40
Earnings Predictability	80



© VALUE LINE PUBLISHING LLC	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015/2016
SALES PER SH	7.77	7.20	7.59	8.11	8.48	7.56	8.10	7.82	8.13	
"CASH FLOW" PER SH	1.75	1.57	1.65	1.84	1.92	1.84	2.04	1.87	2.04	
EARNINGS PER SH	.97	.80	.86	.97	1.00	.83	1.13	.94	1.07	1.17[A,B]/1.30[C]
DIV'DS DECL'D PER SH	.61	.66	.71	.72	.75	.76	.79	.82	.85	
CAP'L SPENDING PER SH	5.08	3.66	6.09	2.32	2.57	1.83	2.36	2.40	2.86	
BOOK VALUE PER SH	10.15	11.66	11.86	12.15	12.44	13.12	13.57	13.80	14.09	
COMMON SHS OUTST'G (MILL.)	6.09	7.30	7.40	7.51	7.65	8.61	8.71	8.83	8.91	
AVG ANN'L P/E RATIO	20.3	21.5	20.1	18.4	18.2	22.5	18.3	23.9	20.5	18.6/18.7
RELATIVE P/E RATIO	1.10	1.14	1.21	1.09	1.16	1.41	1.17	1.34	1.09	
AVG ANN'L DIV'D YIELD	3.1%	3.4%	4.1%	4.5%	4.1%	4.1%	3.8%	3.7%	3.9%	
SALES ($MILL.)	47.3	52.5	56.2	60.9	64.9	65.1	70.6	69.1	72.5	Bold figures are consensus earnings estimates and, using the recent prices, P/E ratios
OPERATING MARGIN	45.6%	45.6%	45.1%	46.9%	46.5%	45.5%	48.7%	47.0%	48.8%	
DEPRECIATION ($MILL.)	4.8	5.2	5.8	6.6	7.0	7.4	7.9	8.3	8.7	
NET PROFIT ($MILL.)	6.1	6.3	6.4	7.3	7.6	6.7	9.6	8.3	9.5	
INCOME TAX RATE	39.0%	39.8%	40.1%	40.0%	40.0%	40.8%	40.2%	40.2%	40.1%	
NET PROFIT MARGIN	12.8%	11.9%	11.4%	11.9%	11.7%	10.4%	14.0%	12.0%	13.1%	
WORKING CAP'L ($MILL.)	d8.8	2.5	d20.9	d23.3	d27.9	d11.4	d11.4	d12.3	d13.5	
LONG-TERM DEBT ($MILL.)	92.1	81.8	107.6	106.0	105.1	108.5	108.3	105.5	105.0	
SHR. EQUITY ($MILL.)	61.6	85.1	87.8	91.2	95.1	113.0	118.2	121.8	125.6	
RETURN ON TOTAL CAP'L	5.8%	5.3%	4.7%	5.2%	5.6%	4.8%	5.9%	5.1%	5.5%	
RETURN ON SHR. EQUITY	9.8%	7.4%	7.3%	8.0%	8.0%	6.0%	8.3%	6.8%	7.6%	
RETAINED TO COM EQ	3.8%	2.1%	1.4%	2.1%	2.0%	.5%	2.5%	.9%	1.6%	
ALL DIV'DS TO NET PROF	61%	71%	81%	74%	75%	92%	70%	87%	79%	

[A] No. of analysts changing earn. est. in last 3 days: 0 up, 0 down; consensus 5-year earnings growth not available. [B] Based upon 2 analysts' estimates. [C] Based upon one analyst's estimate.

ANNUAL RATES

of change (per share)	6 Yrs.	1 Yr.
Sales	1.0%	4.0%
"Cash Flow"	3.5%	9.0%
Earnings	3.0%	14.0%
Dividends	3.5%	3.0%
Book Value	3.0%	2.0%

Fiscal Year	QUARTERLY SALES ($mill.) 1Q	2Q	3Q	4Q	Full Year
12/31/12	16.7	17.9	19.0	17.0	70.6
12/31/13	16.3	17.8	18.1	16.9	69.1
12/31/14	16.9	17.9	19.6	18.1	72.5
12/31/15					

Fiscal Year	EARNINGS PER SHARE 1Q	2Q	3Q	4Q	Full Year
12/31/11	.14	.23	.26	.20	.83
12/31/12	.28	.32	.33	.20	1.13
12/31/13	.20	.28	.29	.17	.94
12/31/14	.24	.22	.37	.24	1.07
12/31/15					

Cal-endar	QUARTERLY DIVIDENDS PAID 1Q	2Q	3Q	4Q	Full Year
2012	.193	.198	.198	.203	.79
2013	.203	.206	.206	.209	.82
2014	.209	.212	.212	.215	.85
2015	.215				

INSTITUTIONAL DECISIONS

	2Q'14	3Q'14	4Q'14
to Buy	36	27	30
to Sell	20	33	28
Hld's(000)	3132	2968	3004

ASSETS ($mill.)	2012	2013	12/31/14
Cash Assets	.6	.4	.2
Receivables	8.7	8.1	8.4
Inventory	1.4	1.5	1.9
Other	2.8	3.3	6.1
Current Assets	13.5	13.3	16.6
Property, Plant & Equip. at cost	454.4	472.9	496.2
Accum. Depreciation	83.8	89.8	98.4
Net Property	370.6	383.1	397.8
Other	7.6	7.4	7.8
Total Assets	391.7	403.8	422.2
LIABILITIES ($mill.)			
Accts Payable	3.5	4.1	3.8
Debt Due	12.6	12.2	19.9
Other	8.8	9.3	6.5
Current Liab.	24.9	25.6	30.2

LONG-TERM DEBT AND EQUITY as of 12/31/14

Total Debt $124.6 mill. Due in 5 Yrs. 550.1 mill.
LT Debt $105.0 mill.
Including Cap. Leases None (46% of Cap'l)

Leases, Uncapitalized Annual rentals $.1 mill.

Pension Liability 5.3 mill. in 14 vs. 5.3 mill. in 13

Pfd Stock None Pfd Div'd Paid None

Common Stock 8,912,129 shares (54% of Cap'l)

INDUSTRY: Water Utility

BUSINESS: Artesian Resources Corporation, through its subsidiaries, provides water, wastewater, and other services on the Delmarva Peninsula. It distributes and sells water to residential, commercial, industrial, municipal, and utility customers in Delaware, Maryland, and Pennsylvania. The company also offers water for public and private fire protection to customers in its service territories. In addition, it provides contract water and wastewater services, water and sewer service line protection plans, and wastewater management services, as well as design, construction, and engineering services. As of December 31, 2014, the company served approximately 80,600 metered water customers through 1,201 miles of transmission and distribution mains. Artesian Water Company, the company's principal subsidiary, is the oldest and largest investor-owned public water utility on the Delmarva Peninsula, and has been providing water service since 1905. Artesian supplies over 7.3 billion gallons of water per year. Has 237 employees. Chairman, C.E.O. & President: Dian C. Taylor. Address: 664 Churchmans Rd., Newark, DE 19702. Tel.: (302) 453-6900. Internet: http://www.artesianwater.com. J.T.

April 17, 2015

TOTAL SHAREHOLDER RETURN
Dividends plus appreciation as of 3/31/2015

3 Mos.	6 Mos.	1 Yr.	3 Yrs.	5 Yrs.
-4.37%	8.32%	-0.94%	27.57%	47.18%

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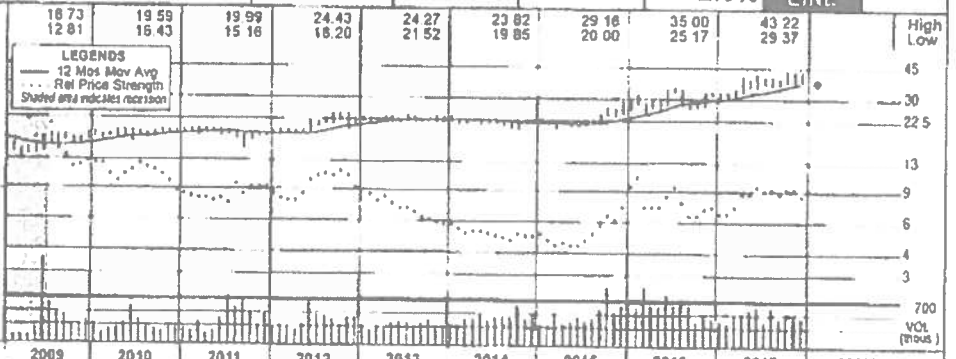
ARTESIAN RES. CORP. NDQ-ARTHA | RECENT PRICE 37.31 | TRAILING P/E RATIO 26.5 | RELATIVE P/E RATIO 1.22 | DIV'D YLD 2.5% | VALUE LINE

RANKS
PERFORMANCE 3 Average
Technical 3 Average
SAFETY 3 Average
BETA .85 (1.00 = Market)

Financial Strength B
Price Stability 85
Price Growth Persistence 40
Earnings Predictability 75

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018/2019
	18.73 / 12.81	19.59 / 16.43	19.99 / 15.16	24.43 / 18.20	24.27 / 21.52	23.82 / 19.85	29.16 / 20.00	35.00 / 25.17	43.22 / 29.37	High / Low



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	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018/2019
SALES PER SH	8.11	8.48	7.58	8.10	7.82	8.13	8.50	8.67		
"CASH FLOW" PER SH	1.84	1.92	1.64	2.04	1.87	2.04	2.22	2.43	--	
EARNINGS PER SH	.97	1.00	.83	1.13	.94	1.07	1.26	1.41	NA	NA/NA
DIV'DS DECL'D PER SH	.72	.75	.76	.79	.82	.85	.87	.90		
CAP'L SPENDING PER SH	2.32	2.57	1.83	2.36	2.40	2.68	2.28	3.10		
BOOK VALUE PER SH	12.15	12.44	13.12	13.57	13.80	14.09	14.81	15.23	--	
COMMON SHS OUTST'G (MILL.)	7.51	7.65	8.61	8.71	8.63	8.91	9.06	9.13		
AVG ANN'L P/E RATIO	16.4	18.2	22.5	18.3	23.9	20.5	18.0	20.9	NA	NA/NA
RELATIVE P/E RATIO	1.09	1.18	1.41	1.17	1.34	1.08	.93	1.14		
AVG ANN'L DIV'D YIELD	4.5%	4.1%	4.1%	3.8%	3.7%	3.9%	3.8%	3.1%	--	
SALES ($MILL.)	60.9	64.9	65.1	70.6	69.1	72.5	77.0	79.1		
OPERATING MARGIN	46.9%	46.5%	45.5%	46.7%	47.0%	46.8%	43.0%	44.4%		
DEPRECIATION ($MILL.)	5.6	7.0	7.4	7.9	8.3	8.7	8.8	9.2		
NET PROFIT ($MILL.)	7.3	7.6	6.7	9.8	8.3	9.5	11.3	13.0		
INCOME TAX RATE	40.1%	40.0%	40.8%	40.2%	40.2%	40.1%	--	--		
NET PROFIT MARGIN	11.9%	11.7%	10.4%	14.0%	12.0%	13.1%	14.7%	16.4%	--	
WORKING CAP'L ($MILL.)	d23.3	d27.9	d11.4	d11.4	d12.3	d13.5	d8.8	d4.7	--	
LONG-TERM DEBT ($MILL.)	106.0	105.1	106.5	106.3	105.5	105.0	103.8	102.3	--	
SHR. EQUITY ($MILL.)	91.2	95.1	113.0	118.2	121.8	125.6	132.3	139.0		
RETURN ON TOTAL CAP'L	5.2%	5.6%	4.6%	5.9%	5.1%	5.5%	6.3%	6.7		
RETURN ON SHR. EQUITY	8.0%	8.0%	6.0%	8.3%	6.8%	7.6%	8.5%	9.3	--	
RETAINED TO COM EQ	2.1%	2.0%	.5%	2.5%	.9%	1.6%	2.6%	3.4	--	
ALL DIV'DS TO NET PROF	74%	75%	92%	70%	87%	79%	69%	63%		

Note: No analyst estimates available.

Bold figures are consensus earnings estimates and, using the recent prices, P/E ratios

ANNUAL RATES

of change (per share)	5 Yrs.	1 Yr.
Sales	1.0%	2.0%
Cash Flow	4.5%	9.0%
Earnings	6.0%	12.0%
Dividends	3.0%	3.0%
Book Value	3.0%	4.5%

Fiscal Year	QUARTERLY SALES ($mill.) 1Q	2Q	3Q	4Q	Full Year
12/31/15	18.0	19.5	20.8	18.7	77.0
12/31/16	18.5	19.4	21.8	19.4	79.1
12/31/17	19.2	20.5	22.4		
12/31/18					

Fiscal Year	EARNINGS PER SHARE 1Q	2Q	3Q	4Q	Full Year
12/31/14	.24	.22	.37	.24	1.07
12/31/15	.28	.36	.41	.21	1.26
12/31/16	.30	.33	.48	.30	1.41
12/31/17	.34	.35	.42		
12/31/18					

Cal-endar	QUARTERLY DIVIDENDS PAID 1Q	2Q	3Q	4Q	Full Year
2015	.215	.218	.218	.222	.87
2016	.222	.225	.225	.228	.90
2017	.228	.232	.232	.235	.93
2018					

INSTITUTIONAL DECISIONS

	1Q'17	2Q'17	3Q'17
to Buy	37	42	36
to Sell	34	34	30
Hld's(000)	4022	4033	4073

ASSETS ($mill.)	2015	2016	9/30/17
Cash Assets	.2	.2	.3
Receivables	6.4	7.8	7.2
Inventory	1.7	1.6	1.4
Other	6.1	5.0	7.5
Current Assets	14.4	14.6	16.4
Property, Plant & Equip. at cost	514.8	539.7	--
Accum. Depreciation	105.2	110.3	--
Net Property	409.6	429.4	451.7
Other	7.6	7.0	11.4
Total Assets	431.6	451.0	479.5
LIABILITIES ($mill.)			
Accts Payable	5.5	5.6	7.1
Debt Due	11.8	8.4	7.6
Other	5.9	5.3	8.5
Current Liab.	23.2	19.3	23.2

LONG-TERM DEBT AND EQUITY as of 9/30/17
Total Debt $113.5 mil. Due in 5 Yrs. NA
LT Debt $105.9 mil.
Including Cap. Leases NA
(42% of Capl)
Leases, Uncapitalized Annual rentals NA
Pension Liability $1.0 mil. in '16 vs. $1.1 mil. in '15
Pfd Stock None Pfd Div'd Paid None
Common Stock 9,193,000 shares
(58% of Capl)

INDUSTRY: Water Utility

BUSINESS: Artesian Resources Corp. operates as a holding company of wholly owned subsidiaries offering water, wastewater services, and related services on the Delmarva Peninsula. Its Water Division (Artesian Water, Artesian Water Maryland, and Artesian Water Pennsylvania) provide water service to residential, commercial, industrial, governmental, municipal, and utility customers. For the nine months ended September 30, 2017, approximately 5.8 billion gallons of water were distributed in its Delaware systems and approximately 98.6 million gallons of water were distributed in its Maryland systems. Artesian Wastewater owns wastewater infrastructure in Delaware and Artesian Wastewater Maryland provides regulated wastewater services in Maryland. The number of Delaware wastewater customers totaled 1,685 as of June 30, 2017. Artesian Utility (non-regulated division) provides contract water and wastewater operation services to private, municipal, and governmental institutions. Has 225 employees. Chairman, C.E.O. & President: Dian C. Taylor. Address: 664 Churchmans Rd., Newark, DE 19702. Tel.: (302) 453-6900. Internet: www.artesianwater.com. J.T.

January 12, 2018

TOTAL SHAREHOLDER RETURN
Dividends plus appreciation as of 12/31/2017

3 Mos.	6 Mos.	1 Yr.	3 Yrs.	5 Yrs.
2.64%	3.72%	23.94%	87.92%	104.13%

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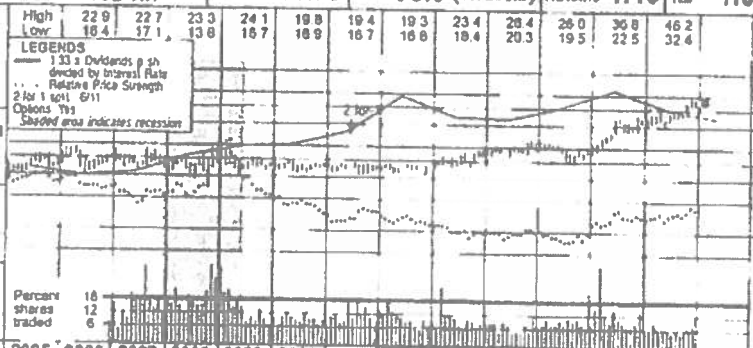
CALIFORNIA WATER NYSE-CWT

RECENT PRICE 44.70 | P/E RATIO 30.0 (Trailing: 31.5 / Median: 20.0) | RELATIVE P/E RATIO 1.46 | DIV'D YLD 1.6% | VALUE LINE

TIMELINESS 2 Raised 9/1/17
SAFETY 3 Lowered 7/21/07
TECHNICAL 2 Raised 12/22/17
BETA .80 (1.00 = Market)

High	22.9	22.7	23.3	24.1	19.8	19.4	19.3	23.4	28.4	26.0	30.8	46.2					
Low	16.4	17.1	13.8	16.7	16.9	16.7	16.8	18.4	20.3	19.5	22.5	32.4					

LEGENDS
— 1.33 x Dividends p sh divided by Interest Rate
.... Relative Price Strength
2-for-1 split 6/11
Options: Yes
Shaded area indicates recession



Target Price Range 2020 | 2021 | 2022

2018-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	60	(+10%)	5%
Low	35	(-20%)	-4%

Insider Decisions

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

Institutional Decisions

	3Q2017	4Q2017	1Q2018
to Buy	97	88	80
to Sell	83	77	71
Hld's(000)	38665	38472	38931

Percent shares traded 18 12 6

% TOT. RETURN 12/17

	THIS STOCK	VL ARITH. INDEX
1 yr	36.4	15.8
3 yr	99.1	30.1
5 yr	181.9	92.5

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2016	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	13.70	14.10	Revenues per sh	15.00
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	2.70	2.80	"Cash Flow" per sh	3.25
.47	.63	.61	.73	.74	.67	.75	.95	.88	.91	.86	1.02	1.02	1.19	.94	1.01	1.40	1.55	Earnings per sh A	1.85
.56	.58	.56	.57	.57	.58	.58	.59	.59	.60	.62	.63	.64	.65	.67	.69	.72	.75	Div'd Decl'd per sh B ■	1.02
2.04	2.91	2.19	1.8	2.01	2.14	1.84	2.41	2.66	2.97	2.83	3.04	2.58	2.75	3.69	4.77	3.35	3.85	Cap'l Spending per sh	3.40
6.48	6.56	7.22	7.83	7.90	9.37	9.25	9.72	10.13	10.45	10.76	11.28	12.54	13.11	13.41	13.75	14.30	14.75	Book Value per sh C	16.50
30.36	30.36	33.86	36.73	36.78	41.31	41.33	41.45	41.53	41.67	41.82	41.88	47.74	47.81	47.88	47.97	48.25	48.50	Common Shs Outstg D	50.00
27.1	19.8	22.1	20.1	24.9	29.2	26.1	19.8	19.7	23.3	21.3	17.9	20.1	19.7	24.8	29.6	28.9		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	1.04	1.14	1.13	1.04	1.25	1.56	1.31		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%	1.9%		Avg Ann'l Div'd Yield	2.4%
						367.1	410.3	449.4	460.4	501.8	560.0	584.1	597.5	588.3	609.4	660	685	Revenues ($mill) E	750
						31.2	39.8	40.6	37.7	36.1	42.6	47.3	56.7	45.0	48.7	68.0	75.0	Net Profit ($mill)	93.0
						39.9%	37.7%	40.3%	39.5%	40.5%	37.5%	30.3%	33.0%	36.0%	35.5%	35.0%	21.0%	Income Tax Rate	21.0%
						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%
						42.0%	41.6%	47.1%	52.4%	51.7%	47.8%	41.6%	40.1%	44.4%	44.6%	43.0%	44.5%	Long-Term Debt Ratio	42.0%
						56.6%	58.4%	52.9%	47.6%	48.3%	52.2%	58.4%	59.9%	55.6%	55.4%	57.0%	55.5%	Common Equity Ratio	58.0%
						874.9	690.4	794.9	914.7	931.5	908.2	1024.9	1045.9	1154.4	1191.2	1215	1290	Total Capital ($mill)	1425
						1010.2	1112.4	1198.1	1294.3	1381.8	1457.1	1515.8	1590.4	1701.8	1859.3	1900	1930	Net Plant ($mill)	2000
						5.8%	7.1%	6.5%	5.5%	5.5%	6.3%	8.0%	6.3%	5.2%	5.5%	6.5%	7.0%	Return on Total Cap'l	7.5%
						8.1%	9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	10.0%	10.5%	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%	10.0%	10.5%	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%	5.5%	Retained to Com Eq	5.0%
						77%	61%	60%	66%	71%	82%	56%	55%	71%	68%	51%	49%	All Div'ds to Net Prof	55%

CAPITAL STRUCTURE as of 9/30/17
Total Debt $750.8 mill. Due in 5 Yrs $174.0 mill.
LT Debt $519.7 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 48,215,000 shs.

MARKET CAP: $2.1 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2015	2016	9/30/17
Cash Assets	8.8	25.5	28.3
Other	118.8	116.6	152.2
Current Assets	127.6	142.1	180.5
Accts Payable	66.4	77.8	89.4
Debt Due	40.2	123.3	231.1
Other	41.9	49.1	59.9
Current Liab.	148.5	250.2	380.4

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	2.0%	3.0%
"Cash Flow"	5.0%	3.5%	5.5%
Earnings	4.0%	3.0%	10.0%
Dividends	1.5%	2.0%	7.5%
Book Value	5.0%	5.0%	3.5%

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	171.1	211.7	155.2	660
2018	130	175	215	165	685

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	.39	.70	.29	1.40
2018	.08	.42	.72	.33	1.55

Cal-endar	QUARTERLY DIVIDENDS PAID B ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.1625	.1625	.1625	.1625	.65
2015	.1675	.1675	.1675	.1675	.67
2016	.1725	.1725	.1725	.1725	.69
2017	.18	.18	.18	.18	.72
2018					

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 stock is trading around recently established all-time highs. The regulated water utility wrapped up 2017 by surging through the $45-per-share price threshold on more than one occasion, with shares rising 33% on the year. Since our previous review, the equity is up more than 10% in value. Indeed, the investment community has handsomely rewarded the company for delivering consistent top- and bottom-line growth, quarter to quarter. However, fourth-quarter share net may slip by two cents. For 2018, our ranking system suggests another strong performance may be in store, as CWT shares are poised to outpace the year-ahead broader market averages (Timeliness: 2).

We think the positives will continue to outweigh the negatives here. California Water Service is enjoying the fruits of recent rate increases by the California regulatory authority. In fact, the decision has added more than $30 million in incremental revenues so far. In addition, favorable changes to the corporate tax rate should help lift profits this year. To address the latter, the company's operating expenses are still on the rise, despite some progress in the second quarter. Water costs (only investment upgrades can be recouped) from greater customer usage, as well as periodic increases in wholesale supplier rates, are pushing expenses higher. Overall, we are adding $.10 million and $0.10 to our 2018 revenue and earnings estimates, to $685 million and $1.55 a share, respectively.

Aggressive infrastructure spending remains on tap through next decade. As previously noted, California has close to $500 million left on its investment budget, and has earmarked the funds for upgrades to its aging infrastructure and water systems. On top of that, these improvements are likely to be accompanied by bolt-on acquisitions.

This issue is best suited for short-term accounts. On the other hand, CWT shares have been on a multiyear price ascent and, as a result, total return potential 3 to 5 years out is unappealing. Thus, we think investors with a longer term holding period can find more-attractive options elsewhere, at this time.

Nicholas P. Patrikis *January 12, 2018*

(A) Basic EPS. Excl. nonrecurring gain (loss): '01, 2¢; '02, 4¢; '11, 4¢. Next earnings report due late February.
(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	80
Price Growth Persistence	35
Earnings Predictability	65

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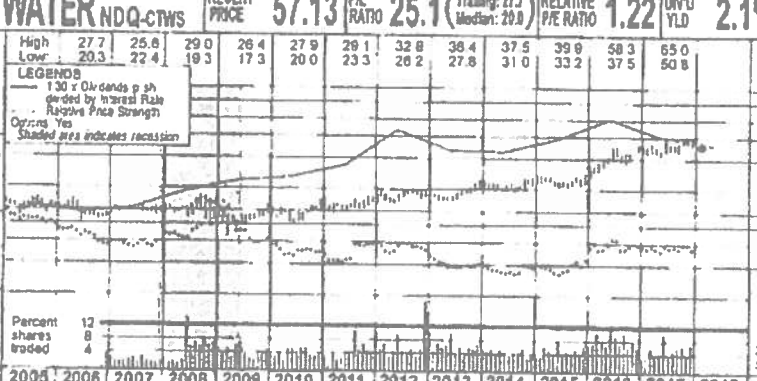
CONNECTICUT WATER NDQ-CTWS | RECENT PRICE 57.13 | P/E RATIO 25.1 (Trailing: 27.3; Median: 20.0) | RELATIVE P/E RATIO 1.22 | DIV'D YLD 2.1% | VALUE LINE

TIMELINESS 2 Raised 1/5/18
SAFETY 3 New 1/10/13
TECHNICAL 1 Raised 1/12/18
BETA .65 (1.00 = Market)

High	27.7	25.6	29.0	26.4	27.9	29.1	32.8	38.4	37.5	39.9	58.3	65.0
Low	20.3	22.4	19.3	17.3	20.0	23.3	26.2	27.8	31.0	33.2	37.5	50.8

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



Target Price Range 2020 | 2021 | 2022

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	66	(+15%)	6%
Low	45	(-20%)	-3%

Insider Decisions

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

Institutional Decisions

	1Q2017	2Q2017	3Q2017
to Buy	48	55	54
to Sell	56	44	45
Hld's(000)	6170	6289	6356

Percent shares traded 12 8 4

% TOT. RETURN 12/17

	THIS STOCK	VL ARITH. INDEX
1 yr	5.0	15.8
3 yr	79.2	33.1
5 yr	120.7	67.5

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	8.93	7.65	7.93	9.47	8.29	8.45	8.58	8.77	8.75	9.55	Revenues per sh	12.80
1.76	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	3.35	3.55	"Cash Flow" per sh	4.10
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	2.40	Earnings per sh A	2.90
.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■	1.46
1.66	1.98	1.49	1.58	1.96	1.98	2.24	2.44	3.28	3.06	2.81	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	24.40	24.50	Book Value per sh D	26.80
7.85	7.94	7.97	8.04	8.17	8.27	8.38	8.46	8.57	8.64	8.76	8.85	11.04	11.12	11.15	11.25	12.10	12.25	Common Shs Outst'g C	12.50
26.5	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	17.8	23.3	23.7		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	.89	1.22	1.25		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%	2.1%		Avg Ann'l Div'd Yield	2.7%
						59.0	61.3	59.4	66.4	69.4	83.8	91.5	94.0	96.0	98.7	100	117	Revenues ($mill)	160
						8.6	9.4	10.2	9.8	9.9	13.6	18.3	21.3	22.8	23.4	28.5	29.5	Net Profit ($mill)	36.0
						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	20.0%
						--	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%	48.5%	48.5%	Long-Term Debt Ratio	45.0%
						51.8%	52.7%	49.1%	50.2%	46.5%	50.8%	52.9%	54.1%	55.7%	54.4%	53.5%	53.5%	Common Equity Ratio	55.0%
						193.2	196.5	221.3	225.6	254.2	364.6	373.8	386.8	402.4	433.8	550	560	Total Capital ($mill)	610
						28.4	30.3	32.5	34.2	36.2	44.7.9	47.1.9	50.6.9	54.6.3	60.1.4	61.5	63.5	Net Plant ($mill)	67.5
						5.5%	5.9%	5.5%	5.4%	4.9%	4.8%	5.9%	6.4%	6.5%	6.3%	5.5%	6.0%	Return on Total Cap'l	6.5%
						8.7%	9.0%	9.3%	8.6%	8.3%	7.3%	9.2%	10.1%	10.1%	9.9%	9.0%	10.0%	Return on Shr. Equity	11.0%
						8.7%	9.1%	9.4%	8.7%	8.3%	7.3%	9.2%	10.2%	10.1%	9.9%	9.0%	10.0%	Return on Com Equity	11.0%
						1.6%	1.9%	2.3%	1.6%	1.4%	2.8%	3.8%	4.5%	4.9%	4.6%	4.0%	4.5%	Retained to Com Eq	5.5%
						82%	79%	76%	81%	83%	62%	59%	53%	52%	54%	54%	52%	All Div'ds to Net Prof	50%

CAPITAL STRUCTURE as of 9/30/17
Total Debt $263.2 mill. Due in 5 Yrs $19.8 mill.
LT Debt $255.2 mill. LT Interest 38.8 mill.
(47% 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 Div'd: NMF

Common Stock 12,068,299 shs.

MARKET CAP: $700 million (Small Cap)

CURRENT POSITION ($MILL.)	2015	2016	9/30/17
Cash Assets	.7	1.6	8.3
Accounts Receivable	11.0	13.0	15.8
Other	15.3	14.8	23.2
Current Assets	27.0	29.4	47.1
Accts Payable	11.9	13.1	8.8
Debt Due	2.8	4.9	8.0
Other	22.2	37.1	23.2
Current Liab.	36.9	55.1	39.8

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%	4.5%
Earnings	8.0%	12.0%	6.5%
Dividends	2.5%	3.0%	5.5%
Book Value	6.0%	9.0%	5.0%

Cal-endar	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	27.9	31.8	23.8	106
2018	25.5	30.5	35.0	26.0	117

Cal-endar	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	.73	.90	.21	2.20
2018	.37	.80	.93	.30	2.40

Cal-endar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.2475	.2475	.2575	.2575	1.01
2015	.2575	.2575	.2675	.2675	1.05
2016	.2675	.2825	.2825	.2825	1.12
2017	.2825	.2975	.2975	.2975	1.18
2018					

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 reported third-quarter financial results in line with our expectations. Revenues of $31.8 million rose 8%, year over year, while earnings of $0.90 per share logged a similar advance. There were several noteworthy highlights during the September period. These consist of the completion and inclusion of the Heritage Village Water and Avon Water acquisitions, which added about 9,500 customers and $2.4 million to the top line. Moreover, Connecticut finalized a $30 million water treatment facility upgrade.

The company has received approval to raise its rates. As noted in our previous review, Connecticut Water's subsidiary, The Maine Water Company, filed for a rate hike to recoup about $5 million in past water system upgrades and associated operating costs. The rate increase (effective as of December 1st) will impact roughly 16,500 customers and lift its annual revenue haul by more than $1.5 million.

Additional hikes are expected down the road. No doubt, infrastructure upgrades are apt to persist over the pull to next decade, as the push to revamp outdated water pipes and mains continues to be the primary focus for most water utilities. Improvements in water treatment plants are also in the cards. Over the course of this year, we believe CTWS will match its 2017 spending budget, at around $66 million. As always, to help fund (or recoup) these investments, we expect periodic rate filings to come across the public utilities commission's desk.

We have modestly raised our 2018 top- and bottom-line estimates. Due to the abovementioned rate approval and wider customer base, we are adding $2 million and $0.05 to this year's revenue and earnings forecasts, to $117 million and $2.40 a share, respectively. Meanwhile, our financial projections for 2017 are unchanged.

This issue ought to appeal primarily to those with a short-term strategy (Timeliness: 2). On the other hand, shares of CTWS are already trading well within our 3- to 5-year Target Price Range. Therefore, we recommend longer-term accounts wait on the sidelines for a more attractive entry point.

Nicholas P. Patrikis *January 12, 2018*

(A) Diluted earnings. Next earnings report due late February.
(B) Dividends historically paid in mid-March, June, September, and December. ■ Div'd reinvestment plan available.
(C) In millions.
(D) Includes intangibles. In 2016: 530.4 million/$2.70 a share.

Company's Financial Strength	B+
Stock's Price Stability	90
Price Growth Persistence	50
Earnings Predictability	85

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Office of Regulatory Staff
Value Line
Carolina Water Service, Inc.
Docket No. 2017-292-WS

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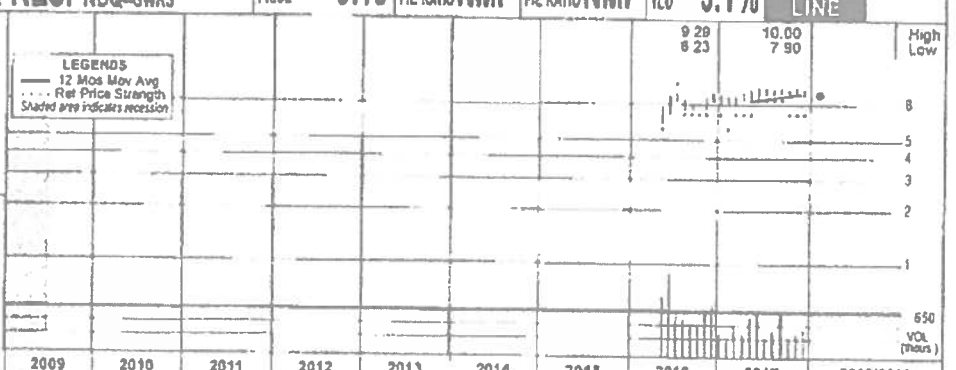
GLOBAL WATER RES. NDQ–GWRS | RECENT PRICE 9.15 | TRAILING P/E RATIO NMF | RELATIVE P/E RATIO NMF | DIV'D YLD 3.1% | VALUE LINE

RANKS

PERFORMANCE 2 Above Average
Technical 1 Highest
SAFETY — Short History
BETA NMF (1.00 = Market)

Financial Strength NMF
Price Stability NMF
Price Growth Persistence NMF
Earnings Predictability NMF

LEGENDS
— 12 Mos Mov Avg
.... Rel Price Strength
Shaded area indicates recession



© VALUE LINE PUBLISHING LLC	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018/2019
REVENUES PER SH	--	--	--	--	--	--	--	1.52	--	
"CASH FLOW" PER SH	--	--	--	--	--	--		.18	--	
EARNINGS PER SH		--	--		--	--	--	d.15	NA	NA/NA
DIV'DS DECL'D PER SH	--	--	--	--	--		--	.17	--	
CAP'L SPENDING PER SH	--	--	--	--	--	--	--	.44	--	
BOOK VALUE PER SH	--	--	--	--	--	--	--	.78	--	
COMMON SHS OUTST'G (MILL.)	--	--	--	--	--	--	--	19.58	--	
AVG ANN'L P/E RATIO	--	--		--	--		--	--	NA	NA/NA
RELATIVE P/E RATIO	--	--	--	--		--	--	--	--	
AVG ANN'L DIV'D YIELD	--	--	--	--	--	--	--	2.2%	--	
REVENUES ($MILL.)		--	--		--	--	32.0	29.8	--	Bold figures are consensus earnings estimates and, using the recent prices, P/E ratios.
OPERATING MARGIN	--	--	--	--	--		75.1%	38.8%	--	
DEPRECIATION ($MILL.)	--	--	--	--	--	--	8.2	6.3	--	
NET PROFIT ($MILL.)	--	--	--		--	--	21.4	d2.9	--	
INCOME TAX RATE	--	--	--	--	--	--	49.1%	--		
NET PROFIT MARGIN	--	--		--	--		66.9%	NMF	--	
WORKING CAP'L ($MILL.)	--	--	--	--		--	8.0	13.8	--	
LONG-TERM DEBT ($MILL.)	--	--	--	--	--		104.7	114.3	--	
SHR. EQUITY ($MILL.)	--	--	--	--	--	--	20.1	15.2	--	
RETURN ON TOTAL CAP'L	--	--		--	--		20.5%	2.4%	--	
RETURN ON SHR. EQUITY	--	--	--	--		--	108.5%	NMF	--	
RETAINED TO COM EQ	--	--	--	--	--	--	108.5%	NMF	--	
ALL DIV'DS TO NET PROF	--	--	--	--	--	--	--	NMF		

Note: No analyst estimates available.

ANNUAL RATES

of change (per share)	5 Yrs.	1 Yr.
Sales	--	--
"Cash Flow"	--	--
Earnings	--	--
Dividends	--	--
Book Value	--	--

Fiscal Year	QUARTERLY SALES ($mill.) 1Q	2Q	3Q	4Q	Full Year
12/31/15	7.6	9.1	8.2	7.1	32.0
12/31/16	6.8	7.6	8.2	7.2	29.8
12/31/17	6.8	8.1	8.5		
12/31/18					

Fiscal Year	EARNINGS PER SHARE 1Q	2Q	3Q	4Q	Full Year
12/31/14	--	--	--	--	--
12/31/15	--	--	--	--	--
12/31/16	d.02	d.19	.06	--	d.15
12/31/17	--	.02	.06		
12/31/18					

Cal-endar	QUARTERLY DIVIDENDS PAID 1Q	2Q	3Q	4Q	Full Year
2015	--	--	--	--	--
2016	--	.04	.056	.067	.17
2017	.067	.068	.069	.07	.27
2018					

INSTITUTIONAL DECISIONS

	1Q'17	2Q'17	3Q'17
to Buy	22	29	29
to Sell	17	15	12
Hld's(000)	3998	3686	3678

ASSETS ($mill.)	2015	2016	9/30/17
Cash Assets	11.5	20.5	7.8
Receivables	1.1	1.5	1.6
Inventory	.0	0	0
Other	6.1	2.7	3.3
Current Assets	18.7	24.7	12.7
Property, Plant & Equip. at cost	258.2	273.4	--
Accum. Depreciation	64.0	72.9	--
Net Property	194.2	200.5	211.8
Other	25.1	13.6	13.7
Total Assets	238.0	238.8	238.2
LIABILITIES ($mill.)			
Accts Payable	1.3	1.8	2
Debt Due	2.0	0	0
Other	7.4	9.1	10.3
Current Liab	10.7	10.9	10.5

LONG-TERM DEBT AND EQUITY as of 9/30/17

Total Debt $114.4 mil. Due in 5 Yrs. NA
LT Debt $114.4 mil.
Including Cap. Leases NA (90% of Cap'l)

Leases, Uncapitalized Annual rentals NA

Pension Liability None in '16 vs. None in '15

Pfd Stock None Pfd Div'd Paid None

Common Stock 19,531,000 shares (10% of Cap'l)

INDUSTRY: Water Utility

BUSINESS: Global Water Resources, Inc. is a water resource management company that owns, operates, and manages water, wastewater, and recycled water utilities in strategically located communities, principally in metropolitan Phoenix, Arizona. It seeks to deploy its integrated approach which it refers to as "Total Water Management," a term the company uses to mean managing the entire water cycle by owning and operating the water, wastewater, and recycled water utilities within the same geographic areas in order to both conserve water and maximize its total economic and social value. Global Water uses Total Water Management to promote sustainable communities in areas where it expects growth to outpace the existing potable water supply. The company currently owns eight water and wastewater utilities in strategically targeted communities in metropolitan Phoenix and serves more than 50,000 people in approximately 19,000 homes within its certificated service areas. Has 43 employees. C.E.O. & President: Ron L. Fleming. Address: 21410 N. 19th Avenue #220, Phoenix, AZ 85027. Tel.: (480) 360-7775. Internet: www.gwresources.com. J.T.

January 12, 2018

TOTAL SHAREHOLDER RETURN
Dividends plus appreciation as of 12/31/2017

3 Mos.	6 Mos.	1 Yr.	3 Yrs.	5 Yrs.
-0.13%	-4.28%	5.74%	--	--

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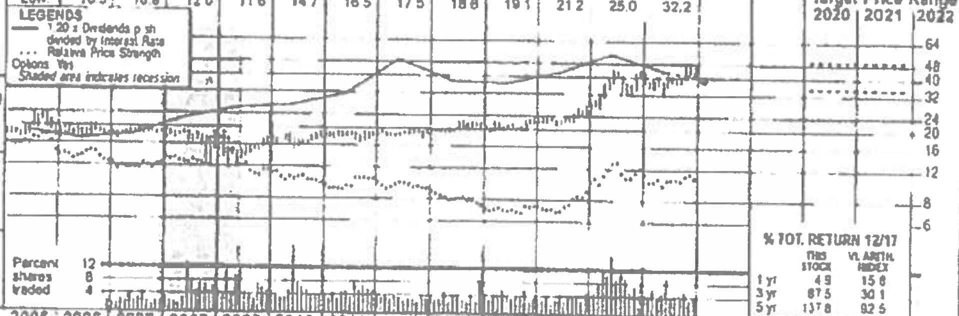
MIDDLESEX WATER NDQ-MSEX

RECENT PRICE 39.09 | P/E RATIO 25.9 (Trailing: 31.3 Median: 28.0) | RELATIVE P/E RATIO 1.26 | DIV'D YLD 2.3% | VALUE LINE

TIMELINESS 4 Lowered 7/7/17
SAFETY 2 New 10/21/11
TECHNICAL 1 Raised 1/12/18
BETA .80 (1.00 = Market)

High:	20.5	20.2	19.8	17.9	19.3	19.4	19.6	22.5	23.7	28.0	44.5	46.7
Low:	16.5	16.8	12.0	11.6	14.7	16.5	17.5	18.8	19.1	21.2	25.0	32.2

LEGENDS
— 1.20 x Dividends p sh divided by Interest Rate
··· Relative Price Strength
Options: Yes
Shaded area indicates recession



Target Price Range 2020 | 2021 | 2022

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	60	(+30%)	9%
Low	36	(-10%)	Nil

Insider Decisions

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

Institutional Decisions

	1Q2017	2Q2017	3Q2017
to Buy	45	60	46
to Sell	51	44	41
Hld's(000)	9400	9201	9500

Percent shares traded 12 8 4

% TOT. RETURN 12/17

	THIS STOCK	VL ARITH. INDEX
1 yr	4.9	15.8
3 yr	87.5	30.1
5 yr	137.8	92.5

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
5.87	5.98	6.12	6.25	6.44	6.18	6.50	6.79	6.75	6.60	6.50	6.98	7.19	7.26	7.77	8.16	8.10	8.55	Revenues per sh	9.40
1.18	1.20	1.15	1.26	1.33	1.33	1.49	1.53	1.40	1.55	1.46	1.58	1.72	1.84	1.97	2.17	2.25	2.55	"Cash Flow" per sh	3.15
.66	.73	.61	.73	.71	.82	.87	.89	.72	.96	.84	.90	1.03	1.13	1.22	1.38	1.40	1.65	Earnings per sh A	2.10
.62	.63	.65	.68	.67	.68	.69	.70	.71	.72	.73	.74	.75	.76	.78	.81	.86	.91	Div'd Decl'd per sh B ■	1.06
1.25	1.59	1.87	2.54	2.18	2.31	1.66	2.12	1.49	1.90	1.50	1.38	1.26	1.40	1.59	2.91	1.80	1.90	Cap'l Spending per sh	2.05
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	13.85	14.65	Book Value per sh	14.75
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
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	16.5	19.1	25.6	28.0		Avg Ann'l P/E Ratio	21.0
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	1.37		Relative P/E Ratio	1.30
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%	2.2%		Avg Ann'l Div'd Yield	2.5%
						88.1	91.0	91.2	102.7	102.1	110.4	114.8	117.1	126.0	132.9	134	143	Revenues ($mill)	160
						11.8	12.2	10.0	14.3	13.4	14.4	16.6	18.4	20.0	22.7	23.0	27.5	Net Profit ($mill)	35.5
						32.6%	33.2%	34.1%	32.1%	32.7%	33.9%	34.1%	35.0%	34.5%	34.0%	32.0%	21.0%	Income Tax Rate	21.0%
						--	--	--	8.5%	6.1%	3.4%	1.9%	1.7%	1.9%	2.7%	2.0%	2.0%	AFUDC % to Net Profit	2.5%
						49.0%	45.8%	46.6%	43.1%	42.3%	41.5%	40.4%	40.5%	39.4%	37.9%	37.5%	37.0%	Long-Term Debt Ratio	37.0%
						49.6%	51.8%	52.1%	55.8%	56.6%	57.4%	58.7%	58.8%	59.8%	61.5%	62.0%	62.5%	Common Equity Ratio	62.5%
						268.8	259.4	267.9	310.5	312.5	316.5	321.4	335.8	345.4	355.4	370	390	Total Capital ($mill)	440
						333.9	366.3	376.5	405.9	422.2	435.2	446.5	465.4	491.9	517.8	525	535	Net Plant ($mill)	575
						5.6%	5.8%	5.0%	5.7%	5.2%	5.4%	5.9%	6.3%	6.6%	7.1%	7.0%	7.5%	Return on Total Cap'l	8.5%
						8.6%	8.8%	7.0%	8.1%	7.5%	7.8%	8.7%	9.2%	9.6%	10.3%	10.0%	11.5%	Return on Shr. Equity	12.5%
						8.7%	8.9%	7.0%	8.2%	7.5%	7.8%	8.7%	9.3%	9.6%	10.3%	10.0%	11.5%	Return on Com Equity	12.5%
						1.8%	2.0%	1%	2.1%	1.0%	1.4%	2.4%	3.1%	3.5%	4.3%	4.0%	5.0%	Retained to Com Eq	6.0%
						79%	78%	98%	75%	87%	83%	73%	67%	63%	58%	61%	55%	All Div'ds to Net Prof	50%

CAPITAL STRUCTURE as of 9/30/17
Total Debt $166.8 mill. Due in 5 Yrs $32.1 mil.
LT Debt $135.8 mill. LT Interest $6.0 mill.
(Total interest coverage 10.9x)
(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 16,346,036 shs.
as of 10/31/17

MARKET CAP: $650 million (Small Cap)

CURRENT POSITION ($MILL.)	2015	2016	9/30/17
Cash Assets	3.5	3.9	2.7
Other	20.9	22.8	27.4
Current Assets	24.4	26.7	30.1
Accts Payable	6.5	12.3	12.1
Debt Due	8.7	18.2	31.0
Other	13.1	16.6	15.9
Current Liab.	28.3	47.1	59.0

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%	8.0%
Earnings	5.0%	8.0%	9.0%
Dividends	1.5%	1.5%	5.0%
Book Value	4.0%	3.0%	4.5%

Cal-endar	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	33.0	36.2	34.7	134
2018	33.0	37.0	38.0	35.0	143

Cal-endar	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	.33	.46	.34	1.40
2018	.33	.38	.60	.34	1.65

Cal-endar	QUARTERLY DIVIDENDS PAID B ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.19	.19	.19	.1925	.76
2015	.1925	.1925	.1925	.19875	.78
2016	.19875	.19875	.19875	.21125	.81
2017	.21125	.21125	.21125	.22375	.86
2018					

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's battle with mother nature has yet to subside. The story hasn't changed much over the past three months, as weather-related disruptions took a toll on its top line once again. Operating in the Northeast region of the U.S. leaves MSEX vulnerable to extremely volatile weather conditions, which can noticeably impact customer water consumption. Specifically, its Middlesex New Jersey operations saw revenues contract $1.8 million, year over year, due to softer consumption, while its Delaware utility system was essentially flat, thanks to contributions from added residential customers during the period. Overall, Middlesex generated $36.2 million in revenues for the September period, $1.6 million less than last year's haul. This has spurred us to trim $3.0 million off our 2017 top-line forecast, to $134 million.

The outlook for profit growth in 2018 is good. Operating margins ought to remain relatively steady, with few changes to the cost structure expected. Meantime, a reduced income tax rate (new tax act and various investment spending deductions) is the main driver behind our improved perspective. All told, we look for earnings to expand 18% this year, to $1.65 a share (+0.05), on revenues of $143 million (+$2.0 million).

Long-term, infrastructure upgrades ought to bear fruit. Approximately $12 million per year (for the next three years) is earmarked for the replacement of aging water mains, valves, and other infrastructure upgrades.

The company boosted its quarterly dividend payout by about 6%, to $0.224 per share. Shareholders have enjoyed 45 years of consecutive dividend increases, and we don't think this streak will be broken anytime soon. At present, MSEX shares offer a yield that fractionally outpaces the average of all dividend paying stocks in *The Value Line Investment Survey*.

This issue is still a subpar selection for relative year-ahead price performance (Timeliness: 4). What's more, total return potential over the pull to 2020-2022 is nothing to write home about. Thus, we think investors can find better options elsewhere, at this juncture.

Nicholas P. Patrikis *January 12, 2018*

(A) Diluted earnings. Next earnings report due early February.
(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	70
Price Growth Persistence	40
Earnings Predictability	80

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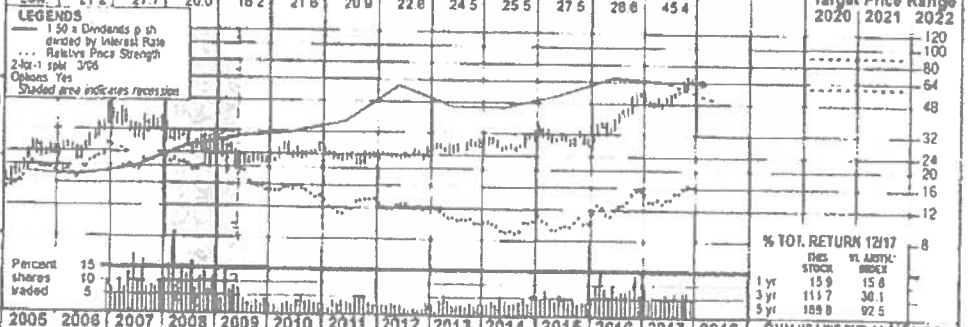
SJW GROUP NYSE-SJW

RECENT PRICE 63.47 | P/E RATIO 23.6 (Trailing: 23.6; Median: 23.0) | RELATIVE P/E RATIO 1.15 | DIV'D YLD 1.4% | VALUE LINE

TIMELINESS 3 Raised 6/30/17
SAFETY 3 New 4/22/11
TECHNICAL 2 Raised 1/5/18
BETA .70 (1.00 = Market)

High	45.3	43.0	35.1	30.4	28.2	28.8	26.9	30.1	33.7	35.7	58.9	68.3				
Low	21.2	27.7	20.0	18.2	21.6	20.9	22.8	24.5	25.5	27.5	28.8	45.4				

LEGENDS
— 1.50 x Dividends p sh divided by Interest Rate
.... Relative Price Strength
2-for-1 split 3/06
Options: Yes
Shaded area indicates recession



Target Price Range 2020 | 2021 | 2022
120 / 100 / 80 / 64 / 48 / 32 / 24 / 20 / 16 / 12 / 8

2021-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	90	(+40%)	11%
Low	60	(-5%)	1%

Insider Decisions

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

Institutional Decisions

	1Q2017	2Q2017	3Q2017
to Buy	83	87	74
to Sell	59	73	56
Hld's(000)	10726	10969	12340

Percent shares traded 15 / 10 / 5

% TOT. RETURN 12/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	15.9	15.6
3 yr.	111.7	38.1
5 yr.	189.8	92.5

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	18.61	18.10	17.95	Revenues per sh	21.10
1.49	1.55	1.75	1.89	2.21	2.38	2.30	2.44	2.21	2.38	2.80	2.97	2.90	4.42	3.86	4.78	4.60	4.90	"Cash Flow" per sh	5.85
.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	2.40	2.85	Earnings per sh A	3.45
.43	.46	.49	.51	.53	.57	.61	.65	.66	.68	.69	.71	.73	.75	.78	.81	1.04	.93	Div'd Decl'd per sh B■	1.18
2.83	2.06	3.41	2.31	2.85	3.87	5.62	3.79	5.17	5.65	3.75	5.67	4.68	5.02	5.24	6.95	8.00	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	18.63	20.61	21.85	22.05	Book Value per sh	24.60
18.27	18.27	18.27	18.27	18.27	18.28	18.36	18.18	18.30	18.35	18.59	18.67	20.17	20.29	20.38	20.45	21.00	22.00	Common Shs Outst'g C	23.00
18.5	17.3	15.4	19.6	15.7	23.5	33.4	26.2	28.7	29.1	21.2	25.4	24.3	11.2	16.6	15.7	30.7		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	1.01		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%	2.8%	2.5%	2.0%	1.9%		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	380	395	Revenues ($mill)	485
						19.3	20.2	15.2	15.8	20.9	22.3	23.5	51.8	37.9	52.8	54.0	63.0	Net Profit ($mill)	69.0
						39.4%	39.5%	40.4%	38.8%	41.1%	41.1%	38.7%	32.5%	38.1%	38.8%	38.0%	21.0%	Income Tax Rate	21.0%
						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%	48.0%	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%	52.0%	Common Equity Ratio	52.0%
						453.2	470.9	499.6	550.7	607.9	610.2	656.2	744.5	784.6	855.0	890	935	Total Capital ($mill)	1090
						645.5	684.2	718.5	785.5	756.2	831.8	898.7	963.0	1038.8	1146.4	1200	1250	Net Plant ($mill)	1325
						5.7%	5.8%	4.4%	4.3%	4.9%	5.0%	5.0%	8.3%	6.3%	7.4%	7.5%	8.0%	Return on Total Cap'l	8.5%
						8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	12.0%	13.0%	Return on Shr. Equity	14.0%
						8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	12.0%	13.0%	Return on Com Equity	14.0%
						3.5%	3.3%	1.2%	1.2%	3.1%	3.3%	2.8%	10.2%	5.7%	8.6%	7.0%	8.5%	Retained to Com Eq	9.0%
						57%	59%	80%	80%	61%	59%	62%	29%	42%	31%	40%	33%	All Div'ds to Net Prof	34%

CAPITAL STRUCTURE as of 9/30/17
Total Debt $431.0 mill. Due in 5 Yrs $14.3 mill.
LT Debt $431.0 mill. LT Interest $20.0 mill.
(49% of Cap'l)

Leases, Uncapitalized: Annual rentals $6.6 mil.

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

Pfd Stock None

Common Stock 20,520,858 shs.

MARKET CAP: $1.3 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2016	2016	9/30/17
Cash Assets	5.2	25.3	7.6
Accts Receivable	16.4	16.4	63.0
Other	51.8	57.9	16.5
Current Assets	73.4	99.6	87.1
Accts Payable	16.2	18.7	30.7
Debt Due	38.1	14.3	--
Other	25.3	30.6	59.7
Current Liab.	79.6	63.6	90.4

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	5.0%	5.5%	5.0%
"Cash Flow"	7.0%	12.0%	4.5%
Earnings	8.0%	20.5%	7.0%
Dividends	4.0%	3.0%	7.0%
Book Value	5.5%	6.5%	4.5%

Cal-endar	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	81.1	86.9	112.3	79.4	339.7
2017	69.0	102.1	124.6	84.3	380
2018	75.0	105	125	90.0	395

Cal-endar	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	.90	.94	.58	2.60
2018	.27	.90	1.00	.68	2.85

Cal-endar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.1875	.1875	.1875	.1875	.75
2015	.1950	.1950	.1950	.1950	.78
2016	.2025	.2025	.2025	.2025	.81
2017	.2175	.2175	.2175	.3875	1.04
2018					

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 has finalized the sale of its wholly-owned subsidiary, Texas Water Alliance Limited. Early last year, SJW entered into an agreement with the Guadalupe-Blanco River Authority for total consideration of $31 million. SJW netted cash proceeds of $23.5 million, excluding a $3 million holdback fee (due 2021). As a result of the completed sale and subsequent proceeds, the board of directors paid a special dividend of $0.17 a share to stockholders on record as of November 29, 2017. Of note, this is in addition to its regular quarterly distribution.

We are boosting our 2018 financial projections for several reasons. First, revenue growth is in the cards, driven by cumulative rate increases and higher customer water usage. Meantime, operating expenses have yet to abate (marginally higher in the third quarter), but we think production costs can subside somewhat next year, while administrative expenses can be held in check. Lastly, a lower effective tax rate stemming from the recent corporate tax overhaul is the primary factor underpinning our bottom-line ramp. All told, we now look for revenues of $395 million (+$25 million from last report's estimate) and earnings of $2.85 a share (+$0.25) this year.

Investment spending is still the main theme rolling into next decade. Its spending budget, with approximately $250 million to $300 million in available funds, will be periodically tapped to support various projects, infrastructure upgrades, and general water system investments. Presently, management's focus is on the Montevina Water Treatment Plant project (retrofitting was expected to be completed by the end of 2017).

This neutrally ranked equity has etched another high-water mark. Shares of the California-based utility pushed past $65 per share for the first time in its history before settling slightly below that level. Still, the stock logged an advance of about 10% over the past three months. While we are bullish on the company's business prospects over the pull to 2020-2022, SJW's rapid climb in share price gives us pause. In sum, we recommend investors wait for a better entry point before initiating a position here.

Nicholas P. Patrikis *January 12, 2018*

(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 February. 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.
(D) Paid special dividend of $0.17 per share on 11/17.

Company's Financial Strength	B+
Stock's Price Stability	70
Price Growth Persistence	35
Earnings Predictability	45

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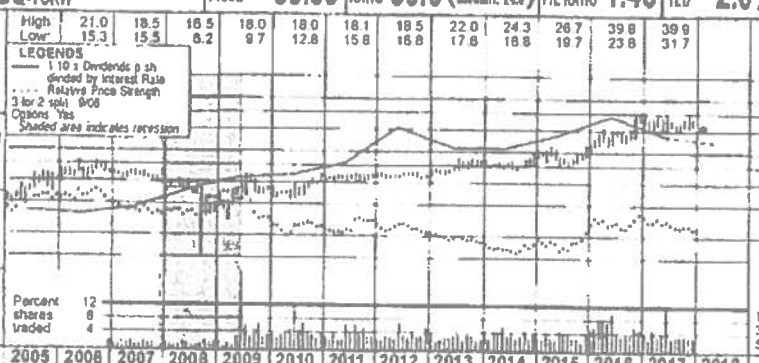
YORK WATER NDQ-YORW

RECENT PRICE 33.35 | P/E RATIO 30.0 (Trailing: 34.4 / Median: 26.0) | RELATIVE P/E RATIO 1.46 | DIV'D YLD 2.0% | VALUE LINE

TIMELINESS 3 Raised 11/17/17
SAFETY 3 Lowered 7/17/15
TECHNICAL 2 Raised 1/5/18
BETA .60 (1.00 = Market)

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 9/08
Options: Yes
Shaded area indicates recession



Target Price Range 2020 | 2021 | 2022

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	45	(+35%)	10%
Low	30	(-10%)	Nil

Insider Decisions

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

Institutional Decisions

	1Q2017	2Q2017	3Q2017
to Buy	38	42	40
to Sell	33	33	30
Hld's(000)	5127	5206	5125

Percent shares traded 12 8 4

% TOT. RETURN 12/17

	THIS STOCK	VL ARITH. INDEX
1 yr	-9.6	15.8
3 yr	56.7	30.1
5 yr	115.9	92.5

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	3.75	3.95	Revenues per sh	5.40
.59	.57	.65	.65	.79	.77	.86	.88	.95	1.07	1.09	1.12	1.19	1.36	1.45	1.42	1.45	1.75	"Cash Flow" per sh	2.25
.43	.40	.47	.49	.56	.58	.57	.57	.64	.71	.71	.72	.75	.89	.97	.92	1.05	1.15	Earnings per sh A	1.80
.34	.35	.37	.39	.42	.45	.48	.49	.51	.52	.53	.54	.55	.57	.60	.63	.65	.70	Div'd Decl'd per sh ■	.98
.75	.68	1.07	2.50	1.69	1.83	1.69	2.17	1.18	.83	.74	.94	.76	1.10	1.11	1.03	1.93	1.73	Cap'l Spending per sh	.93
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	9.30	9.55	Book Value per sh	11.20
9.48	9.55	9.63	10.33	10.40	11.20	11.27	11.37	12.56	12.66	12.79	12.92	12.98	12.83	12.81	12.85	12.90	12.73	Common Shs Outst'g C	12.50
17.6	26.0	24.5	25.7	26.3	31.2	30.3	24.8	21.9	20.7	23.9	24.4	28.3	23.1	23.5	32.8	33.3		Avg Ann'l P/E Ratio	22.5
.91	1.47	1.40	1.38	1.40	1.69	1.61	1.48	1.46	1.32	1.50	1.55	1.48	1.22	1.18	1.72	1.62		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%	1.9%		Avg Ann'l Div'd Yield	2.0%
						31.4	32.8	37.0	39.0	40.6	41.4	42.4	45.9	47.1	47.6	48.5	50.5	Revenues ($mill)	67.5
						8.4	6.4	7.5	8.9	9.1	9.3	9.7	11.5	12.5	11.8	13.5	14.5	Net Profit ($mill)	20.0
						36.5%	36.1%	37.9%	38.5%	35.3%	37.6%	37.8%	29.8%	27.5%	31.3%	24.9%	21.0%	Income Tax Rate	21.0%
						3.6%	10.1%	--	1.2%	1.1%	1.1%	.8%	1.8%	1.6%	1.9%	2.0%	1.5%	AFUDC % to Net Profit	1.5%
						46.5%	54.5%	45.7%	48.3%	47.1%	46.0%	45.1%	44.8%	44.4%	42.6%	43.0%	43.0%	Long-Term Debt Ratio	43.5%
						53.5%	45.5%	54.3%	51.7%	52.9%	54.0%	54.9%	55.2%	55.6%	57.4%	57.0%	57.0%	Common Equity Ratio	56.5%
						125.7	153.4	160.1	176.4	180.2	184.8	188.4	189.4	195.3	198.7	-210	220	Total Capital ($mill)	250
						191.6	211.4	222.0	228.4	233.0	240.3	244.2	253.2	261.4	270.9	273	280	Net Plant ($mill)	295
						6.7%	5.7%	6.2%	6.5%	6.4%	6.4%	6.5%	7.4%	7.6%	7.2%	7.5%	8.0%	Return on Total Cap'l	9.0%
						9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	11.5%	12.0%	Return on Shr. Equity	14.5%
						9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	11.5%	12.0%	Return on Com Equity	14.5%
						1.7%	1.4%	1.9%	2.7%	2.5%	2.4%	2.4%	3.9%	4.4%	3.4%	4.0%	4.5%	Retained to Com Eq	5.5%
						82%	85%	78%	72%	73%	74%	74%	64%	62%	67%	63%	61%	All Div'ds to Net Prof	60%

CAPITAL STRUCTURE as of 9/30/17
Total Debt $86.9 mill. Due in 5 Yrs $30.5 mill.
LT Debt $86.9 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 12,859,432 shs.

MARKET CAP: $425 million (Small Cap)

CURRENT POSITION ($MILL.)	2015	2016	9/30/17
Cash Assets	2.9	4.2	--
Accounts Receivable	3.5	4.3	4.4
Inventory (Avg. Cost)	.8	.7	.9
Other	4.6	3.4	3.3
Current Assets	11.8	12.6	8.6
Accts Payable	1.6	3.7	4.0
Debt Due	--	--	
Other	4.4	4.5	6.1
Current Liab.	6.2	8.2	10.1

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	3.5%	6.5%
"Cash Flow"	6.5%	6.5%	8.0%
Earnings	5.5%	6.0%	9.5%
Dividends	3.5%	3.0%	8.0%
Book Value	5.0%	3.5%	4.5%

Cal-endar	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	12.3	12.7	12.2	48.5
2018	12.0	12.5	13.3	12.7	50.5

Cal-endar	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	.23	.31	.31	1.05
2018	.24	.25	.34	.32	1.15

Cal-endar	QUARTERLY DIVIDENDS PAID ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.1431	.1431	.1431	.1431	.572
2015	.1495	.1495	.1495	.1555	.604
2016	.1555	.1555	.1555	.1602	.623
2017	.1602	.1602	.1602	.1666	.647
2018					

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 delivered a better-than-expected bottom-line performance in the third quarter. The regulated water utility earned $0.31 a share for the September period (+15% year over year), beating our $0.29 call by two cents. The advance can be largely attributed to a lower effective tax rate (asset improvements qualify for deductions), higher surcharges to customers, and an increased allowance for funds used during construction (interest deduction). Meanwhile, operation and maintenance expenses as a percentage of revenues rose 200 basis points, on an annual basis, which makes the share net showing even more encouraging. On the other hand, revenue growth was essentially nonexistent, dragged down by generally lower consumption.

We are adjusting our 2018 top- and bottom-line estimates. Despite an expanding customer base (acquisition driven), York's top line is under some pressure. We now look for revenues of $50.5 million in 2018, down from our prior forecast of $52.0 million. Conversely, we are adding a dime to our earnings per share estimate, to $1.15.

Capital expenditures ought to remain par for the course going forward. Management estimates it spent approximately $25 million in 2017 on aging infrastructure, raw water pumping stations, and pipe replacements, more than double the year earlier total. With plenty of its footprint still needing to be brought up to speed, we anticipate at least several years of aggressive investment spending.

York Water raised its quarterly dividend by 4%, to $0.17 a share. This marks 21 consecutive years that the company has increased its annual dividend payout. The current yield is fractionally above that of the *Value Line* median, but should trend higher into next decade thanks to additional dividend hikes.

York Water shares have moved up one notch for Timeliness, to 3, and are now pegged to track the year-ahead broader market averages. Prospects out to the 2020-2022 time frame are bright, though most of the benefits we envision appear to already be baked into the stock price. Capital appreciation potential does not stand out at the recent quotation.

Nicholas P. Patrikis *January 12, 2018*

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

Company's Financial Strength	B+
Stock's Price Stability	60
Price Growth Persistence	55
Earnings Predictability	90

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EXHIBIT DHC-4

Office of Regulatory Staff
Characteristics of DCF Proxy Group
Carolina Water Service, Inc.
Docket No. 2017-292-WS

Company	Market Capitalization (millions)‡	Retention Ratio‡◊	Bond Rating†	Trailing P/E‡
American States	$2,100	0.43	A+	30.8
American Water	$15,900	0.44	A+	30.2
Aqua America	$6,900	0.50	A+*	29.1
Artesian Resources	$334	0.35	n/a	26.5
California Water	$2,100	0.47	A+*	31.5
Connecticut Water	$700	0.49	A	27.7
Global Water Resources	$183		n/a	
Middlesex Water	$650	0.43	A	31.3
SJW	$1,300	0.65	A*	23.6
York Water	$426	0.38	A-	34.4

†S&P rating from website: https://www.standardandpoors.com

*rating is of the principal subsidiary

‡from Exhibit DHC-3

◊Retention ratio = 1 - payout ratio ("All Div'ds to Net Prof" on Exhibit DHC-3)

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Office of Regulatory Staff

Earnings per Share - Historical Data

Carolina Water Service, Inc.

Docket No. 2017-292-WS

	$ per share*										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States	$0.81	$0.78	$0.81	$1.11	$1.12	$1.41	$1.61	$1.57	$1.60	$1.62	$1.85
American Water	N/A	$1.10	$1.25	$1.53	$1.72	$2.11	$2.06	$2.39	$2.64	$2.62	$3.00
Aqua America	$0.57	$0.58	$0.62	$0.72	$0.83	$0.87	$1.16	$1.20	$1.14	$1.32	$1.36
Artesian Resources	$0.90	$0.86	$0.97	$1.00	$0.83	$1.13	$0.94	$1.07	$1.26	$1.41	N/A
California Water	$0.75	$0.95	$0.98	$0.91	$0.86	$1.02	$1.02	$1.19	$0.94	$1.01	$1.40
Connecticut Water	$1.05	$1.11	$1.19	$1.13	$1.13	$1.53	$1.66	$1.92	$2.04	$2.08	$2.20
Global Water Resources										-$0.15	N/A
Middlesex Water	$0.87	$0.89	$0.72	$0.96	$0.84	$0.90	$1.03	$1.13	$1.22	$1.38	$1.40
SJW	$1.04	$1.08	$0.81	$0.84	$1.11	$1.18	$1.12	$2.54	$1.85	$2.57	$2.60
York Water	$0.57	$0.57	$0.64	$0.71	$0.71	$0.72	$0.75	$0.89	$0.97	$0.92	$1.05

	Ratios of Change over Previous Year										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States		0.96	1.04	1.37	1.01	1.26	1.14	0.98	1.02	1.01	1.14
American Water		N/A	1.14	1.22	1.12	1.23	0.98	1.16	1.10	0.99	1.15
Aqua America		1.02	1.07	1.16	1.15	1.05	1.33	1.03	0.95	1.16	1.03
Artesian Resources	0.93	0.96	1.13	1.03	0.83	1.36	0.83	1.14	1.18	1.12	N/A
California Water		1.27	1.03	0.93	0.95	1.19	1.00	1.17	0.79	1.07	1.39
Connecticut Water		1.06	1.07	0.95	1.00	1.35	1.08	1.16	1.06	1.02	1.06
Global Water Resources											
Middlesex Water		1.02	0.81	1.33	0.88	1.07	1.14	1.10	1.08	1.13	1.01
SJW		1.04	0.75	1.04	1.32	1.06	0.95	2.27	0.73	1.39	1.01
York Water		1.00	1.12	1.11	1.00	1.01	1.04	1.19	1.09	0.95	1.14

*Sources are on page 3 of 3 except 2007 numbers of Artesian Resources are from Exhibit DHC-3 Page 4 of 11.

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Office of Regulatory Staff
Earnings per Share - Historical Data
Carolina Water Service, Inc.
Docket No. 2017-292-WS

COMPANIES	10-yr Averages* Compound	10-yr Averages* Simple	5-yr. Averages Compound	5-yr. Averages Simple	3-Yr. Averages Compound	3-Yr. Averages Simple
American States	8.61%	9.30%	5.58%	5.81%	5.62%	5.79%
American Water	10.86%	12.11%	7.29%	7.57%	7.87%	8.07%
Aqua America	9.09%	10.41%	9.35%	10.12%	4.26%	4.61%
Artesian Resources†	3.81%	5.00%	11.18%	12.56%	14.47%	14.50%
California Water	6.44%	7.75%	6.54%	8.34%	5.57%	8.35%
Connecticut Water	7.68%	8.14%	7.53%	7.63%	4.64%	4.66%
Global Water Resources						
Middlesex Water	4.87%	5.79%	9.24%	9.34%	7.40%	7.51%
SJW	9.60%	15.56%	17.12%	26.92%	0.78%	4.31%
York Water	6.30%	6.54%	7.84%	8.16%	5.67%	5.99%
Means	**7.47%**	**8.96%**	**9.07%**	**10.72%**	**6.25%**	**7.09%**
Medians	**7.68%**	**8.14%**	**7.84%**	**8.34%**	**5.62%**	**5.99%**
Average of Mean & Median		**8.06%**		**8.99%**		**6.24%**

*American Water is on a nine-year basis, as 2007 was a pro forma negative number

†Artesian Resources' numbers are set back one year, as 2017 information was not available; 2007=$47.3 million.

Average of Period Averages
7.76%

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Office of Regulatory Staff
Earnings per Share - Historical Data
Carolina Water Service, Inc.
Docket No. 2017-292-WS

COMPANIES	Estimate	Growth Rate	Sources
American States	$2.35	7.07%	Exhibit DHC-3, p. 1 of 11
American Water	$4.15	9.71%	Exhibit DHC-3, p. 2 of 11
Aqua America	$1.85	9.19%	Exhibit DHC-3, p. 3 of 11
Artesian Resources	$1.24	5.16%	Exhibit DHC-3, p. 5 of 11
California Water	$1.85	8.29%	Exhibit DHC-3, p. 6 of 11
Connecticut Water	$2.90	8.21%	Exhibit DHC-3, p. 7 of 11
Global Water Resources			Exhibit DHC-3, p. 8 of 11
Middlesex Water	$2.10	12.28%	Exhibit DHC-3, p. 9 of 11
SJW	$3.45	8.42%	Exhibit DHC-3, p. 10 of 11
York Water	$1.60	12.79%	Exhibit DHC-3, p. 11 of 11
Means		**9.01%**	
Medians		**8.42%**	
Average of Mean & Median		**8.72%**	

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Office of Regulatory Staff
Book Value per Share - Historical Data
Carolina Water Service, Inc.
Docket No. 2017-292-WS

	$ per share*										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States	$8.77	$8.97	$9.70	$10.13	$10.84	$11.80	$12.72	$13.24	$12.77	$13.52	$14.20
American Water	N/A	$25.64	$22.91	$23.59	$24.11	$25.11	$26.52	$27.39	$28.25	$29.24	$30.90
Aqua America	$5.85	$6.26	$6.50	$6.81	$7.21	$7.90	$8.63	$9.27	$9.78	$10.43	$11.10
Artesian Resources	$11.66	$11.86	$12.15	$12.44	$13.12	$13.57	$13.80	$14.09	$14.61	$15.23	N/A
California Water	$9.25	$9.72	$10.13	$10.45	$10.76	$11.28	$12.54	$13.11	$13.41	$13.75	$14.30
Connecticut Water	$11.95	$12.23	$12.67	$13.05	$13.50	$20.95	$17.92	$18.83	$20.01	$20.98	$24.40
Global Water Resources										$0.78	N/A
Middlesex Water	$10.05	$10.03	$10.33	$11.13	$11.27	$11.48	$11.82	$12.24	$12.74	$13.40	$13.95
SJW	$12.90	$13.99	$13.66	$13.75	$14.20	$14.71	$15.92	$17.75	$18.83	$20.61	$21.65
York Water	$5.97	$6.14	$6.92	$7.19	$7.45	$7.73	$7.98	$8.15	$8.51	$8.88	$9.30

Sources: see last page of this exhibit

	Ratios of Change over Previous Year										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States		1.02	1.08	1.04	1.07	1.09	1.08	1.04	0.96	1.06	1.05
American Water		N/A	0.89	1.03	1.02	1.04	1.06	1.03	1.03	1.04	1.06
Aqua America		1.07	1.04	1.05	1.06	1.10	1.09	1.07	1.06	1.07	1.06
Artesian Resources	1.15	1.02	1.02	1.02	1.05	1.03	1.02	1.02	1.04	1.04	N/A
California Water		1.05	1.04	1.03	1.03	1.05	1.11	1.05	1.02	1.03	1.04
Connecticut Water		1.02	1.04	1.03	1.03	1.55	0.86	1.05	1.06	1.05	1.16
Global Water Resources											
Middlesex Water		1.00	1.03	1.08	1.01	1.02	1.03	1.04	1.04	1.05	1.04
SJW		1.08	0.98	1.01	1.03	1.04	1.08	1.11	1.06	1.09	1.05
York Water		1.03	1.13	1.04	1.04	1.04	1.03	1.02	1.04	1.04	1.05

*Sources are on page 3 of 3 except 2007 numbers of Artesian Resources are from Exhibit DHC-3 Page 4 of 11.

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Office of Regulatory Staff
Book Value per Share - Historical Data
Carolina Water Service, Inc.
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COMPANIES	10-yr Averages* Compound	10-yr Averages* Simple	5-yr. Averages Compound	5-yr. Averages Simple	3-Yr. Averages Compound	3-Yr. Averages Simple
American States	4.94%	5.00%	3.77%	3.85%	2.36%	2.45%
American Water	2.10%	2.21%	4.24%	4.24%	4.10%	4.11%
Aqua America	6.61%	6.63%	7.04%	7.05%	6.19%	6.19%
Artesian Resources†	4.14%	4.21%	3.03%	3.03%	3.34%	3.35%
California Water	4.45%	4.48%	4.86%	4.91%	2.94%	2.94%
Connecticut Water	7.40%	8.56%	3.10%	3.61%	9.02%	9.14%
Global Water Resources						
Middlesex Water	3.33%	3.35%	3.97%	3.98%	4.46%	4.46%
SJW	5.31%	5.39%	8.04%	8.06%	6.84%	6.86%
York Water	4.53%	4.57%	3.77%	3.77%	4.50%	4.50%
Means	**4.76%**	**4.93%**	**4.65%**	**4.72%**	**4.86%**	**4.89%**
Medians	**4.53%**	**4.57%**	**3.97%**	**3.98%**	**4.46%**	**4.46%**
Average of Mean & Median		**4.70%**		**4.33%**		**4.67%**

*American Water is on a nine-year basis as 2007 was a pro forma negative number

†Artesian Resources' numbers are set back one year, as 2017 information was not available; 2007=$47.3 million.

Average of Period Averages
4.56%

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Office of Regulatory Staff
Book Value per Share - Historical Data
Carolina Water Service, Inc.
Docket No. 2017-292-WS

COMPANIES	Estimate	Growth Rate	Sources
American States	$16.80	4.92%	Exhibit DHC-3, p. 1 of 11
American Water	$39.45	7.23%	Exhibit DHC-3, p. 2 of 11
Aqua America	$14.85	8.67%	Exhibit DHC-3, p. 3 of 11
Artesian Resources			Exhibit DHC-3, p. 5 of 11
California Water	$16.50	4.17%	Exhibit DHC-3, p. 6 of 11
Connecticut Water	$26.80	2.72%	Exhibit DHC-3, p. 7 of 11
Global Water Resources			Exhibit DHC-3, p. 8 of 11
Middlesex Water	$16.75	5.37%	Exhibit DHC-3, p. 9 of 11
SJW	$24.60	3.72%	Exhibit DHC-3, p. 10 of 11
York Water	$11.20	5.45%	Exhibit DHC-3, p. 11 of 11
Means		**5.28%**	
Medians		**5.14%**	
Average of Mean & Median		**5.21%**	

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Office of Regulatory Staff

Dividends per Share - Historical Data

Carolina Water Service, Inc.

Docket No. 2017-292-WS

	$ per share*										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States	$0.48	$0.50	$0.51	$0.52	$0.55	$0.64	$0.76	$0.83	$0.87	$0.91	$0.99
American Water	N/A	$0.40	$0.82	$0.86	$0.90	$1.21	$0.84	$1.21	$1.33	$1.47	$1.62
Aqua America	$0.38	$0.41	$0.44	$0.47	$0.50	$0.54	$0.58	$0.63	$0.69	$0.74	$0.79
Artesian Resources	$0.66	$0.71	$0.72	$0.75	$0.76	$0.79	$0.82	$0.85	$0.87	$0.90	N/A
California Water	$0.58	$0.59	$0.59	$0.60	$0.62	$0.63	$0.64	$0.65	$0.67	$0.69	$0.72
Connecticut Water	$0.87	$0.88	$0.90	$0.92	$0.94	$0.96	$0.98	$1.01	$1.05	$1.12	$1.18
Global Water Resources										$0.17	$0.27
Middlesex Water	$0.69	$0.70	$0.71	$0.72	$0.73	$0.74	$0.75	$0.76	$0.78	$0.81	$0.86
SJW	$0.61	$0.65	$0.66	$0.68	$0.69	$0.71	$0.73	$0.75	$0.78	$0.81	$1.04
York Water	$0.48	$0.49	$0.51	$0.52	$0.53	$0.54	$0.55	$0.57	$0.60	$0.63	$0.65

	Ratios of Change over Previous Year										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States		1.04	1.02	1.02	1.06	1.16	1.19	1.09	1.05	1.05	1.09
American Water			2.05	1.05	1.05	1.34	0.69	1.44	1.10	1.11	1.10
Aqua America		1.08	1.07	1.07	1.06	1.08	1.07	1.09	1.10	1.07	1.07
Artesian Resources	1.08	1.08	1.01	1.04	1.01	1.04	1.04	1.04	1.02	1.03	N/A
California Water		1.02	1.00	1.02	1.03	1.02	1.02	1.02	1.03	1.03	1.04
Connecticut Water		1.01	1.02	1.02	1.02	1.02	1.02	1.03	1.04	1.07	1.05
Global Water Resources											
Middlesex Water		1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.04	1.06
SJW		1.07	1.02	1.03	1.01	1.03	1.03	1.03	1.04	1.04	1.28
York Water		1.02	1.04	1.02	1.02	1.02	1.02	1.04	1.05	1.05	1.03

*Sources are on page 3 of 3 except 2007 numbers of Artesian Resources are from Exhibit DHC-3 Page 4 of 11.

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Office of Regulatory Staff

Dividends per Share - Historical Data

Carolina Water Service, Inc.

Docket No. 2017-292-WS

COMPANIES	10-yr Averages* Compound	10-yr Averages* Simple	5-yr. Averages Compound	5-yr. Averages Simple	3-Yr. Averages Compound	3-Yr. Averages Simple
American States	7.51%	7.64%	9.12%	9.23%	6.05%	6.07%
American Water	16.81%	21.45%	6.01%	8.82%	10.22%	10.22%
Aqua America	7.59%	7.60%	7.91%	7.91%	7.84%	7.84%
Artesian Resources†	3.97%	3.99%	3.44%	3.44%	3.15%	3.15%
California Water	2.19%	2.19%	2.71%	2.71%	3.47%	3.47%
Connecticut Water	3.09%	3.11%	4.21%	4.23%	5.32%	5.33%
Global Water Resources						
Middlesex Water	2.23%	2.24%	3.05%	3.07%	4.21%	4.22%
SJW	5.48%	5.73%	7.93%	8.36%	11.51%	12.08%
York Water	3.08%	3.09%	3.78%	3.79%	4.48%	4.48%
Means	**5.77%**	**6.34%**	**5.35%**	**5.73%**	**6.25%**	**6.32%**
Medians	**3.97%**	**3.99%**	**4.21%**	**4.23%**	**5.32%**	**5.33%**
Average of Mean & Median		**5.02%**		**4.88%**		**5.80%**

*American Water is on a nine-year basis as 2007 was a pro forma negative number.

†Artesian Resources' numbers are set back one year, as 2017 information was not available; 2007=$47.3 million.

Average of Period Averages
5.23%

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Dividends per Share - Historical Data

Carolina Water Service, Inc.

Docket No. 2017-292-WS

COMPANIES	Estimate	Growth Rate	Sources
American States	$1.35	9.27%	Exhibit DHC-3, p. 1 of 11
American Water	$2.35	11.21%	Exhibit DHC-3, p. 2 of 11
Aqua America	$1.15	11.32%	Exhibit DHC-3, p. 3 of 11
Artesian Resources			Exhibit DHC-3, p. 5 of 11
California Water	$1.02	10.46%	Exhibit DHC-3, p. 6 of 11
Connecticut Water	$1.46	6.27%	Exhibit DHC-3, p. 7 of 11
Global Water Resources			Exhibit DHC-3, p. 8 of 11
Middlesex Water	$1.06	6.16%	Exhibit DHC-3, p. 9 of 11
SJW	$1.18	3.67%	Exhibit DHC-3, p. 10 of 11
York Water	$0.96	11.79%	Exhibit DHC-3, p. 11 of 11
Means		**8.77%**	
Medians		**9.86%**	
Average of Mean & Median		**9.32%**	

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Sales/Revenue - Historical Data

Carolina Water Service, Inc.

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	$ per share*										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States	$301	$319	$361	$399	$419	$467	$472	$466	$459	$436	$445
American Water	N/A	$2,337	$2,441	$2,711	$2,666	$2,877	$2,902	$3,011	$3,159	$3,302	$3,380
Aqua America	$603	$627	$671	$726	$712	$758	$769	$780	$814	$820	$800
Artesian Resources	$53	$56	$61	$65	$65	$71	$69	$73	$77	$79	N/A
California Water	$367	$410	$449	$460	$502	$560	$584	$598	$588	$609	$660
Connecticut Water	$59	$61	$59	$66	$69	$84	$92	$94	$96	$99	$106
Global Water Resources									$32	$30	N/A
Middlesex Water	$86	$91	$91	$103	$102	$110	$115	$117	$126	$133	$134
SJW	$207	$220	$216	$216	$239	$262	$277	$320	$305	$340	$380
York Water	$31	$33	$37	$39	$41	$41	$42	$46	$47	$48	$49

	Ratios of Change over Previous Year										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States		1.06	1.13	1.10	1.05	1.11	1.01	0.99	0.98	0.95	1.02
American Water			1.04	1.11	0.98	1.08	1.01	1.04	1.05	1.05	1.02
Aqua America		1.04	1.07	1.08	0.98	1.06	1.01	1.01	1.04	1.01	0.98
Artesian Resources	1.11	1.07	1.08	1.07	1.00	1.08	0.98	1.05	1.06	1.03	N/A
California Water		1.12	1.10	1.02	1.09	1.12	1.04	1.02	0.98	1.04	1.08
Connecticut Water		1.04	0.97	1.12	1.05	1.21	1.09	1.03	1.02	1.03	1.07
Global Water Resources											
Middlesex Water		1.06	1.00	1.13	0.99	1.08	1.04	1.02	1.08	1.05	1.01
SJW		1.07	0.98	1.00	1.11	1.09	1.06	1.15	0.95	1.11	1.12
York Water		1.04	1.13	1.05	1.04	1.02	1.02	1.08	1.03	1.01	1.02

*Sources are on page 3 of 3 except 2007 numbers of Artesian Resources are from Exhibit DHC-3 Page 4 of 11.

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Sales/Revenue - Historical Data

Carolina Water Service, Inc.

Docket No. 2017-292-WS

COMPANIES	10-yr Averages*		5-yr. Averages		3-Yr. Averages	
	Compound	Simple	Compound	Simple	Compound	Simple
American States	3.97%	4.13%	-0.96%	-0.93%	-1.51%	-1.47%
American Water	4.19%	4.24%	3.28%	3.29%	3.93%	3.93%
Aqua America	2.88%	2.94%	1.09%	1.11%	0.85%	0.89%
Artesian Resources†	5.28%	5.35%	3.97%	4.04%	4.61%	4.62%
California Water	6.04%	6.13%	3.34%	3.39%	3.37%	3.45%
Connecticut Water	6.03%	6.21%	4.81%	4.85%	4.09%	4.11%
Global Water Resources						
Middlesex Water	4.52%	4.60%	3.95%	3.98%	4.60%	4.63%
SJW	6.28%	6.47%	7.76%	8.00%	5.93%	6.21%
York Water	4.44%	4.50%	3.22%	3.25%	1.85%	1.86%
Means	**4.85%**	**4.95%**	**3.38%**	**3.44%**	**3.08%**	**3.14%**
Medians	**4.52%**	**4.60%**	**3.34%**	**3.39%**	**3.93%**	**3.93%**
Average of Mean & Median		**4.73%**		**3.39%**		**3.52%**

*American Water is on a nine-year basis as 2007 was a pro forma negative number

†Artesian Resources' numbers are set back one year, as 2017 information was not available; 2007=$47.3 million.

Average of Period Averages
3.88%

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Sales/Revenue - Historical Data

Carolina Water Service, Inc.

Docket No. 2017-292-WS

COMPANIES	Estimate	Growth Rate	Sources
American States	$590.0	8.39%	Exhibit DHC-3, p. 1 of 11
American Water	$4,325.0	7.30%	Exhibit DHC-3, p. 2 of 11
Aqua America	$1,085.0	9.10%	Exhibit DHC-3, p. 3 of 11
Artesian Resources			Exhibit DHC-3, p. 5 of 11
California Water	$750.0	3.72%	Exhibit DHC-3, p. 6 of 11
Connecticut Water	$160.0	12.48%	Exhibit DHC-3, p. 7 of 11
Global Water Resources			Exhibit DHC-3, p. 8 of 11
Middlesex Water	$160.0	5.20%	Exhibit DHC-3, p. 9 of 11
SJW	$485.0	7.22%	Exhibit DHC-3, p. 10 of 11
York Water	$67.5	9.91%	Exhibit DHC-3, p. 11 of 11
Means		**7.91%**	
Medians		**7.85%**	
Average of Mean & Median		**7.88%**	

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EXHIBIT DHC-9

Office of Regulatory Staff

DCF Summary

Carolina Water Service, Inc.

Docket No. 2017-292-WS

Dividend Yields		
Company	**Yield**	**Source**
American States	1.90%	Exhibit DHC-3, p. 1 of 11
American Water	2.00%	Exhibit DHC-3, p. 2 of 11
Aqua America	2.20%	Exhibit DHC-3, p. 3 of 11
Artesian Resources	2.50%	Exhibit DHC-3, p. 5 of 11
California Water	1.60%	Exhibit DHC-3, p. 6 of 11
Connecticut Water	2.10%	Exhibit DHC-3, p. 7 of 11
Global Water Resources	3.10%	Exhibit DHC-3, p. 8 of 11
Middlesex Water	2.30%	Exhibit DHC-3, p. 9 of 11
SJW	1.40%	Exhibit DHC-3, p. 10 of 11
York Water	2.00%	Exhibit DHC-3, p. 11 of 11
average	**2.11%**	

Summary of Historical & Estimated Growth Rates				
	Historical	**Estimates**	**Average of Historical & Estimates***	**Sources of Historical & Averages**
EPS	7.76%	8.72%	8.24%	Exhibit DHC-5, pp. 2 & 3
BVPS	4.56%	5.21%	4.89%	Exhibit DHC-6, pp. 2 & 3
DPS	5.23%	9.32%	7.28%	Exhibit DHC-7, pp. 2 & 3
Sales/Rev	3.88%	7.88%	5.88%	Exhibit DHC-8, pp. 2 & 3
		Growth	**6.57%**	
		+ Dividend Yield	**2.11%**	
		= Indicated DCF Cost of Equity	**8.68%**	

*Computed: (Historical + Estimates)/2

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Company Name	Ticker	Industry	Beta	Book Value 5 Yr Growth Rate
CAE Inc	CAE.TO	Aerospace/Defense	0.75	5.50
CPI Aerostructures Inc	CVU	Aerospace/Defense	0.55	2.50
Elbit Systems Ltd	ESLT	Aerospace/Defense	0.80	9.00
HEICO Corp (Class A)	HEIA	Aerospace/Defense	0.90	8.50
Lockheed Martin Corp	LMT	Aerospace/Defense	0.80	1.00
Raytheon Co	RTN	Aerospace/Defense	0.80	6.00
SIFCO Industries	SIF	Aerospace/Defense	0.75	2.00
Air T Inc	AIRT	Air Transport	0.55	3.50
Allegiant Travel Company	ALGT	Air Transport	0.90	6.50
WestJet Airlines Ltd	WJA.TO	Air Transport	0.80	8.00
Alpha Pro Tech Ltd	APT	Apparel	0.55	5.50
Cherokee Inc	CHKE	Apparel	0.75	24.00
Carters Inc	CRI	Apparel	0.85	6.50
Delta Apparel Inc	DLA	Apparel	0.80	4.50
Dorman Products Inc	DORM	Auto Parts	0.90	15.50
Ameris Bancorp	ABCB	Bank	0.90	10.00
Access National Corporation	ANCX	Bank	0.80	7.50
Arrow Financial Corporation	AROW	Bank	0.75	6.00
Bridge Bancorp Inc	BDGE	Bank	0.90	11.00
Bar Harbor Bankshares	BHB	Bank	0.90	5.50
Bank South Carolina Corp	BKSC	Bank	0.60	5.50
BSB Bancorp Inc	BLMT	Bank	0.60	2.00
Bank of Montreal	BMO.TO	Bank	0.80	9.50
Bank of Marin Bancorp	BMRC	Bank	0.75	9.00
Bryn Mawr Bank Corporation	BMTC	Bank	0.90	9.50
Beneficial Bancorp Inc	BNCL	Bank	0.75	10.50
Bank of Nova Scotia	BNS.TO	Bank	0.85	10.50
Bank of Commerce Holdings	BOCH	Bank	0.60	4.50
Bank of the James Financial Group Inc	BOTJ	Bank	0.55	7.50
Camden National Corporation	CAC	Bank	0.85	6.00
Capital City Bank Group Inc	CCBG	Bank	0.75	1.00
CNB Financial Corporation	CCNE	Bank	0.90	8.50
C and F Financial Corp	CFFI	Bank	0.70	9.50
Chemung Financial Corporation	CHMG	Bank	0.55	2.00
Canadian Imperial Bank of Commerce	CM.TO	Bank	0.80	10.50
Century BanCorp	CNBKA	Bank	0.65	8.00
ConnectOne Bancorp Inc	CNOB	Bank	0.85	17.50
Centerstate Banks Inc	CSFL	Bank	0.90	4.50
Community Shores Bank Corporation	CSHB	Bank	0.55	17.50
Community Trust Bancorp Inc	CTBI	Bank	0.85	6.00
Codorus Valley Bancorp	CVLY	Bank	0.70	8.00

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Citizens and Northern Corp	CZNC	Bank	0.70	5.50
First Bancorp	FBNC	Bank	0.90	0.50
First Connecticut Bancorp Inc	FBNK	Bank	0.70	2.50
First Community Bancshares Inc	FCBC	Bank	0.90	4.50
Farmers Capital Bank Corp	FFKT	Bank	0.80	7.00
First Financial Northwest Inc	FFNW	Bank	0.70	3.00
Financial Institutions Inc	FISI	Bank	0.90	6.00
First Of Long Island Corp	FLIC	Bank	0.90	8.00
FNCB Bancorp Inc.	FNCB	Bank	0.60	6.50
First Bancorp Inc	FNLC	Bank	0.85	3.50
First United Corporation	FUNC	Bank	0.60	5.00
First US Bancshares Inc.	FUSB	Bank	0.60	0.50
Guaranty Bancorp	GBNK	Bank	0.70	1.50
Heritage Financial Corp	HFWA	Bank	0.85	4.00
National Bank of Canada	NA.TO	Bank	0.85	8.50
Northfield Bancorp Inc	NFBK	Bank	0.70	6.00
National Bankshares Inc	NKSH	Bank	0.90	5.50
Northrim BanCorp Inc	NRIM	Bank	0.80	7.00
Old Line Bancshares Inc	OLBK	Bank	0.70	6.50
Oritani Financial Corp	ORIT	Bank	0.75	0.50
Premier Financial Bancorp Inc	PFBI	Bank	0.55	5.00
Peoples Financial Services Corp	PFIS	Bank	0.85	15.50
Peapack Gladstone Financial Corp	PGC	Bank	0.85	9.00
Parke Bancorp Inc	PKBK	Bank	0.55	10.50
Plumas Bancorp	PLBC	Bank	0.55	9.50
Pacific Premier Bancorp	PPBI	Bank	0.90	12.50
Penns Woods Bancorp Inc	PWOD	Bank	0.85	9.00
Royal Bank of Canada	RY.TO	Bank	0.80	11.00
Southern First Bancshares Inc	SFST	Bank	0.70	8.50
Summit Financial Group Inc	SMMF	Bank	0.70	3.50
Summit State Bank	SSBI	Bank	0.55	3.50
Stewardship Financial Corp	SSFN	Bank	0.55	1.50
Stock Yards Bancorp Inc	SYBT	Bank	0.85	9.00
Territorial Bancorp Inc	TBNK	Bank	0.60	3.00
Toronto Dominion Bank	TD.TO	Bank	0.75	9.00
Tompkins Financial Corporation	TMP	Bank	0.90	6.00
Union Bankshares Inc	UNB	Bank	0.55	5.50
UNIVEST Corp of Pennsylvania	UVSP	Bank	0.85	2.50
First Busey Corp	BUSE	Bank (Midwest)	0.85	4.50
Enterprise Financial Services Corp	EFSC	Bank (Midwest)	0.85	11.00
First Business Financial Services Inc	FBIZ	Bank (Midwest)	0.70	9.00
Farmers National Banc Corp	FMNB	Bank (Midwest)	0.70	3.50
First Merchants Corp	FRME	Bank (Midwest)	0.85	6.00
Horizon Bancorp	HBNC	Bank (Midwest)	0.90	10.00
Hawthorn Bancshares Inc	HWBK	Bank (Midwest)	0.55	2.50

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Independent Bank Corporation	IBCP	Bank (Midwest)	0.75	7.50
First Internet Bancorp	INBK	Bank (Midwest)	0.85	5.50
LCNB Corp	LCNB	Bank (Midwest)	0.60	5.50
Lakeland Financial Corp	LKFN	Bank (Midwest)	0.90	9.00
Macatawa Bank Corporation	MCBC	Bank (Midwest)	0.75	13.50
MutualFirst Financial Inc	MFSF	Bank (Midwest)	0.55	13.00
Old Second Bancorp Inc	OSBC	Bank (Midwest)	0.90	10.00
Peoples Bancorp Inc	PEBO	Bank (Midwest)	0.75	4.00
QCR Holdings Inc	QCRH	Bank (Midwest)	0.70	0.50
First Financial Corporation	THFF	Bank (Midwest)	0.85	5.50
Coca Cola Bottling Company	COKE	Beverage	0.80	15.00
Cott Corporation	COT	Beverage	0.90	2.00
Dr Pepper Snapple Group Inc	DPS	Beverage	0.75	0.50
National Beverage	FIZZ	Beverage	0.80	13.50
MGP Ingredients	MGPI	Beverage	0.80	12.00
Monster Beverage Corporation	MNST	Beverage	0.80	30.00
Constellation Brands	STZ	Beverage	0.75	21.00
Molson Coors Brewing Company	TAP	Beverage	0.90	1.50
Willamette Valley Vineyards Inc	WVVI	Beverage	0.70	7.50
ArQule Inc	ARQL	Biotechnology	0.80	24.50
EXACT Sciences Corp	EXAS	Biotechnology	0.80	25.00
iBio Inc	IBIO	Biotechnology	0.85	15.50
Kamada Ltd	KMDA	Biotechnology	0.80	19.50
Myriad Genetics Inc	MYGN	Biotechnology	0.80	9.50
Sinovac Biotech Ltd	SVA	Biotechnology	0.70	0.50
Bio-Techne Corp.	TECH	Biotechnology	0.90	8.50
CBOE Holdings Inc	CBOE	Brokers & Exchanges	0.70	7.50
CME Group Inc	CME	Brokers & Exchanges	0.75	1.00
Intercontinental Exch.	ICE	Brokers & Exchanges	0.80	26.50
Nasdaq Inc.	NDAQ	Brokers & Exchanges	0.90	5.00
Huttig Building Products Inc	HBP	Building Materials	0.90	5.50
ADDvantage Technologies Group Inc	AEY	Cable TV	0.60	4.50
Cogeco Communic.	CCA.TO	Cable TV	0.60	7.00
Cogeco Inc	CGO.TO	Cable TV	0.65	3.00
Comcast Corporation	CMCSA	Cable TV	0.90	6.00
Shaw Communications Inc (Class B)	SJRB.TO	Cable TV	0.65	11.50
Terra Nitrogen	TNH	Chemical (Basic)	0.80	12.00
Landec Corp	LNDC	Chemical (Diversified)	0.90	8.50
Lightwave Logic Inc	LWLG	Chemical (Diversified)	0.70	24.50
Ocean Bio Chem Inc	OBCI	Chemical (Diversified)	0.60	10.50
Adm Tronics Unlimited Inc	ADMT	Chemical (Specialty)	0.80	16.00
Flexible Solutions International Inc	FSI	Chemical (Specialty)	0.85	3.50
Sigma Industries Inc	SSG.TO	Chemical (Specialty)	0.80	5.50
Asure Software Inc	ASUR	Computer Software	0.65	1.50
Computer Modelling Group Ltd	CMG.TO	Computer Software	0.85	5.00

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Formula Systems Ltd	FORTY	Computer Software	0.85	12.00
Information Analysis Incorporated	IAIC	Computer Software	0.60	1.00
Intelligent Systems Corporation New	INS	Computer Software	0.70	30.00
MAM Software Group Inc	MAMS	Computer Software	0.65	1.00
Paybox Corp.	PBOX	Computer Software	0.60	1.50
QAD Inc	QADA	Computer Software	0.90	16.00
RealPage Inc	RP	Computer Software	0.85	9.50
Simulations Plus Inc	SLP	Computer Software	0.60	8.00
Symantec Corp	SYMC	Computer Software	0.90	2.00
Wayside Technology Group Inc	WSTG	Computer Software	0.60	6.50
AstroNova Inc.	ALOT	Computers/Peripherals	0.60	4.00
KeyTronic Corporation	KTCC	Computers/Peripherals	0.70	8.50
Mercury Systems Inc	MRCY	Computers/Peripherals	0.85	5.50
Top Image Systems Ltd	TISA	Computers/Peripherals	0.80	19.50
Chemed Corporation	CHE	Diversified Co.	0.80	7.00
CKX Lands Inc	CKX	Diversified Co.	0.65	6.00
Elxsi Corporation	ELXS	Diversified Co.	0.60	32.50
Kaman Corporation	KAMN	Diversified Co.	0.90	9.00
McRae Industries Inc	MCRAA	Diversified Co.	0.55	9.00
Nobility Homes Inc	NOBH	Diversified Co.	0.70	4.00
Rogers Communications Inc (Class B)	RCIB.TO	Diversified Co.	0.55	8.50
Reading International Inc	RDI	Diversified Co.	0.90	2.50
Seaboard Corp	SEB	Diversified Co.	0.90	11.00
Synalloy Corp	SYNL	Diversified Co.	0.75	1.50
Aradigm Corporation	ARDM	Drug	0.65	30.00
Bristol Myers Squibb Co	BMY	Drug	0.90	2.50
ChromaDex Corporation	CDXC	Drug	0.75	3.00
Cyanotech Corp	CYAN	Drug	0.60	8.50
Eli Lilly and Co	LLY	Drug	0.75	5.50
Perrigo Company Plc Ireland	PRGO	Drug	0.85	36.00
RBC Life Sciences Inc	RBCL	Drug	0.65	52.00
Check Point Software Technologies Inc	CHKP	E-Commerce	0.80	9.50
Magic Software Enterprises Ltd	MGIC	E-Commerce	0.90	12.50
Open Text Corp	OTEX	E-Commerce	0.90	16.50
SharpSpring Inc.	SHSP	E-Commerce	0.90	34.50
Creative Learning Corporation	CLCN	Educational Services	0.70	26.50
Capella Education Company	CPLA	Educational Services	0.90	7.50
CPS Technologies Corp	CPSH	Electrical Equipment	0.80	4.50
FLIR Systems Inc	FLIR	Electrical Equipment	0.90	5.50
WW Grainger Inc	GWW	Electrical Equipment	0.90	2.00
Surge Components Inc/NY	SPRS	Electrical Equipment	0.65	17.50
Espey Manufacturing and Electronics Corp	ESP	Electronics	0.55	1.00
IEH Corporation	IEHC	Electronics	0.55	16.00
LRAD Corp	LRAD	Electronics	0.70	15.00
Magal Security Systems Ltd	MAGS	Electronics	0.70	3.00

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Emerson Radio Corp	MSN	Electronics	0.60	0.50
NAPCO Security Technologies Inc	NSSC	Electronics	0.85	8.00
Smith Midland Corp	SMID	Engineering & Const	0.70	3.00
SNC-Lavalin Group	SNC.TO	Engineering & Const	0.80	17.00
Stantec Inc.	STN.TO	Engineering & Const	0.80	17.00
Beasley Broadcast Group Inc	BBGI	Entertainment	0.85	18.50
DHX Media Ltd	DHXB.TO	Entertainment	0.80	7.50
Saga Communications Inc	SGA	Entertainment	0.90	9.00
Dolby Laboratories Inc	DLB	Entertainment Tech	0.85	5.00
Koss Corporation	KOSS	Entertainment Tech	0.75	3.00
Diversified Royalty Corporation	BEVFF	Environmental	0.85	2.50
Republic Services Inc	RSG	Environmental	0.75	2.00
Stericycle Inc	SRCL	Environmental	0.90	13.50
Waste Connections	WCN	Environmental	0.85	13.00
Ambase Corporation	ABCP	Financial Svcs. (Div.)	0.55	44.50
Assurant Inc	AIZ	Financial Svcs. (Div.)	0.90	11.00
CBIZ Inc	CBZ	Financial Svcs. (Div.)	0.85	12.00
Costar Technologies Inc	CSTI	Financial Svcs. (Div.)	0.60	131.00
Enstar Group Limited	ESGR	Financial Svcs. (Div.)	0.80	12.50
FirstCash Inc.	FCFS	Financial Svcs. (Div.)	0.85	17.50
Fidelity Nat'l Info.	FIS	Financial Svcs. (Div.)	0.90	4.50
FRMO Corporation	FRMO	Financial Svcs. (Div.)	0.60	10.50
GAIN Capital Holdings Inc	GCAP	Financial Svcs. (Div.)	0.90	5.00
Green Dot Corporation	GDOT	Financial Svcs. (Div.)	0.90	18.50
Horace Mann Educators Corporation	HMN	Financial Svcs. (Div.)	0.90	7.00
Hennessy Advisors Inc	HNNA	Financial Svcs. (Div.)	0.75	11.00
Investors Title Company	ITIC	Financial Svcs. (Div.)	0.70	10.00
Morningstar Inc	MORN	Financial Svcs. (Div.)	0.90	22.00
Morguard Corp	MRC.TO	Financial Svcs. (Div.)	0.70	20.50
Nicholas Financial Inc	NICK	Financial Svcs. (Div.)	0.65	5.50
OTC Markets Group Inc	OTCM	Financial Svcs. (Div.)	0.55	10.00
Sutherland Asset Management	SLD	Financial Svcs. (Div.)	0.70	1.50
Steel Partners Holdings LP LTD	SPLP	Financial Svcs. (Div.)	0.65	4.00
JTH Holding Inc	TAX	Financial Svcs. (Div.)	0.85	0.50
Willis Lease Finance Corporation	WLFC	Financial Svcs. (Div.)	0.75	6.00
B and G Foods Inc	BGS	Food Processing	0.60	12.50
Campbell Soup Co	CPB	Food Processing	0.75	12.00
CTD Holdings Inc	CTDH	Food Processing	0.55	7.50
Calavo Growers Inc	CVGW	Food Processing	0.60	13.00
Farmer Brothers Company	FARM	Food Processing	0.85	4.00
Fresh Del Monte Produce Inc	FDP	Food Processing	0.80	4.50
Flowers Foods Inc	FLO	Food Processing	0.90	9.00
Hormel Foods Corporation	HRL	Food Processing	0.75	11.00
Hershey Company	HSY	Food Processing	0.75	6.50
John B Sanfilippo and Son Inc	JBSS	Food Processing	0.65	4.00

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J and J Snack Foods Corp	JJSF	Food Processing	0.80	9.00
Kellogg Company	K	Food Processing	0.70	3.00
Lancaster Colony Corporation	LANC	Food Processing	0.85	1.50
Snyders Lance Inc	LNCE	Food Processing	0.90	8.50
Lifeway Foods Inc	LWAY	Food Processing	0.90	7.00
Medifast Inc	MED	Food Processing	0.85	11.00
Maple Leaf Foods Inc	MFI.TO	Food Processing	0.70	7.50
McCormick and Co	MKC	Food Processing	0.80	4.00
Natural Alternatives International Inc	NAII	Food Processing	0.60	9.00
Nestle SA	NSRGY	Food Processing	0.75	3.50
Pilgrims Pride Corp	PPC	Food Processing	0.90	8.50
Sanderson Farms Inc	SAFM	Food Processing	0.75	13.50
Saputo Inc.	SAP.TO	Food Processing	0.65	13.00
Seneca Foods Corp	SENEB	Food Processing	0.70	6.50
Sino Agro Foods Inc	SIAF	Food Processing	0.55	10.00
JM Smucker Company	SJM	Food Processing	0.75	5.50
Treehouse Foods Inc	THS	Food Processing	0.75	11.00
Tootsie Roll	TR	Food Processing	0.85	2.50
Tyson Foods	TSN	Food Processing	0.80	12.50
Carriage Services Inc	CSV	Funeral Services	0.90	7.50
Crown Crafts Inc	CRWS	Furn/Home Furnishings	0.65	3.50
Culp Inc	CULP	Furn/Home Furnishings	0.90	12.50
Hooker Furniture Corporation	HOFT	Furn/Home Furnishings	0.80	5.00
Kewaunee Scientific Corporation	KEQU	Furn/Home Furnishings	0.55	4.00
Computer Programs and Systems Inc	CPSI	Healthcare Information	0.60	14.00
OptimizeRx Corporation	OPRX	Healthcare Information	0.60	15.50
Quality Systems Inc	QSII	Healthcare Information	0.85	3.00
Deere and Co	DE	Heavy Truck & Equip	0.90	8.00
St Joe Company	JOE	Homebuilding	0.90	2.50
NVR Inc	NVR	Homebuilding	0.85	1.50
Canterbury Park Holding Corp	CPHC	Hotel/Gaming	0.60	3.50
Dover Downs Gaming and Entertainment I	DDE	Hotel/Gaming	0.55	0.50
Full House Resorts Inc	FLL	Hotel/Gaming	0.60	2.50
Golden Entertainment Inc.	GDEN	Hotel/Gaming	0.65	1.00
Gaming Partners International Corp	GPIC	Hotel/Gaming	0.55	6.00
Vail Resorts	MTN	Hotel/Gaming	0.80	5.00
Tropicana Entertainment Inc	TPCA	Hotel/Gaming	0.70	9.50
Trans World Corp New	TWOC	Hotel/Gaming	0.60	3.00
Central Garden and Pet Co	CENT	Household Products	0.85	4.00
Church and Dwight Co Inc	CHD	Household Products	0.70	4.00
Spectrum Brands Holdings Inc New	SPB	Household Products	0.85	8.50
Orchids Paper Products Company	TIS	Household Products	0.90	6.50
Command Center Inc	CCNI	Human Resources	0.75	96.00
Mastech Digital Inc.	MHH	Human Resources	0.80	6.00
ABM Industries Inc	ABM	Industrial Services	0.80	4.50

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CH Robinson Worldwide Inc	CHRW	Industrial Services	0.85	3.00
Conrad Industries Inc	CNRD	Industrial Services	0.60	12.00
Edgewater Technology Inc	EDGW	Industrial Services	0.80	13.00
Exponent Inc	EXPO	Industrial Services	0.90	10.00
Genpact Limited	G	Industrial Services	0.75	2.00
Hackett Group Inc	HCKT	Industrial Services	0.80	2.50
Healthcare Services Group Inc	HCSG	Industrial Services	0.90	5.00
Hudson Technologies Inc	HDSN	Industrial Services	0.90	21.00
ICF International Inc	ICFI	Industrial Services	0.90	9.00
Kingstone Companies Inc	KINS	Industrial Services	0.70	11.50
Rollins Inc	ROL	Industrial Services	0.90	12.00
Superior Uniform Group	SGC	Industrial Services	0.75	5.50
Sigmatron International Inc	SGMA	Industrial Services	0.70	2.50
SP Plus Corporation	SP	Industrial Services	0.80	39.00
Syntel Inc	SYNT	Industrial Services	0.85	8.00
WNS Holdings Limited	WNS	Industrial Services	0.90	6.00
Cogint Inc	COGT	Information Services	0.80	16.50
FBL Financial Group Inc	FFG	Insurance (Life)	0.90	6.00
Independence Holding Company	IHC	Insurance (Life)	0.80	8.00
Power Financial	PWF.TO	Insurance (Life)	0.90	10.50
Security National Financial Corp	SNFCA	Insurance (Life)	0.60	26.50
Arch Cap Group Ltd	ACGL	Insurance (Prop/Cas.)	0.70	13.50
American Financial Group	AFG	Insurance (Prop/Cas.)	0.90	10.50
Allstate Corporation	ALL	Insurance (Prop/Cas.)	0.85	7.50
Berkshire Hathaway Inc New (Class B)	BRKB	Insurance (Prop/Cas.)	0.90	6.00
Baldwin and Lyons Inc	BWINA	Insurance (Prop/Cas.)	0.60	2.00
Chubb Ltd.	CB	Insurance (Prop/Cas.)	0.85	9.50
Cincinnati Financial Corp	CINF	Insurance (Prop/Cas.)	0.90	6.50
Global Indemnity PLC	GBLI	Insurance (Prop/Cas.)	0.75	7.50
Hallmark Financial Services Inc	HALL	Insurance (Prop/Cas.)	0.85	4.00
Infinity Property and Casualty Corporation	IPCC	Insurance (Prop/Cas.)	0.70	3.50
Mercury General Corp	MCY	Insurance (Prop/Cas.)	0.80	1.50
Markel Corp	MKL	Insurance (Prop/Cas.)	0.80	13.50
Navigators Group Inc	NAVG	Insurance (Prop/Cas.)	0.80	7.50
Progressive Corp.	PGR	Insurance (Prop/Cas.)	0.90	8.00
ProAssurance Corp	PRA	Insurance (Prop/Cas.)	0.70	3.50
Safety Insurance Group Inc	SAFT	Insurance (Prop/Cas.)	0.85	1.00
The Travelers Companies Inc	TRV	Insurance (Prop/Cas.)	0.85	6.50
WR Berkley Corp	WRB	Insurance (Prop/Cas.)	0.85	8.00
White Moutains Insurance Group Ltd	WTM	Insurance (Prop/Cas.)	0.60	8.50
XL Group Ltd.	XL	Insurance (Prop/Cas.)	0.90	10.50
Blucora Inc	BCOR	Internet	0.85	5.50
CynergisTek Inc	CTEK	Internet	0.55	29.50
MakeMyTrip Limited	MMYT	Internet	0.80	27.50
Sitestar Corp	SYTE	Internet	0.60	4.00

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Tucows Inc	TCX	Internet	0.90	10.50
XO Group Inc	XOXO	Internet	0.85	1.00
Guardian Cap Group Ltd (Class A)	GCGA.TO	Investment Co.(Foreign)	0.75	9.50
CSG Systems International Inc	CSGS	IT Services	0.90	6.50
Amdocs Ltd	DOX	IT Services	0.80	6.00
Infosys Limited	INFY	IT Services	0.85	9.50
Jack Henry and Associates Inc	JKHY	IT Services	0.85	4.50
Network I Technologies Inc	NTIP	IT Services	0.60	18.00
ePlus inc	PLUS	IT Services	0.90	11.50
ATS Automation Tooling Systems	ATA.TO	Machinery	0.80	5.00
CompX International Inc	CIX	Machinery	0.75	7.00
EnviroStar Inc	EVI	Machinery	0.55	5.50
Gencor Industries Inc	GENC	Machinery	0.70	3.50
International Baler Corporation	IBAL	Machinery	0.60	12.00
MSC Industrial Direct Co Inc	MSM	Machinery	0.90	11.50
P F Industries Inc	PFIN	Machinery	0.65	10.00
Sono Tek Corporation	SOTK	Machinery	0.60	10.00
Terra Tech Corporation	TRTC	Machinery	0.80	97.00
WSI Industries Inc	WSCI	Machinery	0.70	5.00
Algoma Central Corp	ALC.TO	Maritime	0.60	2.50
Danaos Corp	DAC	Maritime	0.90	4.00
Baxter International Inc	BAX	Med Supp Invasive	0.85	6.00
Becton Dickinson and Company	BDX	Med Supp Invasive	0.80	13.50
Edwards Lifesciences	EW	Med Supp Invasive	0.85	15.50
Exactech Inc	EXAC	Med Supp Invasive	0.90	7.50
Integra LifeSciences Holdings Corporation	IART	Med Supp Invasive	0.85	4.50
ICU Medical Inc	ICUI	Med Supp Invasive	0.85	12.50
IRIDEX Corporation	IRIX	Med Supp Invasive	0.80	17.00
Intuitive Surgical Inc	ISRG	Med Supp Invasive	0.80	17.50
LeMaitre Vascular Inc	LMAT	Med Supp Invasive	0.60	5.50
Medtronic plc	MDT	Med Supp Invasive	0.90	20.00
Milestone Scientific Inc	MLSS	Med Supp Invasive	0.70	25.50
Nuvasive Inc	NUVA	Med Supp Invasive	0.85	6.50
Repro Med Systems Inc	REPR	Med Supp Invasive	0.80	19.00
Stryker Corp	SYK	Med Supp Invasive	0.90	5.00
Teleflex Inc	TFX	Med Supp Invasive	0.85	1.50
Utah Medical Products Inc	UTMD	Med Supp Invasive	0.85	11.00
Varian Medical System	VAR	Med Supp Invasive	0.90	8.00
Atrion Corporation	ATRI	Med Supp Non-Invasive	0.70	6.00
Bio Rad Laboratories Inc	BIO	Med Supp Non-Invasive	0.85	8.50
Chembio Diagnostics Inc	CEMI	Med Supp Non-Invasive	0.80	14.50
Cogentix Medical, Inc.	CGNT	Med Supp Non-Invasive	0.60	11.50
Cooper Companies Inc	COO	Med Supp Non-Invasive	0.90	7.00
Digirad Corporation	DRAD	Med Supp Non-Invasive	0.85	1.50
Haemonetics Corp	HAE	Med Supp Non-Invasive	0.90	2.50

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Johnson and Johnson	JNJ	Med Supp Non-Invasive	0.85	5.00
Misonix Inc	MSON	Med Supp Non-Invasive	0.85	6.00
NxStage Medical Inc	NXTM	Med Supp Non-Invasive	0.80	4.00
Omnicell Inc	OMCL	Med Supp Non-Invasive	0.90	7.00
Patterson Companies Inc	PDCO	Med Supp Non-Invasive	0.90	3.50
ResMed Inc	RMD	Med Supp Non-Invasive	0.90	3.50
Sonoma Pharmaceuticals Inc.	SNOA	Med Supp Non-Invasive	0.90	1.50
Meridian Bioscience	VIVO	Med Supp Non-Invasive	0.85	3.00
West Pharmaceutical Services Inc	WST	Med Supp Non-Invasive	0.85	9.00
Almost Family Inc	AFAM	Medical Services	0.75	6.50
Anthem Inc.	ANTM	Medical Services	0.90	8.00
Cigna Corporation	CI	Medical Services	0.85	13.50
Quest Diagnostics Inc	DGX	Medical Services	0.90	7.00
DLH Holdings Corporation	DLHC	Medical Services	0.80	19.50
DaVita Inc.	DVA	Medical Services	0.85	17.00
Ensign Group Inc	ENSG	Medical Services	0.85	7.00
Extendicare Inc	EXE.TO	Medical Services	0.70	64.00
Fresenius Medical ADR	FMS	Medical Services	0.80	12.00
Humana Inc	HUM	Medical Services	0.85	10.50
ICON plc	ICLR	Medical Services	0.80	8.00
Laboratory Corp	LH	Medical Services	0.90	14.00
LHC Group	LHCG	Medical Services	0.80	8.00
Mednax Inc	MD	Medical Services	0.85	11.50
Magellan Health Inc	MGLN	Medical Services	0.90	8.00
Natl HealthCare Corp.	NHC	Medical Services	0.85	7.50
Psychemedics Corp	PMD	Medical Services	0.60	5.00
Providence Service Corp	PRSC	Medical Services	0.90	24.50
Eastern Company	EML	Metal Fabricating	0.55	2.50
Caledonia Mining Corp. PLC.	CAL.TO	Metals & Mining (Div.)	0.55	15.50
Kaiser Aluminum Corporation	KALU	Metals & Mining (Div.)	0.85	1.00
Mountain Province Diamonds Inc	MPVD.TO	Metals & Mining (Div.)	0.65	8.50
Nevsun Resources Ltd	NSU.TO	Metals & Mining (Div.)	0.70	19.50
U S Lime and Minerals	USLM	Metals & Mining (Div.)	0.85	8.50
Daily Journal Corp	DJCO	Newspaper	0.80	14.00
Manhattan Bridge Capital Inc	LOAN	Newspaper	0.65	3.00
Acme United Corp	ACU	Office Equip/Supplies	0.60	9.50
Badger Daylighting Ltd	BAD.TO	Oilfield Svcs/Equip.	0.75	18.00
North American Energy Partners Inc	NOA.TO	Oilfield Svcs/Equip.	0.60	1.50
CCL Industries	CCLB.TO	Packaging & Container	0.70	8.00
Intertape Polymer Group Inc	ITPOF	Packaging & Container	0.85	4.00
Northern Technologies International Corp	NTIC	Packaging & Container	0.65	6.00
Silgan Holdings Inc	SLGN	Packaging & Container	0.90	3.00
UFP Technologies Inc	UFPT	Packaging & Container	0.90	13.00
Winpak Ltd	WPK.TO	Packaging & Container	0.65	9.00
Clearwater Paper	CLW	Paper/Forest Products	0.85	7.50

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Getty Realty Corp	GTY	Petroleum (Integrated)	0.85	4.00
Reserve Petroleum Co	RSRV	Petroleum (Producing)	0.80	5.00
Tengasco Inc	TGC	Petroleum (Producing)	0.75	6.00
CVS Caremark Corporation	CVS	Pharmacy Services	0.85	5.00
IntelGenx Technologies Corporation	IGXT	Pharmacy Services	0.75	5.50
Jean Coutu Group (Class A)	PJCA.TO	Pharmacy Services	0.55	20.00
AmeriGas Partners LP	APU	Pipeline MLPs	0.75	2.50
Spectra Energy Part.	SEP	Pipeline MLPs	0.90	17.50
Emera Inc.	EMA.TO	Power	0.60	12.50
Agnico Eagle Mines Ltd	AEM	Precious Metals	0.55	3.00
Compania De Minas Buenaventura SA	BVN	Precious Metals	0.90	4.00
Franco Nevada Corp	FNV	Precious Metals	0.60	4.50
Mag Silver Corp	MAG	Precious Metals	0.85	4.50
Seabridge Gold Inc	SA	Precious Metals	0.65	2.50
Analogic Corp	ALOG	Precision Instrument	0.80	4.00
Luna Innovations Incorporated	LUNA	Precision Instrument	0.75	24.00
OSI Systems Inc	OSIS	Precision Instrument	0.85	8.50
Research Frontiers Inc	REFR	Precision Instrument	0.85	4.50
Transcat Inc	TRNS	Precision Instrument	0.70	11.50
Waters Corp	WAT	Precision Instrument	0.90	17.50
Wireless Telecom	WTT	Precision Instrument	0.70	6.00
Compass Diversified	CODI	Public/Private Equity	0.70	6.00
Solar Capital Ltd	SLRC	Public/Private Equity	0.80	4.00
Avalonbay Communities Inc	AVB	R.E.I.T.	0.70	12.00
Boston Properties Inc	BXP	R.E.I.T.	0.90	2.50
Digital Realty Trust Inc	DLR	R.E.I.T.	0.80	8.00
Equity Residential	EQR	R.E.I.T.	0.75	10.00
Extra Space Storage	EXR	R.E.I.T.	0.80	9.50
Federal Realty Investment Trust	FRT	R.E.I.T.	0.75	5.50
Welltower Inc.	HCN	R.E.I.T.	0.70	5.00
Macerich Co	MAC	R.E.I.T.	0.85	8.50
Annaly Capital Management Inc	NLY	R.E.I.T.	0.65	6.00
Realty Income Corporation	O	R.E.I.T.	0.70	13.50
Ventas Inc	VTR	R.E.I.T.	0.75	14.00
Amer. Outdoor Brands	AOBC	Recreation	0.90	22.50
Carnival Corp	CCL	Recreation	0.90	1.50
Hasbro Inc	HAS	Recreation	0.90	3.00
Mattel Inc	MAT	Recreation	0.85	1.00
Sturm Ruger and Co	RGR	Recreation	0.90	14.50
Argo Group Int'l	AGII	Reinsurance	0.90	8.00
Aspen Insurance Holdings Limited	AHL	Reinsurance	0.90	4.50
Axis Capital Holdings Ltd	AXS	Reinsurance	0.80	7.00
EMC Insurance Group Inc	EMCI	Reinsurance	0.85	6.50
Everest Re Group Ltd	RE	Reinsurance	0.80	10.50
Renaissancere Holdings Ltd	RNR	Reinsurance	0.70	11.50

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Validus Holdings	VR	Reinsurance	0.80	5.50
Biglari Holdings Inc	BH	Restaurant	0.85	3.50
BJs Restaurants Inc	BJRI	Restaurant	0.90	3.50
Cheesecake Factory Inc	CAKE	Restaurant	0.75	4.50
Cracker Barrel Old Country Store Inc	CBRL	Restaurant	0.75	20.50
Chipotle Mexican Grill Inc	CMG	Restaurant	0.85	17.50
DineEquity Inc	DIN	Restaurant	0.80	33.50
Darden Restaurants Inc	DRI	Restaurant	0.85	5.00
Noble Romans Inc	NROM	Restaurant	0.70	5.50
RCI Hospitality Holdings Inc	RICK	Restaurant	0.80	8.00
Rocky Mountain Chocolate Factory Inc	RMCF	Restaurant	0.65	3.00
Texas Roadhouse Inc	TXRH	Restaurant	0.85	7.50
Luxottica Group Spa	LUXTY	Retail (Hardlines)	0.90	6.00
PCM Inc	PCMI	Retail (Hardlines)	0.70	3.50
Tandy Leather Factory Inc	TLF	Retail (Hardlines)	0.65	10.50
Ulta Beauty	ULTA	Retail (Hardlines)	0.90	26.00
Citi Trends Inc	CTRN	Retail (Softlines)	0.80	1.50
Foot Locker Inc	FL	Retail (Softlines)	0.90	7.50
Francescas Holdings Corporation	FRAN	Retail (Softlines)	0.75	49.50
Childrens Place Inc	PLCE	Retail (Softlines)	0.85	5.50
TJX Companies Inc	TJX	Retail (Softlines)	0.90	11.00
Monro Inc.	MNRO	Retail Automotive	0.90	12.50
Alexanders Inc	ALX	Retail Store	0.80	1.00
Costco Wholesale Corporation	COST	Retail Store	0.80	1.00
Canadian Tire 'A'	CTCA.TO	Retail Store	0.70	6.00
Dollar General Corporation	DG	Retail Store	0.85	10.00
Dollar Tree Inc	DLTR	Retail Store	0.85	24.00
PriceSmart	PSMT	Retail Store	0.90	1.00
Walmart Inc.	WMT	Retail Store	0.70	5.00
Ali. Couche-Tard	ATDB.TO	Retail/Wholesale Food	0.80	24.50
Caseys General Stores Inc	CASY	Retail/Wholesale Food	0.75	5.50
Core Mark Holding Co Inc	CORE	Retail/Wholesale Food	0.75	6.00
Empire Company Limited (Class A)	EMPA.TO	Retail/Wholesale Food	0.60	9.00
Ingles Markets Incorporated	IMKTA	Retail/Wholesale Food	0.85	3.50
Kroger Co	KR	Retail/Wholesale Food	0.90	11.50
Loblaw Cos. Ltd.	L.TO	Retail/Wholesale Food	0.65	6.50
Metro Inc	MRU.TO	Retail/Wholesale Food	0.60	7.00
Village Super Market Inc	VLGEA	Retail/Wholesale Food	0.75	3.50
Weis Markets	WMK	Retail/Wholesale Food	0.90	4.00
George Weston Ltd	WN.TO	Retail/Wholesale Food	0.65	5.00
Alpha and Omega Semiconductor Limited	AOSL	Semiconductor	0.80	1.50
AXT Inc	AXTI	Semiconductor	0.70	2.50
Cirrus Logic Inc	CRUS	Semiconductor	0.85	21.00
Photronics Inc	PLAB	Semiconductor Equip	0.65	5.00
Rocky Brands Inc	RCKY	Shoe	0.90	4.50

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Friedman Industries Inc	FRD	Steel	0.65	0.50
ADTRAN Inc	ADTN	Telecom. Equipment	0.85	2.00
ClearOne Inc	CLRO	Telecom. Equipment	0.65	18.50
Frequency Electronics Inc	FEIM	Telecom. Equipment	0.70	4.00
Preformed Line Products Company	PLPC	Telecom. Equipment	0.85	3.50
Radcom Ltd	RDCM	Telecom. Equipment	0.90	8.50
TESSCO Technologies Inc	TESS	Telecom. Equipment	0.85	4.50
ATN International	ATNI	Telecom. Services	0.75	18.50
China Mobile Limited	CHL	Telecom. Services	0.80	7.00
Hawaiian Telcom	HCOM	Telecom. Services	0.80	15.50
Internet Initiative Japan Inc	IIJI	Telecom. Services	0.75	22.50
KT Corp	KT	Telecom. Services	0.75	13.00
AT&T	T	Telecom. Services	0.75	1.00
Telus Corp	T.TO	Telecom. Services	0.60	1.50
Torotel Inc	TTLO	Telecom. Services	0.80	13.50
Vonage Holdings Corp	VG	Telecom. Services	0.80	80.50
New Ulm Telecom Inc	NULM	Telecom. Utility	0.55	2.50
Berkshire Hills Bancorp Inc	BHLB	Thrift	0.85	2.50
Brookline Bancorp Inc	BRKL	Thrift	0.90	2.50
Capitol Federal Financial Inc	CFFN	Thrift	0.75	1.00
Charter Financial Corp	CHFN	Thrift	0.70	14.00
Clifton Bancorp Inc	CSBK	Thrift	0.60	14.00
Dime Community Bancshares Inc	DCOM	Thrift	0.90	7.50
Meridian Bancorp Inc	EBSB	Thrift	0.65	3.00
ESSA Bancorp Inc	ESSA	Thrift	0.55	3.50
First Defiance Financial Corp	FDEF	Thrift	0.80	5.00
Home Bancorp Inc	HBCP	Thrift	0.60	7.00
HMN Financial Inc	HMNF	Thrift	0.60	6.50
Investors Bancorp Inc	ISBC	Thrift	0.90	21.50
Kearny Financial	KRNY	Thrift	0.80	19.50
NASB Financial Inc	NASB	Thrift	0.65	6.00
Northwest Indiana Bancorp	NWIN	Thrift	0.55	7.00
New York Community Bancorp Inc	NYCB	Thrift	0.90	0.50
OceanFirst Financial Corp	OCFC	Thrift	0.75	7.00
Provident Financial Services Inc	PFS	Thrift	0.90	3.50
Provident Financial Holdings Inc	PROV	Thrift	0.60	6.00
Southern Missouri Bancorp Inc	SMBC	Thrift	0.60	9.50
TFS Financial Corporation	TFSL	Thrift	0.85	0.50
Timberland Bancorp Inc	TSBK	Thrift	0.60	5.50
United Community Bancorp	UCBA	Thrift	0.55	18.00
Waterstone Financial Inc	WSBF	Thrift	0.70	20.00
Schweitzer Mauduit International Inc	SWM	Tobacco	0.75	2.50
Universal Corp	UVV	Tobacco	0.90	6.50

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Estee Lauder Companies Inc	EL	Toiletries/Cosmetics	0.80	11.00
United Guardian Inc	UG	Toiletries/Cosmetics	0.55	0.50
Heartland Express Inc	HTLD	Trucking	0.90	6.50
Landstar System Inc	LSTR	Trucking	0.90	15.50
Crown Castle International Corporation	CCI	Wireless Networking	0.85	17.50
ORBCOMM Inc	ORBC	Wireless Networking	0.85	2.50
Spok Holdings Inc	SPOK	Wireless Networking	0.90	10.50
Ubiquiti Networks Inc	UBNT	Wireless Networking	0.90	33.00

Average/Mean	9.58
Median	7.00
Average of Mean & Median	**8.29**
Average, if $\beta<0.75$	9.53
Average, if $\beta\geq0.75$	9.61
Average of stratified growth rates	**9.57**
$\beta\leq0.75$, weighted by 44%*	4.19
$\beta>0.75$, weighted by 56%*	5.38
Weighted stratified average	**9.58**
Average of simple, stratified & weighted averages	**9.15**

*See Exhibit DHC-13

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Office of Regulatory Staff
CEM-Prospective
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Company Name	Ticker	Beta	Industry	Book Value Proj 3 To 5 Year Growth Rate
ABM Industries Inc	ABM	0.80	Industrial Services	3.50
Barrick Gold Corporation	ABX	0.80	Precious Metals	7.50
Arch Cap Group Ltd	ACGL	0.70	Insurance (Prop/Cas.)	10.00
Analogic Corp	ALOG	0.80	Precision Instrument	2.00
AmeriGas Partners LP	APU	0.75	Pipeline MLPs	3.00
Ali. Couche-Tard	ATDB.TO	0.80	Retail/Wholesale Food	13.50
ATN International	ATNI	0.75	Telecom. Services	4.50
Axis Capital Holdings Ltd	AXS	0.80	Reinsurance	5.00
BCE Inc	BCE	0.75	Telecom. Utility	8.00
Becton Dickinson and Company	BDX	0.80	Med Supp Invasive	20.00
Bank of Montreal	BMO.TO	0.80	Bank	9.50
CAE Inc	CAE.TO	0.75	Aerospace/Defense	7.00
Conagra Brands	CAG	0.70	Food Processing	7.00
Cheesecake Factory Inc	CAKE	0.75	Restaurant	7.00
Caseys General Stores Inc	CASY	0.75	Retail/Wholesale Food	8.50
Cracker Barrel Old Country Store Inc	CBRL	0.75	Restaurant	7.50
Capitol Federal Financial Inc	CFFN	0.75	Thrift	2.50
Church and Dwight Co Inc	CHD	0.70	Household Products	8.00
Chemed Corporation	CHE	0.80	Diversified Co.	14.00
Check Point Software Technologies Inc	CHKP	0.80	E-Commerce	9.00
Clorox Co	CLX	0.65	Household Products	33.00
Canadian Imperial Bank of Commerce	CM.TO	0.80	Bank	10.50
CME Group Inc	CME	0.75	Brokers & Exchanges	3.00
Compass Diversified	CODI	0.70	Public/Private Equity	6.50
Coca Cola Bottling Company	COKE	0.80	Beverage	20.00
Core Mark Holding Co Inc	CORE	0.75	Retail/Wholesale Food	9.50
Costco Wholesale Corporation	COST	0.80	Retail Store	10.00
Campbell Soup Co	CPB	0.75	Food Processing	19.50
Canadian Tire 'A'	CTCA.TO	0.70	Retail Store	5.00
Citi Trends Inc	CTRN	0.80	Retail (Softlines)	5.00
DineEquity Inc	DIN	0.80	Restaurant	1.50
Amdocs Ltd	DOX	0.80	IT Services	5.50
Dr Pepper Snapple Group Inc	DPS	0.75	Beverage	9.00
DSP Group Inc	DSPG	0.80	Wireless Networking	2.00
Estee Lauder Companies Inc	EL	0.80	Toiletries/Cosmetics	3.50
Erie Indemnity Company	ERIE	0.80	Insurance (Prop/Cas.)	8.50
Elbit Systems Ltd	ESLT	0.80	Aerospace/Defense	11.00
Fresh Del Monte Produce Inc	FDP	0.80	Food Processing	9.50
National Beverage	FIZZ	0.80	Beverage	11.00
Fresenius Medical ADR	FMS	0.80	Medical Services	10.50
Forrester Research Inc	FORR	0.70	Information Services	6.50
Francescas Holdings Corporation	FRAN	0.75	Retail (Softlines)	7.50
Genpact Limited	G	0.75	Industrial Services	17.50
Goldcorp Inc	GG	0.75	Precious Metals	1.00
General Mills Inc	GIS	0.75	Food Processing	7.00
Globus Medical Inc	GMED	0.80	Med Supp Invasive	14.00

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Hawaiian Telcom	HCOM	0.80	Telecom. Services	1.50
Hormel Foods Corporation	HRL	0.75	Food Processing	10.00
Hershey Company	HSY	0.75	Food Processing	18.00
Intercontinental Exch.	ICE	0.80	Brokers & Exchanges	8.00
ICON plc	ICLR	0.80	Medical Services	19.50
Intuitive Surgical Inc	ISRG	0.80	Med Supp Invasive	13.00
J and J Snack Foods Corp	JJSF	0.80	Food Processing	8.00
Kellogg Company	K	0.70	Food Processing	13.00
Konami Corporation	KNMCY	0.80	Foreign Electronics	7.00
Loblaw Cos. Ltd.	L.TO	0.65	Retail/Wholesale Food	5.50
Eli Lilly and Co	LLY	0.75	Drug	9.50
Lockheed Martin Corp	LMT	0.80	Aerospace/Defense	6.00
Logitech International SA	LOGI	0.80	Computers/Peripherals	13.00
Mercury General Corp	MCY	0.80	Insurance (Prop/Cas.)	3.00
MGP Ingredients	MGPI	0.80	Beverage	14.00
McCormick and Co	MKC	0.80	Food Processing	14.00
Markel Corp	MKL	0.80	Insurance (Prop/Cas.)	3.50
Monster Beverage Corporation	MNST	0.80	Beverage	19.50
Altria Group Inc	MO	0.65	Tobacco	15.00
Vail Resorts	MTN	0.80	Hotel/Gaming	20.00
Myriad Genetics Inc	MYGN	0.80	Biotechnology	9.50
Northland Power Inc	NPI.TO	0.70	Power	14.00
Northwest Bancshares Inc	NWBI	0.80	Thrift	2.50
Phibro Animal Health	PAHC	0.75	Food Processing	19.00
Par Pacific Holdings	PARR	0.80	Petroleum (Integrated)	7.50
PepsiCo Inc	PEP	0.80	Beverage	6.00
Pinnacle Foods Inc	PF	0.80	Food Processing	3.00
Procter and Gamble Co	PG	0.65	Household Products	5.00
Photronics Inc	PLAB	0.65	Semiconductor Equip	4.00
Everest Re Group Ltd	RE	0.80	Reinsurance	7.00
Renaissancere Holdings Ltd	RNR	0.70	Reinsurance	5.00
Republic Services Inc	RSG	0.75	Environmental	6.50
Raytheon Co	RTN	0.80	Aerospace/Defense	6.50
Royal Bank of Canada	RY.TO	0.80	Bank	8.50
Sanderson Farms Inc	SAFM	0.75	Food Processing	15.50
Saputo Inc.	SAP.TO	0.65	Food Processing	9.00
JM Smucker Company	SJM	0.75	Food Processing	5.50
Shaw Communications Inc (Class B)	SJRB.TO	0.65	Cable TV	3.00
SNC-Lavalin Group	SNC.TO	0.80	Engineering & Const	4.50
Stantec Inc.	STN.TO	0.80	Engineering & Const	11.00
StoneMor Partners LP	STON	0.75	Funeral Services	16.00
Constellation Brands	STZ	0.75	Beverage	10.00
Schweitzer Mauduit International Inc	SWM	0.75	Tobacco	9.50
AT&T	T	0.75	Telecom. Services	6.50
Toronto Dominion Bank	TD.TO	0.75	Bank	10.00
Treehouse Foods Inc	THS	0.75	Food Processing	6.00
Terra Nitrogen	TNH	0.80	Chemical (Basic)	6.50
Thomson Reuters Corp	TRI.TO	0.75	Information Services	7.00
Tyson Foods	TSN	0.80	Food Processing	9.50

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Vonage Holdings Corp	VG	0.80	Telecom. Services	13.00
Village Super Market Inc	VLGEA	0.75	Retail/Wholesale Food	5.00
Validus Holdings	VR	0.80	Reinsurance	5.50
Verizon Communications Inc	VZ	0.80	Telecom. Services	6.00
WestJet Airlines Ltd	WJA.TO	0.80	Air Transport	7.50
Waste Management	WM	0.75	Environmental	4.50
Walmart Inc.	WMT	0.70	Retail Store	4.00
George Weston Ltd	WN.TO	0.65	Retail/Wholesale Food	8.00

Average/Mean	8.86
Median	7.50
Average of Mean & Median	**8.18**
Average, if $\beta<0.75$	8.84
Average, if $\beta\geq0.75$	8.88
Average of stratified growth rates	**8.86**
$\beta\leq0.75$, weighted by 44%*	3.89
$\beta>0.75$, weighted by 56%*	4.97
Weighted stratified average	**8.86**
Average of simple, stratified & weighted averages	**8.63**
Retrospective Book growth	**9.15**
Prospective Book growth	**8.63**
Indicated CEM Cost of Equity	**8.89**

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OFFICE OF REGULATORY STAFF

U.S. Census Quarterly Financial Report and Calculations Based upon It

Carolina Water Service, Inc.

Docket No. 2017-292-WS

United States Census Bureau

U.S. Census Bureau
Source: Quarterly Financial Report
All Manufacturing: U.S. Total
Not Seasonally Adjusted Total Assets [Millions of Dollars]
Period: 2002 to 2017
Data Extracted on: August 4, 2017 (3:30 pm)

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2002	4,733,073	4,767,543	4,780,278	4,823,219
2003	4,905,287	5,021,709	5,033,355	5,162,852
2004	5,280,255	5,371,716	5,451,203	5,538,113
2005	5,590,232	5,657,787	5,800,190	5,828,716
2006	5,998,529	6,116,322	6,205,970	6,179,142
2007	6,297,423	6,520,599	6,689,008	6,891,131
2008	7,075,200	7,152,498	7,081,610	6,819,681
2009	6,733,755	6,783,626	6,827,720	6,942,972
2010	7,082,521	7,189,592	7,346,330	7,432,384
2011	7,593,783	7,754,262	7,812,542	7,907,376
2012	8,098,156	8,165,826	8,317,436	8,331,651
2013	8,458,261	8,605,267	8,733,733	8,838,478
2014	8,921,595	9,031,403	9,103,699	9,088,807
2015	9,236,651	9,443,403	9,585,409	9,632,509
2016	9,763,918	9,958,829	10,103,978	10,213,936
2017	10,334,714	NA	NA	NA

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U.S. Census Quarterly Financial Report and Calculations Based upon It

Carolina Water Service, Inc.

Docket No. 2017-292-WS

United States Census Bureau

U.S. Census Bureau
Source: Quarterly Financial Report
All Manufacturing: U.S. Total
Not Seasonally Adjusted Total Liabilities [Millions of Dollars]
Period: 2002 to 2017
Data Extracted on: February 20, 2018 (1:16 pm)

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2002	2,936,601	2,948,215	2,950,295	3,052,936
2003	3,062,972	3,083,952	3,077,270	3,090,094
2004	3,167,214	3,194,583	3,230,278	3,223,895
2005	3,238,902	3,268,717	3,362,435	3,365,083
2006	3,392,411	3,441,958	3,467,135	3,484,075
2007	3,522,047	3,620,521	3,729,365	3,838,938
2008	3,988,920	4,069,796	4,021,906	4,126,764
2009	4,135,332	4,135,752	3,957,093	3,935,594
2010	4,039,019	4,072,140	4,127,076	4,106,492
2011	4,152,554	4,203,106	4,269,796	4,427,111
2012	4,517,909	4,566,588	4,640,912	4,697,347
2013	4,743,587	4,831,184	4,885,360	4,836,900
2014	4,907,989	4,972,584	5,020,058	5,153,122
2015	5,270,266	5,427,572	5,547,612	5,625,845
2016	5,712,751	5,883,012	5,966,004	6,114,987
2017	6,156,789	6,222,641	6,326,520	

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U.S. Census Quarterly Financial Report and Calculations Based upon It

Carolina Water Service, Inc.

Docket No. 2017-292-WS

Change in Net Equity, Based upon Preceding Tables

(deep yellow=decline; light yellow=below previous high)

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2002	1,796,472	1,819,328	1,829,983	1,770,283
2003	1,842,315	1,937,757	1,956,085	2,072,758
2004	2,113,041	2,177,133	2,220,925	2,314,218
2005	2,351,330	2,389,070	2,437,755	2,463,633
2006	2,606,118	2,674,364	2,738,835	2,695,067
2007	2,775,376	2,900,078	2,959,643	3,052,193
2008	3,086,280	3,082,702	3,059,704	2,692,917
2009	2,598,423	2,647,874	2,870,627	3,007,378
2010	3,043,502	3,117,452	3,219,254	3,325,892
2011	3,441,229	3,551,156	3,542,746	3,480,265
2012	3,580,247	3,599,238	3,676,524	3,634,304
2013	3,714,674	3,774,083	3,848,373	4,001,578
2014	4,013,606	4,058,819	4,083,641	3,935,685
2015	3,966,385	4,015,831	4,037,797	4,006,664
2016	4,051,167	4,075,817	4,137,974	4,098,949
2017	4,177,925			

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OFFICE OF REGULATORY STAFF

U.S. Census Quarterly Financial Report and Calculations Based upon It

Carolina Water Service, Inc.

Docket No. 2017-292-WS

% Change in Net Equity, Based upon Preceding Table

(quarter over same quarter previous year)

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2003	2.55%	6.51%	6.89%	17.09%
2004	14.69%	12.35%	13.54%	11.65%
2005	11.28%	9.73%	9.76%	6.46%
2006	10.84%	11.94%	12.35%	9.39%
2007	6.49%	8.44%	8.06%	13.25%
2008	11.20%	6.30%	3.38%	-11.77%
2009	-15.81%	-14.11%	-6.18%	11.68%
2010	17.13%	17.73%	12.14%	10.59%
2011	13.07%	13.91%	10.05%	4.64%
2012	4.04%	1.35%	3.78%	4.43%
2013	3.75%	4.86%	4.67%	10.11%
2014	8.05%	7.54%	6.11%	-1.65%
2015	-1.18%	-1.06%	-1.12%	1.80%
2016	2.14%	1.49%	2.48%	2.30%
2017	3.13%			

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Office of Regulatory Staff
CAP-M
Carolina Water Service, Inc.
Docket No. 2017-292-WS

Company	β*	Source
American States	0.80	Exhibit DHC-3, p.1
American Water	0.65	Exhibit DHC-3, p.2
Aqua America	0.75	Exhibit DHC-3, p.3
Artesian Resources	0.65	Exhibit DHC-3, p.5
California Water	0.80	Exhibit DHC-3, p.6
Connecticut Water	0.65	Exhibit DHC-3, p.7
Global Water Resources	N/A	Exhibit DHC-3, p.8
Middlesex Water	0.80	Exhibit DHC-3, p.9
SJW	0.70	Exhibit DHC-3, p.10
York Water	0.80	Exhibit DHC-3, p.11
median	0.75	

*Proportion of companies by β: 56% ≥ 0.75; 44% < 0.75

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Office of Regulatory Staff
CAP-M
Carolina Water Service, Inc.
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Excerpt from SBBI, 2017 (added calculations shown in box):

Exhibit 7-1: Aggregate Market Capitalization and company Counts of the CRSP (NYSE/NYSE MKT/ NASDAQ) Deciles and Size groupings
31-Dec-16

Decile	Historic Average Percentage of Total Capitalization	Recent Number of Companies	Recent Decile Market Capitalization (in $thousands)	Recent Percentage of Total Capitalization	Percent of Recent Companies
1-largest	63.13%	191	15,290,475,300	66.12%	5.9%
2	13.95%	200	3,010,671,018	13.02%	6.2%
3	7.55%	202	1,609,575,618	6.96%	6.3%
4	4.73%	221	1,010,851,810	4.37%	6.9%
5	3.26%	227	677,120,067	2.93%	7.0%
6	2.41%	259	541,037,999	2.34%	8.0%
7	1.79%	283	384,129,198	1.66%	8.8%
8	1.33%	361	297,164,943	1.28%	11.2%
9	1.03%	487	212,609,644	0.92%	15.1%
10-smallest	0.82%	790	92,882,169	0.40%	24.5%

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Office of Regulatory Staff
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Exhibit 7-6 [further SBBI excerpt: returns; added calculations shown in boxes]

Decile	Geometric Mean	Arithmetic Mean	Geometric Mean Weightings by Number of Companies
1-largest	9.30%	11.10%	0.55%
2	10.60%	12.80%	0.66%
3	11.00%	13.60%	0.69%
4	10.80%	13.80%	0.74%
5	11.50%	14.60%	0.81%
6	11.40%	14.80%	0.92%
7	11.60%	15.40%	1.02%
8	11.60%	16.10%	1.30%
9	11.60%	17.00%	1.75%
10-smallest	13.30%	20.30%	3.26%
	11.27%		11.70%
	Average		Weighted Average

Average	11.27%	14.95%	11.70%
ERP*	7.57%	11.25%	8.00%
Risk-adjust ERP†	5.68%	8.44%	6.00%
CAP-M cost of Equity‡	**9.38%**	12.14%	**9.70%**

(9.38 + 9.70)/2 = 9.54

*Based on R_f at Exhibit DHC-2, R_m - R_f

†Based on median β, p.1 of this exhibit, ERP * β

‡Rf + Risk-Adjusted ERP; result rounded

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Office of Regulatory Staff

Comparison of Interest-Only and Regular Loan

Carolina Water Service, Inc.

Docket No. 2017-292-WS

Year	Interest	Principal	Total Cash Flow	Remaining Principal	Coupon Rate
2006				$ 180,000,000.00	
2007	$ (11,844,000.00)		$ (11,844,000.00)	$ 180,000,000.00	6.58%
2008	$ (11,844,000.00)		$ (11,844,000.00)	$ 180,000,000.00	6.58%
2009	$ (11,844,000.00)		$ (11,844,000.00)	$ 180,000,000.00	6.58%
2010	$ (11,844,000.00)		$ (11,844,000.00)	$ 180,000,000.00	6.58%
2011	$ (11,844,000.00)		$ (11,844,000.00)	$ 180,000,000.00	6.58%
2012	$ (11,844,000.00)		$ (11,844,000.00)	$ 180,000,000.00	6.58%
2013	$ (11,844,000.00)		$ (11,844,000.00)	$ 180,000,000.00	6.58%
2014	$ (11,844,000.00)		$ (11,844,000.00)	$ 180,000,000.00	6.58%
2015	$ (11,844,000.00)		$ (11,844,000.00)	$ 180,000,000.00	6.58%
2016	$ (11,844,000.00)		$ (11,844,000.00)	$ 180,000,000.00	6.58%
2017	$ (11,844,000.00)	$ (9,000,000.00)	$ (20,844,000.00)	$ 171,000,000.00	6.58%
2018	$ (11,251,800.00)	$ (9,000,000.00)	$ (20,251,800.00)	$ 162,000,000.00	6.58%
2019	$ (10,659,600.00)	$ (9,000,000.00)	$ (19,659,600.00)	$ 153,000,000.00	6.58%
2020	$ (10,067,400.00)	$ (9,000,000.00)	$ (19,067,400.00)	$ 144,000,000.00	6.58%
2021	$ (9,475,200.00)	$ (9,000,000.00)	$ (18,475,200.00)	$ 135,000,000.00	6.58%
2022	$ (8,883,000.00)	$ (9,000,000.00)	$ (17,883,000.00)	$ 126,000,000.00	6.58%
2023	$ (8,290,800.00)	$ (9,000,000.00)	$ (17,290,800.00)	$ 117,000,000.00	6.58%
2024	$ (7,698,600.00)	$ (9,000,000.00)	$ (16,698,600.00)	$ 108,000,000.00	6.58%
2025	$ (7,106,400.00)	$ (9,000,000.00)	$ (16,106,400.00)	$ 99,000,000.00	6.58%
2026	$ (6,514,200.00)	$ (9,000,000.00)	$ (15,514,200.00)	$ 90,000,000.00	6.58%
2027	$ (5,922,000.00)	$ (9,000,000.00)	$ (14,922,000.00)	$ 81,000,000.00	6.58%
2028	$ (5,329,800.00)	$ (9,000,000.00)	$ (14,329,800.00)	$ 72,000,000.00	6.58%
2029	$ (4,737,600.00)	$ (9,000,000.00)	$ (13,737,600.00)	$ 63,000,000.00	6.58%
2030	$ (4,145,400.00)	$ (9,000,000.00)	$ (13,145,400.00)	$ 54,000,000.00	6.58%
2031	$ (3,553,200.00)	$ (9,000,000.00)	$ (12,553,200.00)	$ 45,000,000.00	6.58%
2032	$ (2,961,000.00)	$ (9,000,000.00)	$ (11,961,000.00)	$ 36,000,000.00	6.58%
2033	$ (2,368,800.00)	$ (9,000,000.00)	$ (11,368,800.00)	$ 27,000,000.00	6.58%
2034	$ (1,776,600.00)	$ (9,000,000.00)	$ (10,776,600.00)	$ 18,000,000.00	6.58%
2035	$ (1,184,400.00)	$ (9,000,000.00)	$ (10,184,400.00)	$ 9,000,000.00	6.58%
2036	$ (592,200.00)	$ (9,000,000.00)	$ (9,592,200.00)	$ -	6.58%
TOTALS	$ (242,802,000.00)	$ (180,000,000.00)	$ (422,802,000.00)		

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Office of Regulatory Staff

Comparison of Interest-Only and Regular Loan

Carolina Water Service, Inc.

Docket No. 2017-292-WS

Year	Interest	Principal	Total Cash Flow	Remaining Principal	Coupon Rate	Difference in Interest
2006		$ 180,000,000.00	$ 180,000,000.00	$ 180,000,000.00		
2007	$ (11,844,000.00)	$ (6,000,000.00)	$ (17,844,000.00)	$ 174,000,000.00	6.58%	$ -
2008	$ (11,449,200.00)	$ (6,000,000.00)	$ (17,449,200.00)	$ 168,000,000.00	6.58%	$ (394,800.00)
2009	$ (11,054,400.00)	$ (6,000,000.00)	$ (17,054,400.00)	$ 162,000,000.00	6.58%	$ (789,600.00)
2010	$ (10,659,600.00)	$ (6,000,000.00)	$ (16,659,600.00)	$ 156,000,000.00	6.58%	$ (1,184,400.00)
2011	$ (10,624,800.00)	$ (6,000,000.00)	$ (16,264,800.00)	$ 150,000,000.00	6.58%	$ (1,579,200.00)
2012	$ (9,870,000.00)	$ (6,000,000.00)	$ (15,870,000.00)	$ 144,000,000.00	6.58%	$ (1,974,000.00)
2013	$ (9,475,200.00)	$ (6,000,000.00)	$ (15,475,200.00)	$ 138,000,000.00	6.58%	$ (2,368,800.00)
2014	$ (9,080,400.00)	$ (6,000,000.00)	$ (15,080,400.00)	$ 132,000,000.00	6.58%	$ (2,763,600.00)
2015	$ (8,685,600.00)	$ (6,000,000.00)	$ (14,685,600.00)	$ 126,000,000.00	6.58%	$ (3,158,400.00)
2016	$ (8,290,800.00)	$ (6,000,000.00)	$ (14,290,800.00)	$ 120,000,000.00	6.58%	$ (3,553,200.00)
2017	$ (7,896,000.00)	$ (6,000,000.00)	$ (13,896,000.00)	$ 114,000,000.00	6.58%	$ (3,948,000.00)
2018	$ (7,501,200.00)	$ (6,000,000.00)	$ (13,501,200.00)	$ 108,000,000.00	6.58%	$ (3,750,600.00)
2019	$ (7,106,400.00)	$ (6,000,000.00)	$ (13,106,400.00)	$ 102,000,000.00	6.58%	$ (3,553,200.00)
2020	$ (6,711,600.00)	$ (6,000,000.00)	$ (12,711,600.00)	$ 96,000,000.00	6.58%	$ (3,355,800.00)
2021	$ (6,316,800.00)	$ (6,000,000.00)	$ (12,316,800.00)	$ 90,000,000.00	6.58%	$ (3,158,400.00)
2022	$ (5,922,000.00)	$ (6,000,000.00)	$ (11,922,000.00)	$ 84,000,000.00	6.58%	$ (2,961,000.00)
2023	$ (5,527,200.00)	$ (6,000,000.00)	$ (11,527,200.00)	$ 78,000,000.00	6.58%	$ (2,763,600.00)
2024	$ (5,132,400.00)	$ (6,000,000.00)	$ (11,132,400.00)	$ 72,000,000.00	6.58%	$ (2,566,200.00)
2025	$ (4,737,600.00)	$ (6,000,000.00)	$ (10,737,600.00)	$ 66,000,000.00	6.58%	$ (2,368,800.00)
2026	$ (4,342,800.00)	$ (6,000,000.00)	$ (10,342,800.00)	$ 60,000,000.00	6.58%	$ (2,171,400.00)
2027	$ (3,948,000.00)	$ (6,000,000.00)	$ (9,948,000.00)	$ 54,000,000.00	6.58%	$ (1,974,000.00)
2028	$ (3,553,200.00)	$ (6,000,000.00)	$ (9,553,200.00)	$ 48,000,000.00	6.58%	$ (1,776,600.00)
2029	$ (3,158,400.00)	$ (6,000,000.00)	$ (9,158,400.00)	$ 42,000,000.00	6.58%	$ (1,579,200.00)
2030	$ (2,763,600.00)	$ (6,000,000.00)	$ (8,763,600.00)	$ 36,000,000.00	6.58%	$ (1,381,800.00)
2031	$ (2,368,800.00)	$ (6,000,000.00)	$ (8,368,800.00)	$ 30,000,000.00	6.58%	$ (1,184,400.00)
2032	$ (1,974,000.00)	$ (6,000,000.00)	$ (7,974,000.00)	$ 24,000,000.00	6.58%	$ (987,000.00)
2033	$ (1,579,200.00)	$ (6,000,000.00)	$ (7,579,200.00)	$ 18,000,000.00	6.58%	$ (789,600.00)
2034	$ (1,184,400.00)	$ (6,000,000.00)	$ (7,184,400.00)	$ 12,000,000.00	6.58%	$ (592,200.00)
2035	$ (789,600.00)	$ (6,000,000.00)	$ (6,789,600.00)	$ 6,000,000.00	6.58%	$ (394,800.00)
2036	$ (394,800.00)	$ (6,000,000.00)	$ (6,394,800.00)	$ -	6.58%	$ (197,400.00)
TOTALS	**$ (183,582,000.00)**	**$ (180,000,000.00)**	**$ (363,582,000.00)**	**Cost of interest-only**		**$ (59,220,000.00)**