

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. W-1305, SUB 12

In the Matter of  
Application by Pluris Hampstead, LLC, )  
5950 Berkshire Lane, Suite 800, Dallas, )  
Texas, 75225 for Authority to Increase )  
Rates for Sewer Utility Service in All of )  
Its Service Areas in Pender County, )  
North Carolina. )

TESTIMONY OF  
CALVIN C. CRAIG, III  
PUBLIC STAFF – NORTH  
CAROLINA UTILITIES  
COMMISSION

**PLURIS HAMPSTEAD, LLC  
DOCKET NO. W-1305, SUB 12**

**TESTIMONY OF CALVIN C. CRAIG, III  
ON BEHALF OF THE PUBLIC STAFF  
NORTH CAROLINA UTILITIES COMMISSION**

**July 14, 2020**

1 **Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS**  
2 **ADDRESS FOR THE RECORD.**

3 A. My name is Calvin C Craig, III. I am a Financial Analyst in the  
4 Economic Research Division of the Public Staff of the North  
5 Carolina Utilities Commission (Public Staff), representing the using  
6 and consuming public. My business address is 430 North Salisbury  
7 Street, Raleigh, North Carolina 27603.

8 **Q. PLEASE OUTLINE YOUR EDUCATIONAL BACKGROUND AND**  
9 **RELEVANT EMPLOYMENT EXPERIENCE.**

10 A. I received a Bachelor of Science degree in Industrial Relations from  
11 the University of North Carolina at Chapel Hill in 1985, an MBA  
12 degree from East Carolina University in 1993, and a Juris Doctor  
13 degree from North Carolina Central University in 2006. Since joining  
14 the Public Staff in November 1995, I have been involved with natural  
15 gas expansion projects, have conducted rate of return studies, and  
16 have filed affidavits assessing financial viability and a fair rate of  
17 return in numerous water and wastewater utility rate cases.

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
2 **PROCEEDING?**

3 A. The purpose of my testimony is to present to the North Carolina  
4 Utilities Commission (Commission) the results of my analysis and  
5 my recommendations as to the fair rate of return to be used in  
6 establishing rates for sewer utility service provided by Pluris  
7 Hampstead, LLC (Pluris or Company) in its service areas in Pender  
8 County, North Carolina.

9 **Q. WHAT COST OF CAPITAL IS REQUESTED BY PLURIS IN THIS**  
10 **PROCEEDING?**

11 A. Pluris has requested an overall weighted cost of capital of 6.69%.

12 **Q. HOW DOES PLURIS WITNESS GALLARDA JUSTIFY HIS**  
13 **REQUESTED RATE OF RETURN?**

14 A. Pluris witness Maurice W. Gallarda indicates in his pre-filed direct  
15 testimony that his requested rate of return is based upon the rates  
16 of return on common equity granted by the Commission to Carolina  
17 Water Service ("CWS") in Docket No. W-354, Sub 360 and to Aqua  
18 North Carolina ("Aqua") in Docket No. W-218, Sub 497. Witness  
19 Gallarda supports his request by stating that the Commission  
20 allowed a 9.75% return on common equity in Docket No. W-354,  
21 Sub 360 and a return on common equity of 9.70% in Docket No.  
22 W-218, Sub 497. Gallarda contends that the Company's requested

1 return on common equity is based on an average of these two  
2 allowed returns.

3 **Q. WHAT IS THE OVERALL RATE OF RETURN RECOMMENDED**  
4 **BY THE PUBLIC STAFF?**

5 A. The Public Staff recommends an overall rate of return of 6.32%,  
6 based on the Company's capital structure as of March 31, 2020,  
7 that is composed of 57.66% long-term debt and 42.34% common  
8 equity. This recommended overall rate of return recommendation is  
9 based on a cost rate of long-term debt of 4.35%, and a cost rate for  
10 common equity of 9.00%.

11 **Q. HOW IS THE REMAINDER OF YOUR TESTIMONY**  
12 **STRUCTURED?**

13 A. The remainder of my testimony is presented in the following five  
14 sections:

- 15 I. Legal and Economic Guidelines for Fair Rate of Return
- 16 II. Present Financial Market Conditions
- 17 III. Appropriate Capital Structure and Cost of Long-Term Debt
- 18 IV. The Cost of Common Equity Capital
- 19 V. Summary and Recommendations

20

1 **I. LEGAL AND ECONOMIC GUIDELINES FOR**  
2 **FAIR RATE OF RETURN**

3 **Q. PLEASE BRIEFLY DESCRIBE THE ECONOMIC AND LEGAL**  
4 **FRAMEWORK OF YOUR ANALYSIS.**

5 A. Public utilities possess certain characteristics of natural  
6 monopolies. For instance, it is more efficient for a single firm to  
7 provide a service such as water production and distribution or  
8 wastewater collection and treatment than for two or more firms  
9 offering the same service in the same area to do so. Therefore,  
10 regulatory bodies have assigned franchised territories to public  
11 utilities to provide services more efficiently and at a lower cost to  
12 consumers.

13 **Q. WHAT IS THE ECONOMIC RELATIONSHIP BETWEEN RISK**  
14 **AND THE COST OF CAPITAL?**

15 A. The cost of equity capital to a firm is equal to the rate of return  
16 investors expect to earn on the firm's securities given the securities'  
17 level of risk. An investment with a greater risk will require a higher  
18 expected return by investors. In Federal Power Comm'n v. Hope  
19 Natural Gas Co., 320 U.S. 591, 603 (1944) (Hope), the United  
20 States Supreme Court stated:

21 [T]he return to the equity owner should be  
22 commensurate with returns on investments in other  
23 enterprises having corresponding risks. That return,  
24 moreover, should be sufficient to assure confidence in

1                   the financial integrity of the enterprise, so as to  
2                   maintain its credit and to attract capital.

3                   In Bluefield Waterworks & Impr. Co. v. Public Service Comm'n, 262  
4                   U.S. 679, 692-93 (1923) (Bluefield) the United States Supreme  
5                   Court stated: A public utility is entitled to such rates as will permit it  
6                   to earn a return on the value of the property which it employs for  
7                   the convenience of the public equal to that generally being made at  
8                   the same time and in the same general part of the country on  
9                   investments in other business undertakings which are attended by  
10                  corresponding risks and uncertainties, but it has no constitutional  
11                  right to profits such as are realized or anticipated in highly profitable  
12                  enterprises or speculative ventures. The return should be  
13                  reasonably sufficient to assure confidence in the financial  
14                  soundness of the utility and should be adequate, under efficient and  
15                  economical management, to maintain and support its credit and  
16                  enable it to raise the money necessary for the proper discharge of  
17                  its public duties. A rate of return may be reasonable at one time and  
18                  become too high or too low by changes affecting opportunities for  
19                  investment, the money market, and business conditions.

20                  These two decisions recognize that utilities are competing for the  
21                  capital of investors and provide legal guidelines as to how the  
22                  allowed rate of return should be set. The decisions specifically  
23                  speak to the standards or criteria of capital attraction, financial

1 integrity, and comparable earnings. The Hope decision, in  
2 particular, recognizes that the cost of common equity is  
3 commensurate with risk relative to investments in other enterprises.  
4 In competitive capital markets, the required return on common  
5 equity will be the expected return foregone by not investing in  
6 alternative stocks of comparable risk. Thus, in order for the utility to  
7 attract capital, possess financial integrity, and exhibit comparable  
8 earnings, the return allowed on a utility's common equity should be  
9 that return required by investors for stocks with comparable risk. As  
10 such, the return requirements of debt and equity investors, which is  
11 shaped by expected risk and return, is paramount in attracting  
12 capital.

13 It is widely recognized that a public utility should be allowed a rate  
14 of return on capital, which will allow the utility, under prudent  
15 management, to attract capital under the criteria or standards  
16 referenced by the Hope and Bluefield decisions. If the allowed rate  
17 of return is set too high, consumers are burdened with excessive  
18 costs, current investors receive a windfall, and the utility has an  
19 incentive to overinvest. Likewise, customers will be charged prices  
20 that are greater than the true economic costs of providing these  
21 services and consumers will consume too few of these services  
22 from a point of view of efficient resource allocation. If the return is  
23 set too low, then the utility stockholders will suffer because a

1 declining value of the underlying property will be reflected in a  
2 declining value of the utility's equity shares. This could happen  
3 because the utility would not be earning enough to maintain and  
4 expand its facilities to meet customer demand for service, cover its  
5 operating costs, and attract capital on reasonable terms. Potential  
6 lenders will shy away from the company because of the increased  
7 risk that the utility will default on its debt obligations and may  
8 charge a higher rate for new debt issues. Because a public utility is  
9 capital intensive, the cost of capital is a very large part of its overall  
10 revenue requirement and is a crucial issue for a company and its  
11 ratepayers.

12 The Hope and Bluefield standards are embodied in N.C. Gen. Stat.  
13 § 62-133(b)(4), which requires that the allowed rate of return be  
14 sufficient to enable a utility by sound management:

15 “...to produce a fair return for its shareholders,  
16 considering changing economic conditions and other  
17 factors, . . . to maintain its facilities and services in  
18 accordance with the reasonable requirements of its  
19 customers in the territory covered by its franchise, and  
20 to compete in the market for capital funds on terms  
21 that are reasonable and are fair to its customers and  
22 to its existing investors.”

23 N.C. Gen. Stat. § 62-133(b)(4) (2017).

24 On April 12, 2013, the North Carolina Supreme Court decided State  
25 ex rel. Utils. Comm'n v. Cooper, 366 N.C. 484, 739 S.E. 2d 541  
26 (2013) (Cooper). In that decision, the Supreme Court reversed and



1 remanded the Commission's January 27, 2012 Order in Docket No.  
2 E-7, Sub 989, approving a stipulated return on equity of 10.50% for  
3 Duke Energy Carolinas, LLC. In its decision, the Supreme Court  
4 held: (1) that the 10.50% return on equity was not supported by the  
5 Commission's own independent findings and analysis as required  
6 by State ex rel. Utils. Comm'n v. Carolina Util. Customers Ass'n,  
7 348 N.C. 452, 500 S.E.2d 693 (1998) (CUCA I), in cases involving  
8 non-unanimous stipulations, and (2) that the Commission must  
9 make findings of fact regarding the impact of changing economic  
10 conditions on consumers when determining the proper return on  
11 equity for a public utility. In Cooper, the Court's holding introduced a  
12 new factor to be considered by the Commission regardless of  
13 whether there is a stipulation.

14 In considering this new element, the Commission is guided by  
15 ratemaking principles laid down by statute and interpreted by a  
16 body of North Carolina case law developed over many years.  
17 According to these principles, the test of a fair rate of return is a  
18 return on equity that will provide a utility, by sound management,  
19 the opportunity to: (1) produce a fair profit for its shareholders in  
20 view of current economic conditions, (2) maintain its facilities and  
21 service, and (3) compete in the marketplace for capital. State ex rel.  
22 Utils. Comm'n v. General Tel. Co., 281 N.C. 318, 370, 189 S.E.2d  
23 705, 738 (1972). Rates should be set as low as reasonably

1 possible consistent with constitutional constraints. State ex rel.  
2 Utils. Comm'n v. Pub. Staff-N. Carolina Utils. Comm'n, 323 N.C.  
3 481, 490, 374 S.E.2d 361, 366 (1988). The exercise of subjective  
4 judgment is a necessary part of setting an appropriate return on  
5 equity. Id. Thus, in a particular case, the Commission must strike a  
6 balance that: (1) avoids setting a return so low that it impairs the  
7 utility's ability to attract capital, (2) avoids setting a return any  
8 higher than needed to raise capital on reasonable terms, and (3)  
9 considers the impact of changing economic conditions on  
10 consumers.

11 **Q. WHAT IS A FAIR RATE OF RETURN?**

12 A. The fair rate of return is simply a percentage, which, when  
13 multiplied by a utility's rate base investment will yield the dollars of  
14 net operating income that a utility should reasonably have the  
15 opportunity to earn. This dollar amount of net operating income is  
16 available to pay the interest cost on a utility's debt capital and a  
17 return to the common equity investor. The fair rate of return  
18 multiplied by the utility's rate base yields the dollars a utility needs  
19 to recover in order to earn the investors' required return on capital.

20

1   **Q.    HOW DID YOU DETERMINE THE FAIR RATE OF RETURN THAT**  
2       **YOU RECOMMEND IN THIS PROCEEDING?**

3    A.    To determine the fair rate of return, I performed a cost of capital  
4       study consisting of three steps. First, I determined the appropriate  
5       capital structure for ratemaking purposes, i.e., the proper  
6       proportions of each form of capital. Utilities normally finance assets  
7       with debt and common equity. Because each of these forms of  
8       capital have different costs, especially after income tax  
9       considerations, the relative amounts of each form employed to  
10      finance the assets can have a significant influence on the overall  
11      cost of capital, revenue requirements, and rates. Thus, the  
12      determination of the appropriate capital structure for ratemaking  
13      purposes is important to the utility and to ratepayers. Second, I  
14      determined the cost rate of each form of capital. The individual debt  
15      issues have contractual agreements explicitly stating the cost of  
16      each issue. The embedded annual cost rate of debt is generally  
17      calculated with the annual interest cost divided by the debt  
18      outstanding. The cost of common equity is more difficult to  
19      determine because it is based on the investor's opportunity cost of  
20      capital. Third, by combining the appropriate capital structure ratios  
21      for ratemaking purposes with the associated cost rates, I calculate  
22      an overall weighted cost of capital or fair rate of return.

23

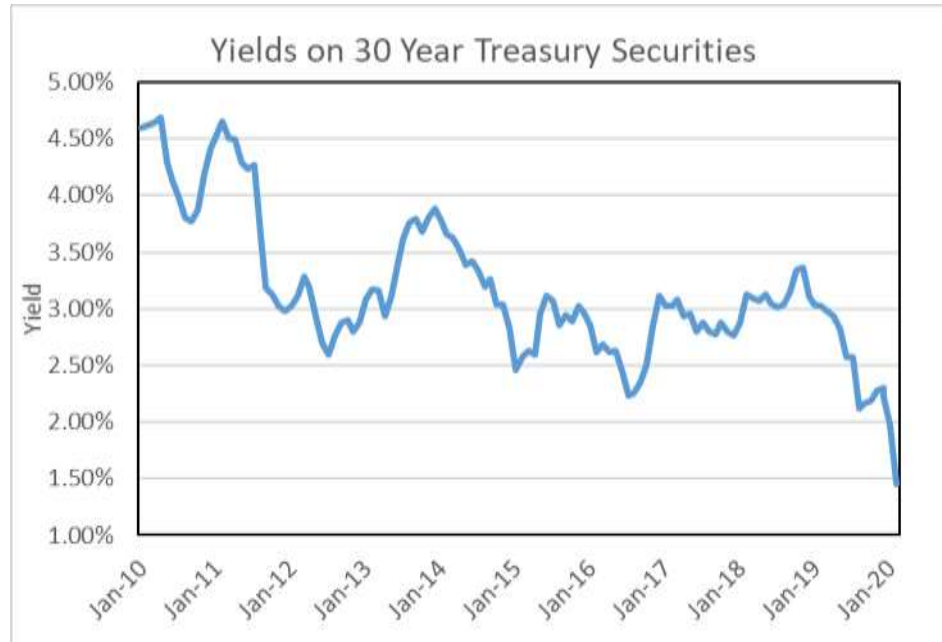
1 **II. PRESENT FINANCIAL MARKET CONDITIONS**

2 **Q. CAN YOU BRIEFLY DESCRIBE CURRENT FINANCIAL MARKET**  
3 **CONDITIONS?**

4 A. Yes. The cost of financing is much lower today than in the more  
5 inflationary period of the 1990s. More recently, the continued low  
6 rates of inflation and expectations of future low inflation rates have  
7 contributed to even lower interest rates. These lower yields are  
8 illustrated in the following graph of 30-year Treasury Securities and  
9 Moody's Long-Term Bond Yields shown in Craig Exhibit 1.

10 Recent decreases in interest rates and the stock market are also due  
11 to concerns over the coronavirus pandemic. However, water utility  
12 stocks have survived the stock market decline relatively well. The  
13 stability of the common stock prices of water utilities is described in  
14 the March 23, 2020 S&P Global Report entitled, "Despite volatility,  
15 water utility valuation premiums persist." As of March 20, 2020,  
16 these concerns have also led to a 33% drop in the Dow Jones  
17 Industrial Average as reported by S&P Global Market Intelligence.  
18 The report noted that the Dow Jones Utility Index has lost 27% of its  
19 value; however, water utilities had only lost 14% of their value over  
20 the same period. Furthermore, the report identified the lower Beta  
21 coefficients with water utilities' stocks and that these stocks have  
22 historically been considered largely recession-resistant. A similar  
23 observation was reported in a July 1, 2020 article that the water

1 utility sector has continued to post consistent quality financial results  
2 that generally exceeded those of electric and natural gas utilities<sup>1</sup>.



3  
4 Of course, the impact of the coronavirus pandemic looms large in  
5 current market conditions, and is discussed later in my testimony.

6 **III. APPROPRIATE CAPITAL STRUCTURE AND**  
7 **COST OF LONG-TERM DEBT**

8 **Q. WHY IS THE APPROPRIATE CAPITAL STRUCTURE**  
9 **IMPORTANT FOR RATEMAKING PURPOSES?**

10 A. For companies that do not have monopoly power, the price that an  
11 individual company charges for its products or services is set in a  
12 competitive market, and that price is generally not influenced by the

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<sup>1</sup> Serzan, Tom, S&P Global Market Intelligence, "Utility parent financials well positioned for downturn despite recent slippage, July 1, 2020.

1 company's capital structure. However, the capital structure that is  
2 determined to be appropriate for a regulated public utility has a  
3 direct bearing on the fair rate of return, revenue requirement, and  
4 therefore, the prices charged to captive ratepayers.

5 **Q. PLEASE EXPLAIN THE TERM CAPITAL STRUCTURE AND**  
6 **HOW THE CAPITAL STRUCTURE APPROVED FOR**  
7 **RATEMAKING PURPOSES AFFECTS RATES.**

8 A. The capital structure is simply a representation of how a utility's  
9 assets are financed. It is the relative proportions or ratios of debt  
10 and common equity to the total of these forms of capital, which  
11 have different costs. Common equity is far more expensive than  
12 debt for ratemaking purposes for two reasons. First, as mentioned  
13 earlier, there are income tax considerations. Interest on debt is  
14 deductible for purposes of calculating income taxes. The cost of  
15 common equity, on the other hand, must be "grossed up" to allow  
16 the utility sufficient revenue to pay income taxes and to earn its cost  
17 of common equity on a net or after-tax basis. Therefore, the amount  
18 of revenue the utility must collect from ratepayers to meet income  
19 tax obligations is directly related to both the common equity ratio in  
20 the capital structure and the cost of common equity. A second  
21 reason for this cost difference is that the cost of common equity  
22 must be set at a marginal or current cost rate. Conversely, the cost  
23 of debt is set at an embedded rate because the utility is incurring

1 costs that were previously established in contracts with security  
2 holders.

3 Because the Commission has the duty to promote economic utility  
4 service, it must decide whether a utility's requested capital structure  
5 is appropriate for ratemaking purposes. An example of the cost  
6 difference can be seen in the Company's filing. Based upon the  
7 Company's requested capital cost rates, each dollar of its common  
8 equity and long-term debt supporting the retail rate base has the  
9 following approximate annual costs (including income tax and  
10 regulatory fee) to ratepayers:

11 (1) Each \$1 of common equity costs a ratepayer approximately  
12 12 cents per year.

13 (2) Each \$1 of long-term debt costs a ratepayer approximately 4  
14 cents per year.

15 **Q. WHAT CAPITAL STRUCTURE HAS THE COMPANY**  
16 **REQUESTED IN THIS CASE?**

17 A. The Company's application requests to use their actual capital  
18 structure that is comprised of 55.96% long-term debt, 43.38%  
19 equity, and 0.65% customer deposits, shown below.

1

Pluris Hampstead, LLC  
Capital Structure  
as of September 30, 2019

Item	Balance	Ratio	Cost Rate	Weighted Cost Rate
Long-Term Debt	\$ 1,773,318	55.96%	4.35%	2.43%
Common Equity	1,374,771	43.38%	9.70%	4.21%
Customer Deposits	20,750	0.65%	8.00%	0.05%
Total Capital	\$ 3,168,840	99.99%		6.69%

2 **Q. DO YOU SUPPORT THE CAPITAL STRUCTURE PROPOSED BY**  
3 **THE COMPANY IN THIS CASE?**

4 A. No. I have reviewed the Company’s proposed capital structure. The  
5 Public Staff does not support the inclusion of customer deposits in  
6 the Company’s capital structure, given that these customer deposits  
7 are reflected in the Public Staff’s recommended cost of service.

8 **Q. WHAT IS YOUR RECOMMENDED CAPITAL STRUCTURE AND**  
9 **COST OF LONG-TERM DEBT?**

10 A. My recommended capital structure is the Company’s updated  
11 capital structure, without customer deposits that is comprised of  
12 57.66% long-term debt, 42.34% equity. I also recommend an  
13 embedded cost of long-term debt of 4.35% as of March 31, 2020.

14  
15  
16  
17  
18  
19

Pluris Hampstead, LLC  
Capital Structure  
as of March 31, 2020

	Ratio	Cost Rate
Long-Term Debt	57.66%	4.35 %
Common Equity	42.34%	
Total	100.00%	



#### **IV. THE COST OF COMMON EQUITY CAPITAL**

1 **Q. HOW DID YOU DEFINE THE COST OF COMMON EQUITY?**

2 A. The cost of equity capital for a firm is the expected rate of return on  
3 common equity that investors require in order to induce them to  
4 purchase shares of the firm's common stock. The return is  
5 expected given that when the investor buys a share of the firm's  
6 common stock, he does not know with certainty what his returns will  
7 be in the future.

8 **A: DCF METHOD**

9 **Q. HOW DID YOU DETERMINE THE COST OF COMMON EQUITY**  
10 **CAPITAL FOR THE COMPANY?**

11 A. I used the discounted cash flow (DCF) model and the Risk  
12 Premium model to determine the cost of equity for the Company.

13 **Q. PLEASE DESCRIBE YOUR DCF ANALYSIS.**

14 A. The discounted cash flow model is a method of evaluating the  
15 expected cash flows from an investment by giving appropriate  
16 consideration to the time value of money. The DCF model is based  
17 on the theory that the price of the investment will equal the  
18 discounted cash flows of returns. The return to an equity investor  
19 comes in the form of expected future dividends and price  
20 appreciation. However, as the new price will again be the sum of  
21 the discounted cash flows, price appreciation is ignored, and

1 attention focused on the expected stream of dividends.  
2 Mathematically, this relationship may be expressed as follows:

3 Let  $D_1$  = expected dividends per share over the next twelve months;

4  $g$  = expected growth rate of dividends;

5  $k$  = cost of equity capital; and

6  $P$  = price of stock or present value of the future income  
7 stream.

8 Then,

$$9 \quad P = \frac{D_1}{1+k} + \frac{D_1(1+g)}{(1+k)^2} + \frac{D_1(1+g)^2}{(1+k)^3} + \dots + \frac{D_1(1+g)^{t-1}}{(1+k)^t}$$

12 This equation represents the amount an investor would be willing to  
13 pay for a share of common stock with a dividend stream over the  
14 future periods. Using the formula for a sum of an infinite geometric  
15 series, this equation may be reduced to:

$$16 \quad P = \frac{D_1}{k-g}$$

19 Solving for  $k$  yields the DCF equation:

$$20 \quad k = \frac{D_1}{P} + g$$

23 Therefore, the rate of return on equity capital required by investors  
24 is the sum of the dividend yield ( $D_1/P$ ) plus the expected long-term  
25 growth rate in dividends ( $g$ ).

1 **Q. DID YOU APPLY THE DCF METHOD DIRECTLY TO**  
2 **PLURIS?**

3 A. No, Pluris does not have publicly traded stock. In order to estimate  
4 the rate of return required by investors, I applied the DCF method  
5 to risk-comparable investments comprised of a group water utilities  
6 followed by Value Line Investment Survey (Value Line). The  
7 standard edition of Value Line covers eight water companies. From  
8 there, I excluded Consolidated Water Co. because of its significant  
9 overseas operations.

10 **Q. WHAT MEASURES OF RISK DID YOU REVIEW TO**  
11 **DETERMINE THE COMPARABILITY OF INVESTING IN**  
12 **WATER UTILITIES?**

13 A. I reviewed standard risk measures that are widely available to  
14 investors that are considered by most investors when making  
15 investment decisions. The beta coefficient is a measure of the  
16 sensitivity of a stock's price to overall fluctuations in the market.  
17 The Value Line beta coefficient describes the relationship of a  
18 company's stock price with the New York Stock Exchange  
19 Composite. A beta value of less than 1.0 means that the stock's  
20 price is less volatile than the movement in the market;  
21 conversely, a beta value greater than 1.0 indicates that the  
22 stock price is more volatile than the market.

1 I reviewed the Value Line Safety Rank, which is a measure of  
2 the total risk of a stock. The Safety Rank is calculated by  
3 averaging two variables: (1) the stock's index of price stability,  
4 and (2) the Financial Strength rating of the company. In  
5 addition, I reviewed the S&P Common Stock Rating. The stock  
6 rating system takes into consideration two important factors in  
7 the determination of a stock's rating: the stability and growth of  
8 earnings and dividends. However, the stock rating does not  
9 consider a company's balance sheet or other factors. The stock  
10 rating system has seven grades, with A+ being the highest  
11 rating possible.

12 I also reviewed Moody's and S&P's Bond Rating, which are  
13 assessments of the creditworthiness of a company. Credit rating  
14 agencies focus on the creditworthiness of the particular bond  
15 issuer, which includes a detailed and thorough review of the  
16 potential areas of business risk and financial risk of the  
17 company. These and other risk measures for the comparable  
18 group are shown in my Exhibit 2 and are further explained in  
19 Appendix A

20 **Q. HOW DID YOU DETERMINE THE DIVIDEND YIELD**  
21 **COMPONENT OF THE DCF?**

22 A. I calculated the dividend yield by using the Value Line estimate of  
23 dividends to be declared over the next 12 months divided by the

1 price of the stock as reported in the Value Line Summary and Index  
2 sections for each week of the 13-week period of March 13, 2020  
3 through June 5, 2020. A 13-week averaging period tends to smooth  
4 out short-term variations in the stock prices. This process resulted  
5 in an average dividend yield of 1.8% for the comparable group of  
6 water utilities.

7 **Q. HOW DID YOU DETERMINE THE EXPECTED GROWTH RATE**  
8 **COMPONENT OF THE DCF?**

9 A. I employed the growth rates of the comparable group in earnings  
10 per share (EPS), dividend per share (DPS), and book value per  
11 share (BPS) as reported in Value Line over the past ten and five  
12 years. I also employed the forecasts of the growth rates of the  
13 comparable group in EPS, DPS, and BPS, as reported in Value  
14 Line. The historical and forecast growth rates are prepared by  
15 analysts of an independent advisory service that is widely available  
16 to investors and should also provide an estimate of investor  
17 expectations. I include both historical known growth rates and  
18 forecast growth rates because it is reasonable to expect that  
19 investors consider both sets of data in deriving their expectations.

20 Finally, I incorporated the consensus of various analysts' forecasts  
21 of five-year EPS growth rate projections, as reported in Yahoo

1 Finance. The dividend yields and growth rates for each of the  
2 companies, is shown in my Exhibit 3.

3 **Q. WHAT IS YOUR CONCLUSION REGARDING THE COST OF**  
4 **COMMON EQUITY TO THE COMPANY BASED ON THE DCF**  
5 **METHOD?**

6 A. Based upon the DCF analysis for the comparable group of water  
7 utilities, I determined that a reasonable expected dividend yield is  
8 1.8% with an expected growth rate of 6.40% to 7.40%, which yields  
9 an estimated range of 8.20% to 9.20%. In making that  
10 determination, I gave significant weight to the DCF results with the  
11 forecasted EPS growth rates from Value Line and Yahoo  
12 Consensus EPS estimates that produced a 9.0% and 9.2% result.  
13 My estimate for the lower end of the range is based on the average  
14 DCF result using both historical and forecast growth rate data.  
15 Based on my analysis, I conclude the best estimate of the cost of  
16 equity using the DCF method is an 8.70% cost of common equity.

17 **B: REGRESSION ANALYSIS METHOD**

18 **Q. PLEASE DESCRIBE YOUR RISK PREMIUM ANALYSIS.**

19 A. The equity risk premium method is defined as the difference  
20 between the expected return on a common stock and the expected  
21 return on a debt security. The differential between the two rates of  
22 return is indicative of the return investors require in order to

1           compensate them for the additional risk involved with an investment  
2           in the Company's common stock over an investment in the  
3           Company's bonds that involves less risk.

4           In order to quantify the risk premium, I need estimates of the cost of  
5           equity and the cost of debt at contemporaneous points in time. This  
6           method relies on approved returns on common equity for water  
7           utility companies from various public utility commissions that are  
8           published by the Regulatory Research Associates, Inc. (RRA),  
9           within S&P Global Market Intelligence. In order to estimate the  
10          relationship with a representative cost of debt capital, I have  
11          regressed the average annual allowed equity returns with the  
12          average Moody's A-rated yields for Public Utility bonds from  
13          January 1, 2006 through May 31, 2020. The regression analysis,  
14          which incorporates years of historical data is combined with recent  
15          monthly yields to provide an estimate of the current cost of common  
16          equity.

17   **Q.    WHAT ARE THE STRENGTHS OF USING ALLOWED RETURNS?**

18   A.    The use of allowed returns as the basis for the expected equity  
19          return has strengths over other approaches that involve models that  
20          subtract a cost rate of debt from the estimated equity return. One  
21          strength of my approach is that authorized returns on equity are  
22          based on lengthy investigations by various parties with opposing

1 views on the rate of return required by investors. Thus, it is  
2 reasonable to conclude that the approved allowed returns are good  
3 estimates for the cost of equity.

4 **Q. WHAT WERE THE RESULTS OF YOUR RISK PREMIUM**  
5 **ANALYSIS?**

6 A. The summary data of risk premiums shown on my Exhibit 4, page 1  
7 of 2 indicates that the average risk premium is 5.05%, with a  
8 maximum premium of 5.97% and minimum premium of 3.73%,  
9 which when combined with the average of the last six months of A-  
10 rated bond yields produces yields with an average cost of equity of  
11 8.40%, a maximum cost of equity of 9.32%, and a minimum cost of  
12 equity of 7.08%. However, to better estimate the current cost of  
13 equity, I employ a statistical regression in order to quantify the  
14 relationship of allowed equity returns and bond costs. My Exhibit 4,  
15 page 2 of 2, displays a regression analysis of the data that indicates  
16 a significant statistical relationship of the allowed equity returns and  
17 bond costs, such that a one percent decrease in the bond cost  
18 corresponds to an increase of approximately 30 basis points in the  
19 equity risk premium.<sup>2</sup> While various studies on the cost of equity  
20 capital have differed on the level of the negative relationship of  
21 interest rates and risk premiums, there has been agreement that as

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<sup>2</sup> The regression indicated a significant statistical relationship of  $ROE=0.08414 + 0.29429$ , with an adjusted  $R^2=0.79730$ .



1 interest rates fall, there is an increase in the premium.<sup>3</sup> Applying this  
2 relationship to the current utility bond cost of 3.24%<sup>4</sup> resulted in a  
3 current estimate of the cost of equity of 9.40%.

4 **Q. GIVEN YOUR STUDY ON THE COST OF EQUITY, WHAT IS YOUR**  
5 **RECOMMENDED COST OF EQUITY?**

6 A. Based on all of the results of my DCF model that indicate a cost of  
7 equity of 8.70% and Risk Premium model that indicates a cost of  
8 equity of 9.40%. The approximate average of those two results is  
9 9.00%, which I maintain, is a reasonable estimate of the investor-  
10 required rate of return on common equity for Pluris.

11 **Q. WHAT OTHER EVIDENCE DID YOU CONSIDER IN YOUR**  
12 **ASSESSMENT OF THE REASONABLENESS OF YOUR**  
13 **RECOMMENDED RETURN?**

14 A. In regard to reasonableness assessment with financial risk, I  
15 considered the pre-tax interest coverage ratio produced by my cost  
16 of capital recommendation. Based on the recommended capital  
17 structure, cost of debt, and equity return of 9.00%, the pre-tax  
18 interest coverage ratio is approximately 3.9 times.

19

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<sup>3</sup> Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, "The Risk Premium Approach to Measuring a Utility's Cost of Equity." Financial Management, Spring 1985, pp. 33-45.

<sup>4</sup> The 3.24% current bond yield was determined using the most recent six-month average yield-to-maturity rate of Moody's A-rated Utility Bond Yields.

1 Q. TO WHAT EXTENT DOES YOUR RECOMMENDED RATE OF  
2 RETURN ON EQUITY TAKE INTO CONSIDERATION THE  
3 IMPACT OF CHANGING ECONOMIC CONDITIONS ON  
4 PLURIS'S CUSTOMERS?

5 A. I am aware of no clear numerical basis for quantifying the impact of  
6 changing economic conditions on customers in determining an  
7 appropriate return on equity in setting rates for a public utility.  
8 Rather, the impact of changing economic conditions nationwide is  
9 inherent in the methods and data used in my study to determine the  
10 cost of equity for utilities that are comparable to Pluris. I have  
11 reviewed certain information on the economic conditions in Pender  
12 County, North Carolina and 2018 data on total personal income  
13 from the Bureau of Economic Analysis (BEA) and the Development  
14 Tier Designations published by the North Carolina Department of  
15 Commerce.

16 The BEA data indicates that from 2017 to 2018, total personal  
17 income for Pender County grew at a compound annual growth rate  
18 (CAGR) of 4.1%, which is slightly lower than the rate of 5.5% for  
19 the whole state. From 2014 to 2018, total personal income for  
20 Pender County grew by 20.1%, which is almost the same as the  
21 rate of 20.3% for the entire state.

1 The North Carolina Department of Commerce annually ranks the  
2 state's 100 counties based on economic well-being and assigns  
3 each a Tier designation. The most distressed counties are rated a  
4 "1" and the most prosperous counties are rated a "3." The rankings  
5 examine several economic measures such as household income,  
6 poverty rates, unemployment rates, population growth, and per  
7 capita property tax base. The 40 most distressed counties are  
8 designated as Tier 1, the next 40 as Tier 2, and the 20 least  
9 distressed as Tier 3. Pender County, North Carolina is designated  
10 as a Tier 3 county. This economic measure indicates that  
11 ratepayers in Pender County have experienced stable economic  
12 conditions until the recent coronavirus pandemic.

13 **Q. WHAT HAS BEEN THE IMPACT OF THE CORONAVIRUS**  
14 **PANDEMIC ON THE UNEMPLOYMENT RATES IN PENDER**  
15 **COUNTY, NORTH CAROLINA?**

16 A. While it is difficult to tell all of its impacts, the coronavirus pandemic  
17 has led to an increase in unemployment throughout the state of  
18 North Carolina. The North Carolina Department of Commerce  
19 issued a press release on June 3, 2020, which stated that the  
20 unemployment rate increased in all of the state's 100 counties  
21 during April 2020. The release indicated that the statewide  
22 unemployment rate for April 2020 was 12.5%. The April 2020  
23 unemployment rate for Pender County, North Carolina was only

1 slightly higher than the state's unemployment rate at 12.6%. The  
2 unemployment data for the remainder of 2020 will likely worsen  
3 before it improves. I believe the economic slowdown will subside if  
4 or when we enter into phase three of Governor Roy Cooper's plan  
5 and if so, that the economy will improve by the end of the year or  
6 beginning of next year.

7 As discussed above, it is the Commission's duty to set rates as low  
8 as reasonably possible consistent within constitutional constraints.  
9 This duty exists regardless of the customers' ability to pay.  
10 Moreover, the rate of return on common equity is only one  
11 component of the rate established by the Commission. N.C. Gen.  
12 Stat. § 62-133 sets out an intricate formula for the Commission to  
13 follow in determining a utility's overall revenue requirement. It is the  
14 combination of rate base, expenses, capital structure, cost rates for  
15 debt and equity capital, and capital structure that determines how  
16 much customers pay for utility service and how much investors  
17 receive in return for their investment. The Commission must  
18 exercise its best judgment in balancing the interests of both groups.  
19 My analysis indicates that my recommended rate of return on  
20 equity will allow the Company to properly maintain its facilities,  
21 provide adequate service to its customers, attract capital on terms  
22 that are fair and reasonable to its customers and investors, and will  
23 result in rates that are just and reasonable.

1

**V. SUMMARY AND RECOMENDATIONS**

2 **Q. WOULD YOU PLEASE SUMMARIZE YOUR**  
3 **RECOMMENDATIONS CONCERNING THE COST OF CAPITAL?**

4 A. Based upon the results of this study, it is my recommendation that  
5 the appropriate capital structure to employ for ratemaking purposes  
6 in this proceeding consists of 57.66% long-term debt and 42.34%  
7 common equity. The appropriate embedded cost of long-term debt  
8 associated with this capital structure is 4.35%, and the  
9 recommended cost of common equity of 9.00%. My recommended  
10 overall weighted cost of capital produced is 6.32%, as shown in my  
11 Exhibit 5.

12 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

13 A. Yes.

## RISK MEASURES

### VALUE LINE SAFETY RANK

The Safety Rank is a measure of the total risk of a stock. It includes factors unique to the company's business such as its financial condition, management competence, etc. The Safety Rank is derived by averaging two variables: the stock's Price Stability Index, and the Financial Strength Rating of the company. The Safety Rank ranges from 1 (Highest) to 5 (Lowest).

### VALUE LINE BETA ( $\beta$ )

The Beta is derived from a regression analysis between weekly percent changes in the price of a stock and weekly percent price changes in the New York Stock Exchange Composite Index over a period of five years.

There has been a tendency over the years for high Beta stocks to become lower and for low Beta stocks to become higher. This tendency can be measured by studying Betas of stocks in five consecutive intervals. The Betas published in the Value Line Investment Survey are adjusted for this tendency and hence are likely to be better predictors of future Betas than those based exclusively on the experience of the past five years.

The New York Stock Exchange Composite Index is used as the basis for calculating the Beta because this index is a good proxy for the complete equity portfolio. Since Beta's significance derives primarily from its usefulness in portfolios rather than individual stocks, it is best constructed by relating to an overall market portfolio. The Value Line Index, because it weights all stocks equally, would not serve as well.

The security's return is regressed against the return on the New York Stock Exchange Composite Index over the past five years so that 259 observations of weekly price changes are used. Value Line adjusts its estimate of Beta ( $\beta_i$ ) for regression described by Blume (1971). The estimated Beta is adjusted as follows:

$$\text{Adjusted } \beta_i = 0.35 + 0.67\beta$$

### VALUE LINE FINANCIAL STRENGTH RATING

The Financial Strength Ratings are primarily a measure of the relative financial strength of a company. The rating considers key variables such as coverage of debt, variability of return, stock price stability, and company size. The Financial Strength Ratings range from the highest at A++ to the lowest at C.

### VALUE LINE PRICE STABILITY INDEX

The Price Stability Index is based upon a ranking of the standard deviation of weekly percent changes in the price of a stock over the last five years. The top 5% carry a Price Stability Index of 100; the next 5%, 95; and so on down to an Index of 5.

### VALUE LINE EARNINGS PREDICTABILITY INDEX

The Earnings Predictability Index is a measure of the reliability of an earnings forecast. The most reliable forecasts tend to be those with the highest rating (100), the least reliable (5).

### S&P BETA ( $\beta$ )

The Beta is derived from a regression analysis between 60 months of price changes in a company's stock price (plus corresponding dividend yield) and the monthly price changes in the S&P 500 Index (plus corresponding dividend yield). Prices and dividends are adjusted for all subsequent stock splits and stock dividends.

### S&P BOND RATING

The S&P Bond Ratings is an appraisal of the credit quality based on relevant risk factors. S&P reviews both the company's financial and business profiles. Shown below are the rankings:

AAA An extremely strong capacity to pay interest and repay principal.

AA+ A very strong capacity to pay interest and repay principal.

AA There is only a small degree of difference between "AAA" or "AA."

AA- debt issues.

A+ A strong capacity to pay interest and repay principal. These

A these ratings indicate the obligor is more susceptible to

A- changes in economic conditions than AAA" or "AA" debt issues.

BBB+ An adequate capacity to pay interest and repay principal.

BBB economic conditions or changing circumstances are more likely to

BBB- lead to a weakened capacity to pay interest and repay principal.

BB+ "BB" indicates less near-term vulnerability to default than other

BB speculative issues. However, these bonds face major ongoing

BB- uncertainties or exposure to adverse conditions that could lead to inadequate capacity to meet timely interest and principal payments.

### S&P STOCK RANKING

The S&P Stock Rankings is an appraisal of the growth and stability of the company's earnings and dividends over the past 10 years. The final score for each stock is measured against a scoring matrix determined by an analysis of the scores of a large and representative sample of stocks. Shown below are the rankings:

A+ Highest

A High

A- Above average

B+ Average

B Below Average

B- Lower

C Lowest

D In Reorganization

NR Not rated



### MOODY'S BOND RATING

Moody's Bond Ratings assign a rating on the creditworthiness of an obligor. Such ratings reflect both the likelihood of default and any financial loss suffered in the event of a default. Shown below are the rankings:

- Aaa Obligations rated Aaa are judged to be of the highest quality with minimal risk.
- Aa Obligations rated Aa are judged to be of the high quality and are subject to low credit risk.
- A Obligations rated A are considered upper-medium-grade and are subject to low credit risk.
- Baa Obligations rated Baa are subject to moderate credit-risk. They are considered medium-grade and are subject to substantial credit risk.
- Ba Obligations rated Ba are subject to have speculative and are subject to substantial credit risk.
- B Obligations rated B are considered speculative and are subject to high credit risk.
- Caa Obligations rated Caa are judged to be of poor standing and are subject to very high credit risk.
- Ca Obligations rated Ca are highly speculative and are likely in, or very near default with some prospect of recovery in principle and interest.
- C Obligations rated C are the lowest-grade class of bonds and are typically in default, with little prospect of recovery in principle and interest.

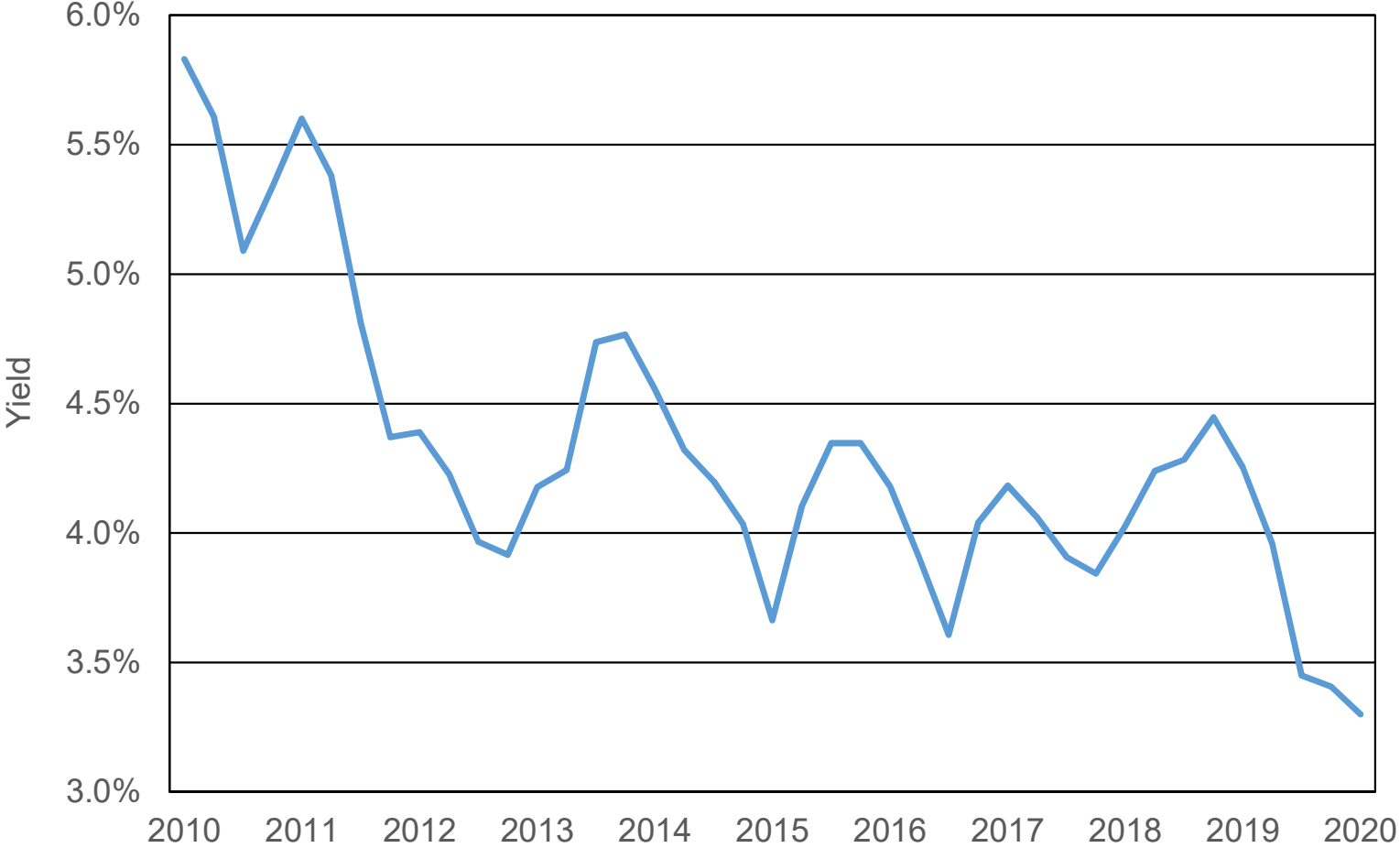
Sources:

1. Value Line Investment Analyzer, Version 3.0.15a, New York, NY.
2. Standard & Poor's, Utility Compustat II, September 15, 1993, New York, NY.



# Moody's A-Rated Utility Bond Yields

(averaged over a quarter)



Craig Exhibit I  
Public Staff



## Investment Risk Measures

### Group of Water Utility Companies

Company Name	Value Line <sup>1</sup>					S&P <sup>2</sup> Beta	S&P <sup>2</sup> Quality Ranking	S&P <sup>3</sup> Bond Rating	Moody's <sup>3</sup> Bond Rating
	Safety Rank	Beta	Price Stability	Earnings Predict.	Financial Strength				
American States Water	2	0.65	100	85	A	-0.08	A	A+	NA
American Water Works	3	0.85	85	80	B++	0.20	A-	A	Baa1
California Water Service	3	0.65	90	65	B++	0.00	A-	A+	NA
Essential Utilities	2	0.90	90	60	A	0.48	A	A	Baa2
Middlesex Water	2	0.75	80	75	B++	0.26	A	A	NA
SJW Group	3	0.80	75	45	B+	0.28	B+	A-	NA
York Water	3	0.80	75	95	B+	0.17	A	A-	NA
Average	2.6	0.77	85	72		0.19			

Source:

<sup>1</sup> Value Line Investment Survey, Standard Edition, July 10, 2020

<sup>2</sup> S&P Global Market Intelligence, CFRA Stock Report, July 3, 2020 - July 6, 2020

<sup>3</sup> S&P Global Market Ratings, downloaded on April 16, 2020.



## DCF ANALYSIS

### Group of Water Utility Companies

Company Name	Yield <sup>1</sup>	Value Line <sup>2</sup> Historical						Value Line <sup>2</sup> Forecast			Yahoo
		EPS	DPS	BPS	EPS	DPS	BPS	EPS	DPS	BPS	Forecast <sup>3</sup>
		10-Yr	10-Yr	10-Yr	5-Yr	5-Yr	5-Yr	5-Yr	5-Yr	5-Yr	5-Yr
1 Amer. States Water	1.6	9.5	8.0	5.5	5.0	7.5	4.0	6.5	9.5	5.5	6.0
2 Amer. Water Works <sup>4</sup>	1.7	45.5	16.0	2.5	6.5	10.5	4.0	8.5	8.5	5.0	8.3
3 California Water	1.7	4.5	2.5	4.5	4.5	3.5	4.5	6.5	5.5	1.0	9.8
4 Essential Utilities	2.3	7.0	7.5	8.0	1.5	8.0	9.0	10.0	7.5	6.5	6.4
5 Middlesex Water	1.6	8.0	2.5	4.5	12.0	4.0	6.0	6.0	5.5	1.5	2.7
6 SJW Group	2.1	8.0	4.5	5.5	18.5	5.0	8.0	6.0	7.0	6.5	14.0
7 York Water Co.	1.6	5.5	3.5	4.5	6.5	4.0	4.0	7.0	5.5	4.5	4.9
Average	1.8	7.1	6.4	5.0	7.8	6.1	5.6	7.2	7.0	4.4	7.4
Estimated Cost of Equity		8.9	8.2	6.8	9.6	7.9	7.5	9.0	8.8	6.2	9.3

Sources:

1. Value Line Investment Survey, Summary and Index from April 10, 2020 to July 3, 2020.
2. Value Line Investment Survey, Standard Edition, April 10, 2020.
3. Yahoo Earnings Forecast as of July 10, 2020.
4. American Water Works 45.5% 10-year EPS Growth Rate is excluded from the analysis.





REGRESSION ANALYSIS OF ALLOWED RETURNS ON EQUITY  
 FOR WATER UTILITIES

Year	[A] Water Utilities Approved Returns on Equity <sup>1</sup>	[B] Moody's A-Rated Bond Yields <sup>2</sup>	[C]=[A]-[B] Water Utility Risk Premium
2006	10.23%	6.07%	4.16%
2007	10.07%	6.05%	4.02%
2008	10.24%	6.51%	3.73%
2009	10.18%	6.04%	4.14%
2010	10.18%	5.47%	4.71%
2011	10.04%	5.04%	5.00%
2012	9.90%	4.13%	5.77%
2013	9.73%	4.48%	5.25%
2014	9.59%	4.28%	5.31%
2015	9.76%	4.12%	5.64%
2016	9.71%	3.93%	5.78%
2017	9.56%	4.00%	5.56%
2018	9.41%	4.25%	5.16%
2019	9.37%	3.77%	5.60%
2020	9.27% <sup>3</sup>	3.30% <sup>4</sup>	5.97%
		Average	5.05%
		Maximum	5.97%
		Minimum	3.73%

Sources:

<sup>1</sup> Regulatory Research Associates, Water Advisory, February 4, 2020.

<sup>2</sup> Moody's Credittrends.

<sup>3</sup> S&P Global Market Intelligence, Water utility ROE declines due to unfavorable SC decision, May 11, 2020. The 9.27% is the average of 9.50% for CWSNC, 9.50% for SUEZ Water of Delaware, and the 8.80% for SUEZ Water of New York.

<sup>4</sup> Average yield data for the first quarter 2020.

REGRESSION ANALYSIS OF ALLOWED RETURNS ON EQUITY  
 FOR WATER UTILITIES

<i>Regression Statistics</i>	
Multiple R	0.90098817
R Square	0.81177969
Adjusted R Square	0.7973012
Standard Error	0.00149232
Observations	15

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.000124865	0.00012486	56.068	4.57863E-06
Residual	13	2.89513E-05	2.227E-06		
Total	14	0.000153816			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.08414377	0.001911108	44.0287953	1.55E-15
X Variable 1	0.29429372	0.039302798	7.48785665	4.58E-06

A-Rated Public Utility Bond Yield	
Dec-19	3.40%
Jan-20	3.29%
Feb-20	3.11%
Mar-20	3.29%
Apr-20	3.19%
May-20	3.14%
Average	3.24%

Predicted Cost of Equity      **9.37%**

Note:

Predicted Cost of Equity of 9.37% = 0.084144 + 0.294294 x 3.24%.



Pluris Hampstead  
Cost of Capital as of March 31, 2020

Item	Ratios	Cost Rate	Weighted Cost Rate	Pre-Tax Cost of Capital
Long-Term Debt	57.66%	4.35%	2.51%	2.51%
Common Equity	42.34%	9.00%	3.81%	4.95%
Total	100.00%		6.32%	9.92%

Pre-Tax Interest Coverage 3.9