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BEFORE THE ARIZONA CORPORATION COMMISSION

TOM FORESE
CHAIRMAN
BOB BURNS
COMMISSIONER
ANDY TOBIN
COMMISSIONER
BOYD DUNN
COMMISSIONER
JUSTIN OLSON
COMMISSIONER

IN THE MATTER OF THE APPLICATION OF LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE FAIR VALUE OF ITS UTILITY PLANTS AND PROPERTY AND FOR INCREASES IN ITS WASTEWATER RATES AND CHARGES FOR UTILITY SERVICE BASED THEREON.	Docket No. SW-01428A-17-0058 W-01427A-17-0077 SW-01428A-17-0078
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NOTICE OF FILING.

The RESIDENTIAL UTILITY CONSUMER OFFICE ("RUCO") hereby provides notice of filing the Direct Testimony of Timothy Coley and John Cassidy in the above-referenced matter.

RESPECTFULLY SUBMITTED this 21st day of December, 2017.

Daniel W. Pozefsky
Chief Counsel

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of December, 2017 with:

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LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.

DOCKET NOS. SW-01428A-17-0058 and W-01427A-17-0059

DIRECT TESTIMONY

OF

TIMOTHY COLEY

ON BEHALF OF THE

RESIDENTIAL UTILITY CONSUMER OFFICE

DECEMBER 21, 2017

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EXECUTIVE SUMMARY

Liberty Utilities (Litchfield Park Water & Sewer) Corp. ("LU-LPSCO" or "Company") is an Arizona public service corporation authorized to provide water and wastewater services in portions of Maricopa County, Arizona. LU-LPSCO is considered a Class A water and wastewater public utility service provider in the State of Arizona based on its level of annual gross revenues generated in the Test Year ("TY"). The Company's service area is located in the southwestern portion of the Phoenix metropolitan area, and includes the Town of Litchfield Park, a portion of the City of Goodyear north of Interstate 10, two commercial sites in Avondale (including Estrella Mountain Community College), an unincorporated area of Maricopa County, and two Homeowners Associations named Savannah and Arroyo that will be discussed in length in this testimony, which are not part of LU-LPSCO Certificate of Convenience & Necessity ("CC&N"). Per the Company's Application, LU-LPSCO serves approximately 18,500 water and 17,600 wastewater service connections in a portion of Maricopa County.

On February 28, 2017 and March 17, 2017, LU-LPSCO filed four separate dockets in this matter. Two of those four dockets filed with Arizona Corporation Commission ("ACC" or "Commission") on February 28, 2017 were rate Applications seeking permanent rate increases for the Company's 1) water and 2) wastewater utility operations that utilized an adjusted Test Year ("TY") ending December 31, 2016. The third and fourth dockets filed on March 17, 2017 that consisted of two 3) financing dockets for the water and wastewater divisions respectively.

On March 20, 2017, the Company filed Motions to consolidate "in both Rate Dockets and both Finance Dockets. On that same date, the Residential Utility Consumer Office ("RUCO") filed an Application to Intervene" on behalf of the residential ratepayers. The ACC granted RUCO's request to intervene on the same date that consolidation of the dockets were granted. A Procedural Order was issued by the Administrative Law Judge ("ALJ") regarding consent to email on March 20, 2017.

On March 23, 2017, the Administrative Law Judge ("ALJ") assigned to the docket granted the Company's request to consolidate the four dockets stating, "The matters in the above captioned dockets are substantially related, and the rights of the parties will not be prejudiced by consolidation. The interests of judicial efficiency and administrative economy warrant consolidation of these matters." The ALJ issued a written Amended Rate Case Procedural Order granting the Company's request to consolidate the four dockets into the consolidated Docket No. SW-01428A-17-0058 and to grant RUCO intervention in the consolidated docket on April 25, 2017.

The Company stated that the reason for its request of a permanent rate increase was for the reason as follows: First, "Liberty Litchfield Park's revenues from its utility operations are no longer providing the Company a reasonable opportunity to recover reasonable and prudent operating expenses and earn a fair return on the fair value of its utility plant and property devoted to public service."

For its Water Division, LU-LPSCO proposes a revenue increase of $1,533,896 or 11.35 percent increase over the current rates. For its Sewer Division, the Company proposes a revenue increase of $3,496,801 or 30.06 percent increase over the current rates. The Company-proposed rates will provide LU-LPSCO with operating incomes of $3,629,266 for the water utility service and $3,888,855 for the wastewater utility service for an 8.67 percent rate of return on invested capital.

For the Water Division, RUCO recommends a revenue decrease of $1,006,881 or a 7.41 percent decrease in present rates on a 6.91 percent overall rate of return. For the Sewer Division, RUCO recommends a revenue increase of $93,889 or a 0.81 percent increase in present rates on a 6.91 percent overall rate of return. RUCO's recommended revenue decreases/increases would produce an operating income of $2,641,690 for the Water Division and an operating income of $2,880,379 for the Sewer Division that represents a 6.91 percent rate of return on RUCO's adjusted fair value rate base ("FVRB") of $38,229,949 and $41,684,214 for the Water and Sewer Divisions, respectively. The Company proposes to use its original cost rate base ("OCRB") as its FVRB in this proceeding.

The Company proposed and RUCO's recommended overall revenue requirement components for Revenue Increase, Fair Value Rate base ("FVRB"), Rate of Return, and Operating Income are displayed in the table below as follows:

	Water Division		Wastewater Division	
	Company Proposed	RUCO Recommends	Company Proposed	RUCO Recommends
Revenue Increase	$ 1,533,896	$ (1,006,881)	$ 3,496,801	$ 93,889
Percent Increase	11.35%	(7.41%)	30.06%	0.81%
FVRB	$ 41,860,046	$ 38,229,949	$ 44,854,137	$ 41,684,214
Rate of Return	8.67%	6.91%	8.67%	6.91%
Operating Income	$ 3,629,266	$ 2,641,690	$ 3,888,854	$ 2,880,379

In addition to the Company's request seeking permanent rate increases, the Company is requesting approval of a Purchased Power Adjustment Mechanism ("PPAM") and a Property Tax Adjustment Mechanism (PTAM").

I. INTRODUCTION

Q. Please state your name, position, employer and address.

A. My Name is Timothy J. Coley. I am a Public Utilities Analyst V employed by the Residential Utility Consumer Office ("RUCO") located at 1110 W. Washington, Suite 220, Phoenix, Arizona 85007.

Q. Please state your educational background and qualifications in the utility regulation field.

A. Appendix 1, which is attached to this testimony, describes my educational background and includes a list of the rate cases and regulatory matters in which I have participated.

Q. Please state the purpose of your testimony.

A. The purpose of my testimony is to present RUCO's recommendations regarding Liberty Utilities Litchfield Park Water & Sewer Corp. ("LU-LPSCO" or "Company") Water and Sewer Divisions' rate Application for a determination of the current fair value of its utility plant and property and for a permanent increase in its rates and charges based thereon for the provision of utility service. The Test Year ("TY") utilized by LU-LPSCO in connection with the preparation of this Application is the 12-month period ending December 31, 2016.

Q. How is RUCO's testimony organized?

A. RUCO's testimony is organized in eight sections as follows:

Section I – Introduction, which is this section of testimony;

Section II - Background

Section III – Summary of Revenue Requirements;

Section IV – Summary of Rate base Adjustments;

Section V – Detailed Rate base Adjustments;

Section VI – Summary of Operating Income Adjustments;

Section VII – Detailed Operating Income Adjustments; and

Section VIII – Other Issues.

II. BACKGROUND

Q. Please describe RUCO's work effort on this project.

A. This is the second of eight sections of RUCO's testimony that lays the background of RUCO's testimony and work efforts in this proceeding. I reviewed financial data provided by the Company through the discovery process and performed analytical procedures necessary to understand the Company's filing, as it related to the Company's overall revenue requirements, rate base, and operating income. RUCO's recommendations are based on the following analyses. Procedures performed included in-house formulation and analysis of data requests, the review and analysis of the Company's responses to Commission Staff's data requests, and review of prior dockets related to LU-LPSCO's prior filings.

RUCO's participation in this proceeding is a cumulative effort of two RUCO witnesses; myself (Timothy J. Coley) and John A. Cassidy, whom filed RUCO's recommended Cost of Capital ("COC") testimony under separate cover. I was responsible for RUCO's recommended rate base and operating income adjustments that determined RUCO's overall revenue requirement recommendations.

Q. Please identify the schedules and exhibits that you are sponsoring.

A. I am sponsoring RUCO's recommended revenue requirement and rate base Schedules labeled TJC-1 through TJC-10 and operating income/expense Schedules labeled TJC-12 through TJC-26. RUCO Schedule TJC-11 is a placeholder schedule to be used for its surrebuttal filing and has been omitted in this direct testimony filing. RUCO Schedule TJC-27 is a summary of RUCO's Cost of Capital, which is being sponsored by Mr. Cassidy.

Q. Does RUCO have a general concern about the Company's Internal Controls over the recording and transparency of transactions?

A. Yes. During the course of this proceeding, the Commission Staff identified revenues that were reclassified from an unknown entity, Algonquin Environmental Services ("AES"), to LU-LPSCO. The Staff analyst assigned to this case, Ms. Hunsaker, telephoned me inquiring whether I heard of AES. I told Ms. Hunsaker that I was not familiar with an affiliate company by that name. In turn, I mentioned during that conversation that I had come across a reclassification of Contributions-in-Aid-of-Construction ("CIAC") from an entity named NWS (aka Northwest Sewer) to LU-LPSCO. I was not familiar with NWS as being an affiliate of LU-LPSCO either. Those two findings set off a number of data requests and internal research on behalf of both RUCO and Staff. RUCO searched the ACC Corporate Division and the Secretary of the State websites for entities by those names doing business in the State of Arizona. AES was **not** registered to conduct business transactions in the State of Arizona. However, NWS was registered to conduct business transactions in Arizona.

Through a number of data requests, it was discovered that revenues were being recorded to the unregulated entity of AES and **not** properly recorded or accounted for on the books of the regulated LU-LPSCO. In addition, the CIAC that was transferred from the unregulated NWS to the regulated LU-LPSCO had never been properly included by the Company in its 2008 and 2012 rate cases.

Q. Were the revenues that were recorded on the books of AES included in the revenues in the prior 2008 and 2012 rate cases properly accounted for as regulated revenues during those two rate cases?

A. No. Neither the revenues nor the CIAC was ever included in either the 2008 or 2012 rate cases.

Q. When did the revenues begin to be recorded to the unregulated AES?

A. The Company's responses to RUCO and Staff indicated the revenues began in 2007 and recorded to the unregulated AES but never to the regulated LU-LPSCO.

Q. When was the CIAC received that was not accounted for in either the 2008 and 2012 rate cases?

A. The Company indicates the CIAC was received between the years of 2005 through 2007 from a number of developers.

Q. Wouldn't the exclusion of either the revenues and/or CIAC overstate the revenue requirements in those 2008 and 2012 rate cases?

A. Yes.

Q. Did the Company propose any adjustments in its Application/ testimony in this case filed on February 28, 2017 to make the ratepayers whole for failure to include the revenues and CIAC received, that was not disclosed in the 2008 and 2012 rate cases?

A. No. The Company's testimony did not address the nondisclosure of either the associated revenues from 2007-2015 or any CIAC that was received some ten-years ago. The two sources of cash, revenues and receipt of CIAC, were only reclassified in the current 2016 TY to the regulated LU-LPSCO from the unregulated entities in its general ledger.

Q. Is RUCO making an adjustment to make the ratepayers whole for the Company's nondisclosure of the two sources of cash received over the approximate ten-year period?

A. Yes. RUCO's adjustment will be more fully addressed in Sections IV, V, VI, and VII of its testimony.

Q. Are there other concerns with the Company's application that the Commission should consider?

A. Yes, oversights such as those just discussed seems to be a continuing problem for this company. RUCO's former Manager of Rates and Accounting, Mr. Robert Mease, stated the following in LU-LPSCO's 2012 rate case regarding internal controls:

> Many errors were identified in the Company's reporting and numerous adjustments had to be made. At an organizational level the basic internal control objective is defined as follows:
>
> "Internal control objectives relate to the reliability of financial reporting." Following is a summary of the inaccuracies identified in the reporting of the test year results which lead RUCO to question the Company's Internal Control process and procedures:
>
> 1. Prior to beginning work on the review of Company's test year, the Company's Utility Rates and Regulatory Manager called and informed RUCO that an error had been made in the reporting of the Accumulated Depreciation balance. The Company' Water Division's Accumulated Depreciation balance

was understated by $2,411,551. (The Company did inform all parties that this error was made);

2. During the course of RUCO's review it was determined that approximately $2,819,595 in plant additions for the Water Division and $563,717 in plant additions for the Wastewater Division had been recorded to the incorrect NARUC accounts;

3. Plant additions of $724,962 and $90,223 were made to the Water and Wastewater Divisions respectively, during year 2011, and many of the plant invoices supporting these additions were dated in year 2006. RUCO was concerned that these plant additions were duplicated. When discussing our concerns with the Company it was determined that these invoices were correctly accrued during the last rate case but were not transferred from the CWIP account, to plant accounts, until year 2011 even though the projects had been placed in service during prior years;

4. Several invoices related to plant additions had been recorded to the incorrect division and had to be reclassified;

5. Several duplicate invoices were identified;

6. A data request was sent asking the Company why there was no Construction Work In Progress identified with either division. The Company response, CWIP was incorrectly identified to the Inter-Company Receivables Account; and

7. Incorrect assessment ratios were used to calculate property taxes and the incorrect Arizona Income Tax rate was used to calculate Arizona Income Taxes.

To RUCO's knowledge the Commission did not order any audit or repercussions for or to the Company based on RUCO's findings in that case. The lack of proper internal controls should be an issue the Commission addresses in this case to protect ratepayers from potential future oversights.

Q. In preparing its testimony and discussing the adjustments RUCO recommends, has RUCO segregated between the Water and Sewer Divisions?

A. Yes. When RUCO proposes an adjustment that is synonymous to both divisions, the adjustment will be identified to both Water and Sewer Divisions. If an adjustment relates to only one division, it will be identified as being specific to that division only.

III. SUMMARY OF REVENUE REQUIREMENTS

Q. Can you please provide a summary schedule identifying the Company's proposed and RUCO's recommended revenue requirements for both the Water and Sewer Divisions?

A. Yes. This is the third of eight sections of RUCO's testimony that provides a broad overview of its summary of recommended revenue requirements for LU-LPSCO's Water and Sewer Divisions. See the following table that summarizes the Company and RUCO's overall revenue requirement components below:

Water Division

Description	**Company**	**RUCO**	**Difference**
OCRB/FVRB	$ 41,860,046	$ 38,229,949	$ (3,630,096)
Adjusted TY Operating Income	2,684,138	3,262,095	577,957
Required Operating Income	3,629,266	2,641,690	(987,576)
Required ROR on Rate base	8.67%	6.91%	(1.76%)
Increase in Gross Revenue	$ 1,533,896	$ (1,006,881)	$ (2,540,777)
Adjusted TY Revenues	13,510,828	13,585,959	75,131
Proposed Annual Revenues	15,044,723	12,579,078	(2,465,645)
Required % Increase in Revenue	11.35%	(7.41%)	(18.76%)
Rate of Return on Equity	10.70%	9.57%	(1.13%)

Wastewater Division

Description	**Company**	**RUCO**	**Difference**
OCRB/FVRB	$ 44,854,137	$ 41,684,214	$ (3,169,924)
Adjusted TY Operating Income	1,729,629	2,822,404	1,092,775
Required Operating Income	3,888,854	2,880,379	(1,008,475)
Required ROR on Rate base	8.67%	6.91%	(1.76%)
Increase in Gross Revenue	$ 3,496,801	$ (93,889)	$ (3,402,912)
Adjusted TY Revenues	11,633,954	11,633,954	-0-
Proposed Annual Revenues	15,130,755	11,727,843	(3,402,912)
Required % Increase in Revenue	30.06%	0.81%	(29.25%)
Rate of Return on Equity	10.70%	9.57%	(1.13%)

IV. SUMMARY OF RATE BASE ADJUSTMENTS 1 – 6:

Q. Please summarize RUCO's recommended Rate Base adjustments for LU-LPSCO's Water and Wastewater Divisions as filed in the Company's Application.

A. This is the fourth of eight sections of RUCO's testimony that provides a summary of its rate base adjustments 1-6 for the Company's Water and Sewer Divisions. For the Water Division, RUCO recommends four Rate base adjustments. The total sum of these four adjustments reduces rate base by $3,630,096, which is shown on RUCO Direct Schedule TJC-3 in Column [H] at line number 16 for the Water Division. Each of these four adjustments will be discussed in detail in the fifth and next section of this testimony. The four rate base adjustments are summarized and briefly identified in the table below:

Water Division – Rate Base Adjustments

Description	Debit / (Credit) Amount
Adjustment #1 – Plant & Accumulated Depreciation Adjustments....	$ (3,433,394)
Adjustment #2 – Not Used for the Water Division..........................	– 0 -
Adjustment #3 – Intentionally Left Blank for both Water & Sewer......	- 0 -
Adjustment #4 – Contributions-in-Aid-of-Construction ("CIAC") & AA..	(1)
Adjustment #5 – Accumulated Deferred Income Taxes ("ADIT").......	(35,849)
Adjustment #6 – Cash Working Capital..	(160,852)
Total Rate Base Adjustments..	**$ (3,630,096)**

The $3,630,096 total Rate base adjustment above represents a reduction to the Water Division's Rate base.

For the Sewer Division, RUCO recommends five rate base adjustments. The total sum of these five adjustments reduces rate base by $5,781,652, which is shown on RUCO Direct Schedule TJC-3 in Column [H] at line number 18 for the Sewer Division. Each of these five adjustments will be discussed in detail in the fifth and next section of this testimony. The four rate base adjustments are summarized and briefly identified in the table below:

Sewer Division – Rate Base Adjustments

Description	Debit / (Credit) Amount
Adjustment #1 – Plant & Accumulated Depreciation Adjustments......	$ (138,228)
Adjustment #2 – AES & NWS Regulatory Liability..........................	(2,829,618)
Adjustment #3 – Intentionally Left Blank for both Water & Sewer......	- 0 -
Adjustment #4 – Contributions-in-Aid-of-Construction ("CIAC") & AA..	1,603
Adjustment #5 – Accumulated Deferred Income Taxes ("ADIT")........	(98,605)
Adjustment #6 – Cash Working Capital..	(105,075)
Total Rate Base Adjustments...	**$ (3,169,924)**

The $3,169,924 total rate base adjustment above represents a reduction to the Sewer Division's rate base. RUCO will now provide a more detailed explanation in the next section of testimony of each of the rate base adjustments for the Water and Sewer Divisions.

V. DETAILED RATE BASE ADJUSTMENTS

Rate Base Adjustment #1 – Utility Plant in Service ("UPIS") and Accumulated Depreciation ("A/D") Adjustments:

Q. Please explain RUCO rate base Adjustment #1 for the Water Division.

A. This is the fifth of eight sections of RUCO's testimony that provides a detailed explanation of its recommended rate base adjustments 1-6. For the Water Division, rate base Adjustment #1 is comprised of two UPIS adjustments totaling ($5,456,411) and three A/D adjustments totaling $2,023,017 that net to a total ($3,433,394) adjustment. The net adjustment to UPIS and A/D of ($3,433,394) represents a reduction to net UPIS and thus to rate base, which is shown on RUCO Direct Schedule TJC-3. The detail of each UPIS and A/D adjustment is shown in more detail on RUCO Direct Schedules TJC-4 at pages 1 and 2 respectively. These adjustments are shown on the following two tables for the Water Division. Table 1 represents the UPIS adjustments while Table 2 represents the A/D adjustments as follows:

Table 1
Water Division – Rate Base Adjustment #1
Comprised of Two UPIS Adjustments

Description	Debit / (Credit) Amount
Adjustment A – UPIS Reconstruction Adjustment..........................$	(- 0 -)
Adjustment B – Impacts A/D Only...	- 0 -
Adjustment C – 2017 Post Test Year UPIS Disallowances..............	(3,500,494)
Adjustment D – 2017 Post Test Year UPIS Retirements.................	(1,955,917)
Adjustment E – Intentionally Left Blank.....................................	– 0 -
	---------------
Total UPIS Rate Base Adjustment #1.......................................	**$(5,456,411)**
	=========

Table 2
Water Division – Rate Base Adjustment #1
Comprised of Three A/D Adjustments

Description	Debit / (Credit) Amount
Adjustment A – A/D Reconstruction Adjustment.............................$	- 0 -
Adjustment B – Stranded A/D Only..	(7,349)
Adjustment C – 2017 Post Test Year A/D Disallowances...............	74,449
Adjustment D – 2017 Post Test Year A/D Retirements..................	1,955,917
Adjustment E – Intentionally Left Blank..	– 0 -

Total A/D Rate Base Adjustment #1...	**$(2,023,017)**
	========

UPIS and A/D Adjustment A – UPIS and A/D Reconstruction Adjustment:

Q. Please explain RUCO's first UPIS and A/D adjustment labeled as Adjustment A – UPIS and A/D Reconstruction for the Water Division.

A. RUCO manually reconstructed the Company's UPIS and A/D balances beginning with the last balances approved in Decision No. 74437 dated April 18, 2014, which utilized a TY ending December 31, 2012. The next step is to include all subsequent years of plant additions, adjustments, retirements, and any salvage value through the current TY end December 31, 2016.[1] Any differences between the Company and RUCO UPIS and A/D balances represents RUCO's recommended adjustment. This calculation is shown in RUCO Schedules TJC-4(a) on pages 1-5 for the respective Water and Sewer Divisions.

[1] The ending plant and accumulated depreciation values includes the Company's 2017 post test year plant as requested by the Company in its filing.

For the Water Division, RUCO does not recommend any adjustment for either the reconstruction of the UPIS or A/D balances. However, there will be an adjustment recommended for the Sewer Division. Therefore, it is necessary to explain RUCO UPIS and A/D Adjustment in the Water Division as this adjustment is the same for both divisions.

<u>UPIS and A/D Adjustment B – Stranded A/D Only:</u>

Q. Please explain RUCO's second UPIS and A/D adjustment labeled as Adjustment B - Stranded A/D Only for the Water Division.

A. For the Water Division, this adjustment impacts the A/D balance only and is a result of the reconstruction calculation of UPIS and A/D just explained in RUCO's UPIS and A/D Adjustment A earlier. Since RUCO and the Company both use the vintage year group depreciation methodology for depreciation of plant assets, there is a $7,349 stranded debit accumulated depreciation balance in plant account 320.2 – Solution Chemical Feeders in vintage year 2013. The UPIS balance in that account is zero in vintage year 2013, which signifies that vintage year 2013 UPIS balance for account 320.2 has been fully retired and removed from the UPIS balance. Since there is a zero balance in that vintage year plant account balance with a $7,349 debit accumulated depreciation balance, there is no plant balance remaining to be depreciated in that vintage year to offset the debit accumulated depreciation balance of $7,349. It is necessary to remove the stranded A/D balance associated with that account. Otherwise, the $7,349 debit balance embedded in the accumulated depreciation balance into perpetuity. Therefore, it's necessary to remove the debit accumulated depreciation balance as a stranded balance since there is no plant balance remaining to offset it through depreciation in future years.

Q. How can debit balances in accumulated depreciation exist if accumulated depreciation carries a normal credit balance?

A. The two most common ways a debit accumulated depreciation balance arises is either 1) plant is prematurely retired before (i.e., plant item is destroyed by fire, flood, or simply prematurely mechanically malfunctions beyond repair before reaching its full estimated useful life) it reaches its full useful depreciable life or 2) in some instances, retirements are often estimated if the original cost invoice for the plant item is not available. If the original cost of an asset retirement is over-estimated, the value of the retirement can be more than resides in the A/D balance. Rather than reducing the A/D balance to zero, the retirement adjustment to remove the original cost of the asset from the A/D balance can be more than the normal credit A/D balance residing in the account. When that happens, a debit balance can arise as in this instance.

Q. What adjustment is necessary to remove the stranded debit A/D balance of $7,349 found in plant account 320.2?

A. It is necessary to credit the $7,349 debit A/D balance to remove it from the net UPIS balance. This adjustment increases the normal credit accumulated depreciation balance by the $7,349 and thus reduces net UPIS and rate base accordingly. The adjustment is shown in RUCO Direct Schedule TJC-4 on page 2 in Column [C].

UPIS & A/D Adjustment C – 2017 PTY Plant Adjustments:

Q. Please explain RUCO's third UPIS and A/D adjustment labeled as Adjustment C – Post Test Year ("PTY") Adjustment for the Water Division.

A. RUCO's policy regarding post test year plant is to consider the inclusion of certain critical infrastructure post test year plant additions placed into service within the first six-months after the TY end. Further, any post test year plant that RUCO will consider must be in-service, used and useful. To go beyond the TY end by more than six-months would violate the very backbone principle of Generally Accepted Accounting Principles ("GAAP"), which is the **matching principle**.

Adherence to the matching principle assures the matching of rate base component balances (i.e., Accumulated Depreciation, AIAC, CIAC, Customer Meter & Security Deposits, ADIT, Depreciation, and etc.) to the same point in time as plant additions. On the other hand, to ignore the matching principle will skew the results, and most likely result in unfair and unreasonable results. To put some perspective on the Company's post test year plant request in this case, the 2017 post TY plant additions currently being requested by the Company are synonymous with a Company asking the Internal Revenue Service to be allowed to include revenues from a previous year that is less than the current year with higher expenses from the current year. Revenues, expenses, and rate base components should all match the same period of time. That is the very essence of the matching principle as its definition is stated as follows:

> The **matching principle** is one of the basic underlying guidelines in accounting. The **matching principle** directs a company to report an expense on its income statement in the same period as the related revenues. The **Matching Principle states** that all expenses must be **matched** in the same accounting period as the revenues they helped to earn.

Q. For the Water Division, what adjustment is necessary to remove <u>all</u> noncritical 2017 PTY UPIS and A/D balances and to also remove PTY plant additions exceeding RUCO's six-month cutoff time period to maintain some credence of the matching principle that produces more fair and reasonable rates for ratepayers?

A. To remove all noncritical plant additions and PTY UPIS and A/D adjustments exceeding six-month TY end from the Company's filing, it was necessary to reduce the UPIS balance by ($3,500,494) and A/D balance by

$74,449 for the Water Division. These adjustments are shown in RUCO Direct Schedules TJC-4 on pages 1 and 2 in Column [D].

<u>UPIS & A/D Adjustment D – 2017 PTY Plant Retirements:</u>

Q. Please explain RUCO's fourth UPIS and A/D adjustments labeled as Adjustment D – PTY Plant Retirements for the Water Division.

A. In the Company's Water Division filing, it requested $4,655,998 in PTY UPIS additions and $102,941 corresponding half-year of A/D. The Company's filing did not reflect any 2017 PTY plant retirements. RUCO issued data request ("DR") 5.08 inquiring why the Company's Application had not included any adjustments to reflect the retirements associated with these 2017 PTY UPIS additions. In the Company's response to DR 5.08, the Company said it had "overlooked" the retirements that the 2017 PTY plant additions would be replacing. This adjustment removes the UPIS and A/D associated with the "overlooked" 2017 PTY UPIS and A/D retirements.

Q. What adjustments to UPIS and A/D are necessary to remove UPIS and A/D that was being replaced by the 2017 PTY plant additions?

A. It was necessary to retire and remove the same ($1,955,917) of UPIS from both the UPIS and A/D balances to account for the retirements that the Company failed to include in its Application. These adjustments are shown in RUCO Direct Schedules TJC-4 on pages 1 and 2 in Column [E].

UPIS & A/D Adjustment E – Intentionally Left Blank:

Q. Please explain RUCO's fifth and final UPIS and A/D adjustments labeled as Adjustment E – Intentionally Left Blank for the Water Division.

A. This is a placeholder adjustment that is not currently being used in RUCO's Direct Schedules. However, there is an adjustment that Staff discussed with the Company during a meeting held with RUCO, Staff, and the Company regarding capitalized expenditures being charged to plant projects in years 2013 through TY end 2016 that would generate an adjustment to be included here for RUCO's surrebuttal testimony filing.

Q. Does that complete RUCO's Water Division's recommended UPIS and A/D adjustments that represents RUCO rate base adjustment #1 at this time?

A. Yes. RUCO's UPIS and A/D Adjustments A-E are now complete, which represents RUCO rate base Adjustment #1, for the Water Division. For the Water Division, the UPIS adjustments A-E sum to ($5,456,411) while the same A/D adjustments A-E sum to $2,023,017 or a net adjustment of ($3,433,394). The sum of those UPIS and A/D adjustments A-E are shown in RUCO Direct Schedules TJC-4 on pages 1 and 2 in Column [G] and are also reflected in RUCO's Original Cost rate base adjustments Schedule TJC-3 as rate base adjustment No. 1 in Column [B].

<u>Rate Base Adjustment #1 – Utility Plant in Service ("UPIS") and Accumulated Depreciation ("A/D") Adjustments:</u>

Q. Please explain RUCO rate base adjustment #1 for the Sewer Division.

A. For the Sewer Division, rate base Adjustment #1 is comprised of two UPIS adjustments totaling ($378,976) and four A/D adjustments totaling $240,748 that net to a total ($138,228) adjustment. The net adjustment to UPIS and A/D of ($138,228) represents a reduction to net UPIS and thus to rate base, which is shown on RUCO Direct Schedule TJC-3. The detail of each UPIS and A/D adjustment is shown in more detail on RUCO Direct Schedules TJC-4 at pages 1 and 2 respectively. These adjustments are shown on the following two tables for the Sewer Division. Table 3 represents the UPIS adjustments while Table 4 represents the A/D adjustments as follows:

Table 3
Sewer Division – Rate Base Adjustment #1
Comprised of Two UPIS Adjustments

Description	Debit / (Credit) Amount
Adjustment A – UPIS Reconstruction Adjustment..........................$	(- 0 -)
Adjustment B – Impacts A/D Only...	- 0 -
Adjustment C – 2017 Post Test Year UPIS Disallowances..............	(175,266)
Adjustment D – 2017 Post Test Year UPIS Retirements.................	(203,710)
Adjustment E – Intentionally Left Blank......................................	– 0 -
	---------------
Total UPIS Rate Base Adjustment #1.......................................$	**(378,976)**
	=========

Table 4
Sewer Division – Rate Base Adjustment #1
Comprised of Four A/D Adjustments

Description	Debit / (Credit) Amount
Adjustment A – A/D Reconstruction Adjustment	$ 37,209
Adjustment B – Stranded A/D Only	(742)
Adjustment C – 2017 Post Test Year A/D Disallowances	571
Adjustment D – 2017 Post Test Year A/D Retirements	203,710
Adjustment E – Intentionally Left Blank	– 0 -
Total UPIS Rate Base Adjustment #1	**$ 240,748**

Q. Please identify the same UPIS and A/D Adjustments A-E for the Sewer Division.

A. Since RUCO has thoroughly explained the genesis for its UPIS and A/D Adjustments A-E that represents RUCO rate base adjustment No. 1, the explanation for each UPIS and A/D adjustment A-E will be brief for the Sewer Division unless otherwise noted.

<u>UPIS and A/D Adjustment A – UPIS and A/D Reconstruction Adjustment:</u>

Q. Please explain RUCO's first UPIS and A/D adjustment labeled as Adjustment A – UPIS and A/D Reconstruction for the Sewer Division.

A. The UPIS and A/D reconstruction calculation was well documented in the Water Division testimony earlier. For the sake of brevity and expediency, RUCO will only document here the adjustments arising from the reconstruction calculation. This calculation is shown in RUCO Schedules TJC-4(a) on pages 1-5 for the respective Water and Sewer Divisions.

For the Sewer Division, RUCO does not recommend any adjustment for the reconstruction of the UPIS but does recommend an A/D adjustment for the Sewer Division unlike the Water Division as was previously mentioned.

Q. Why is there an A/D adjustment for the Sewer Division but wasn't one for the Water Division?

A. When the Company did the same reconstruction calculation as RUCO performed, it was determined that the Company used the wrong 2012 UPIS balance to begin its A/D calculation. The UPIS balance the Company started depreciating in 2013 included the prior Commission Decision No. 74437 approved 2013 PTY plant. The Company erroneously started with the column in its reconstruction calculation workpapers that included the 2013 PTY plant. This error would have depreciated the same 2013 PTY UPIS twice. RUCO's adjustment corrects this error.

Q. What adjustment does RUCO recommend to correct this error in the Company's reconstruction calculation for its Sewer Division?

A. It was necessary to reduce the Company's A/D balance by $37,209, which increases net UPIS and thus rate base by the same amount in the Sewer Division. It should be noted that this adjustment is made in benefit of the Company. The details of this adjustment are shown in RUCO Direct Schedule TJC-4 on page 2 of 2 in Column [B] labeled Adjustment A.

UPIS and A/D Adjustment B – Stranded A/D Only:

Q. Please explain RUCO's second UPIS and A/D adjustment labeled as Adjustment B - Stranded A/D Only for the Sewer Division.

A. For the Sewer Division, this adjustment impacts the A/D balance only and is a result of the reconstruction calculation of UPIS and A/D explained earlier in the Water Division regarding vintage year stranded debit A/D balances. Since RUCO and the Company both use the vintage year group depreciation methodology for depreciation of plant assets, there is a $742 stranded debit accumulated depreciation balance in plant account 391 – Transportation Equipment in vintage year 2012. Again, the UPIS balance in that account is zero in vintage year 2012, which signifies that vintage year 2012 UPIS balance for account 391 has been fully retired and removed from the UPIS balance. Since there is a zero balance in that vintage year plant account balance with a $742 debit accumulated depreciation balance, there is no plant balance remaining to be depreciated in that vintage year to offset the debit accumulated depreciation balance of $742. It is necessary to remove the stranded $742 A/D balance associated with that account. Otherwise, the $742 debit balance embedded in the accumulated depreciation balance will remain there in perpetuity. Therefore, it's necessary to remove the debit accumulated depreciation balance as a stranded balance since there is no plant balance remaining to offset it through depreciation in future years.

Q. What adjustment is necessary to remove the stranded debit A/D balance of $742 found in plant account 391?

A. It is necessary to credit the $742 debit A/D balance to remove it from the net UPIS balance. This adjustment increases the normal credit accumulated depreciation balance by the $742 and thus reduces net UPIS and rate base accordingly. The adjustment is shown in RUCO Direct Schedule TJC-4 on page 2 in Column [C].

<u>UPIS & A/D Adjustment C – 2017 PTY Plant Adjustments:</u>

Q. Please explain RUCO's third UPIS and A/D adjustment labeled as Adjustment C – Post Test Year ("PTY") Adjustment for the Sewer Division.

A. Using RUCO's policy and GAAP's Matching Principle regarding post-test year plant as explained in the Water Division earlier, it was necessary to reduce the UPIS balance by ($175,266) and A/D balance by $571 for all noncritical infrastructure and plant additions, exceeding RUCO's six-month TY end for the Sewer Division. These adjustments are shown in RUCO Direct Schedules TJC-4 on pages 1 and 2 in Column [D].

UPIS & A/D Adjustment D – 2017 PTY Plant Retirements:

Q. Please explain RUCO's fourth UPIS and A/D adjustments labeled as Adjustment D – PTY Plant Retirements for the Water Division.

A. In the Company's Water Division filing, it requested $26,279,059 in PTY UPIS additions and $659,002 corresponding half-year of A/D. The Company's filing did not reflect any 2017 PTY plant retirements. RUCO issued data request ("DR") 5.08 inquiring why the Company's Application had not included any adjustments to reflect the retirements associated with these 2017 PTY UPIS additions. In the Company's response to DR 5.08, the Company said it had "overlooked" the retirements that the 2017 PTY plant additions would be replacing. This adjustment removes the UPIS and A/D associated with the "overlooked" 2017 PTY UPIS and A/D retirements.

Q. What adjustments to UPIS and A/D are necessary to remove UPIS and A/D that was being replaced by the 2017 PTY plant additions?

A. It was necessary to retire and remove the same ($203,710) of UPIS from both the UPIS and A/D balances to account for the retirements that the Company failed to include in its Application. These adjustments are shown in RUCO Direct Schedules TJC-4 on pages 1 and 2 in Column [E].

UPIS & A/D Adjustment E – Intentionally Left Blank:

Q. Please explain RUCO's fifth and final UPIS and A/D adjustments labeled as Adjustment E – Intentionally Left Blank for the Sewer Division.

A. This is a placeholder adjustment that is not currently being used in RUCO's Direct Schedules. However, there is an adjustment that Staff discussed with the Company during a meeting held with RUCO, Staff, and the Company regarding capitalized expenditures being charged to plant projects in years 2013 through TY end 2016 that would generate an adjustment to be included here for RUCO's surrebuttal testimony filing.

Q. Does that complete RUCO's Sewer Division's recommended UPIS and A/D adjustments that represents RUCO rate base adjustment #1 at this time?

A. Yes. RUCO UPIS and A/D Adjustments A-E are now complete, which represents RUCO's rate base adjustment #1, for the Sewer Division. For the Sewer Division, the UPIS adjustments A-E sum to ($378,976) while the same A/D adjustments A-E sum to $240,748 or a net adjustment of ($138,228). The sum of those UPIS and A/D adjustments A-E are shown in RUCO Direct Schedules TJC-4 on pages 1 and 2 in Column [G] and are also reflected in RUCO Original Cost Rate Base adjustments Schedule TJC-3 as rate base adjustment No. 1 in Column [B].

Rate Base Adjustment #2 – Unregulated Algonquin Environmental Services ("AES") Regulatory Liability:

Q. Please explain RUCO rate base Adjustment #2 for the Water and Sewer Divisions.

A. For the Water Division, rate base Adjustment #2 does not apply. Rate base adjustment #2 is specific to the Sewer Division only.

This adjustment arises due to the Company not disclosing revenues that were being recorded to one of its unregulated shell entities, named Algonquin Environmental Services ("AES"). AES name was later changed to Liberty Utilities Environmental Services ("LUES"). Neither AES nor LUES was ever chartered in the State of Arizona with either the Arizona Corporation Commission's Corporate Division or Secretary of the State to conduct business in Arizona.

Q. When did the revenues begin to be generated and thus recorded to the unregulated shell Company of AES?

A. The revenues began in 2007 and were recorded to the unregulated and unchartered AES affiliate of the regulated LU-LPSCO.

Q. Please describe how the revenues were being generated and improperly recorded to an unregulated affiliate entity of the regulated LU-LPSCO.

A. The revenues were being generated by two subdivisions – Arroyo Mountain Estates and Savannah HOAs – in the northern area of the regulated LU-LPSCO's service area or Certificate of Convenience & Necessity ("CC&N"). The regulated – LU-LPSCO, unregulated – AES, and several developers in that northern area of the regulated LU-LPSCO entered into a number of complex contractual agreements to be served and to provide wastewater utility service using the regulated LU-LPSCO's infrastructure, sewer plant, to transport and treat the wastewater generated by the two subdivisions of Arroyo and Savannah.

Q. You mentioned earlier that several developers entered into contractual agreements with the regulated LU-LPSCO and unregulated AES entities. Who were the developers that entered into these contractual agreements?

A. The only contractual agreements that were disclosed to RUCO during the discovery of this issue pertained to the two agreements between Arroyo and Savannah HOAs and the unregulated AES and regulated LU-LPSCO. However, capacity agreements of some kind had to exist between Element Homes, Standard Pacific Homes, Shea Homes, Russell Ranch, Maracay, and Maricopa Water District ("MWD") because one of LU-LPSCO's data responses to Staff DR 8.1(e) identified all of those developer entities as having some type of capacity on and in the regulated LU-LPSCO sewer plant. That DR response indicated there were approximately 3,000 homes or Equivalent Dwelling Units ("EDUs") scheduled to come online per that DR response to Staff.

Q. Did the regulated LU-LPSCO sewer system have ample capacity to take on that kind of system demand of 3,000 additional homes in the 2008 and 2012 rate cases?

A. RUCO cannot answer the question if the regulated LU-LPSCO sewer plant had the capacity to take on an additional 3,000 or nearly 20 percent more additional homes, than it was currently serving at that time, during those rate cases. RUCO is aware from being involved in those two rate cases that the Company added capacity in each of those two cases. However, the issue of excess capacity did not arise in either of two cases in RUCO's recollection.

Q. Were RUCO and/or Staff aware of the additional 3,000 EDU's or homes cited earlier in the 2008 and 2012 rate cases?

A. RUCO can only speak for itself but no. RUCO was not aware of the 3,000 additional EDU's or homes.

Q. Earlier in this testimony RUCO mentioned contractual agreements between two HOAs, the unregulated AES entity, and the regulated LU-LPSCO that have been generating the undisclosed revenues. Didn't RUCO and Staff request all contractual agreements "related to the operation and maintenance of the systems" which LU-LPSCO entered into in the previous two rate cases?

A. Staff requested all contractual agreements through a DR in both rate cases. LU-LPSCO did not provide the contracts with the two HOAs in either the 2008 or 2012 rate cases. RUCO's understanding of why the Company did not disclose these contracts, in the prior two rate cases, is that the company does not believe the agreements were "related to the operation or maintenance of the systems." Without a Company disclosing these types of agreements, being able to account for them are almost impossible.

Q. Would it be accurate to state that the Company has been receiving revenues since 2007 for treatment of wastewater flows from non-regulated entities outside the Company's CC&N (Arroyo and Savannah HOAs), and the ratepayers of LU-LPSCO, not the revenues collected, have been paying for the treatment?

A. Yes.

Q. Please explain this further?

A. The Company was receiving revenues from the non – regulated entity for services associated with the regulated Company's infrastructure without crediting those revenues to the Company's ratepayers in the last two rate cases. The Company made no mention of this in the current application. As discussed earlier, Staff and RUCO through due diligence were able to identify the problem. The Company, then asked Staff and RUCO for the opportunity to file Supplemental Testimony to discuss this issue, to which both parties agreed. Though the Company now terms this as an "oversight", the result is the ratepayers have been over-paying for their service since at least 2007(?). Sadly, no matter how the Commission decides to rectify this, many of those ratepayers, who left the service territory during this time and have paid those higher rates, will never be made whole. These types of actions, no matter the intent, are deeply troubling to RUCO and likely to the Commission. At a minimum, the Company should be required to put in the necessary internal controls (i.e. Separation of Duties, Physical Audits, Proper Documentation, Reconciliations, Approval Authority) to make sure such "oversights" do not happen again.

Q. Were there other items that RUCO found that the Company chose not to disclose in the two previous 2008 and 2012 rate cases?

A. Yes.

Q. Please explain any other findings that arose during the course of this proceeding that were not disclosed by the Company in the two previous 2008 and 2012 rate cases.

A. The Company received a total of $1,645,000 from the various developers mentioned earlier over the years of 2005 and 2007 that was for capacity expansion at the Palm Valley Reclamation Treatment Facility, which is LU-LPSCO regulated wastewater treatment facility in Avondale. The $1,645,000 was never disclosed or recorded as AIAC or CIAC on the Company's books and records in either of those two rate cases. The ratepayers of LU-LPSCO has been footing the bill of all wastewater from the two HOAs and paying depreciation expense on the part of plant that the $1,645,000 was intended to fund. Another unregulated shell Company named Northwest Sewer ("NWS") held the $1,645,000 of AIAC/CIAC on its books and records.

Q. What is RUCO's recommendation to remedy or try and make the ratepayers whole for these non-disclosures of revenue and AIAC/CIAC over more than ten-years?

A. RUCO recommends a regulatory liability be established that accounts for the undisclosed revenues and the $1,645,000 that the Company has collected beginning in 2005 through 2015.

Q. What value or amount does RUCO recommend be established for the regulatory liability, in an attempt to make ratepayers whole again after the "oversight" of not disclosing revenues nor AIAC/CIAC dating back to 2005?

A. RUCO recommends that a $4,244,427 regulatory liability be created and be amortized over a three-year period.

Q. Is that the amount RUCO has included in its revenue requirement schedules for the Sewer Division?

A. Yes. RUCO rate base Adjustment No. 2 reflects that regulatory liability. This adjustment is shown in RUCO Direct Schedule TJC-3 in Column [C] as the AES Regulatory Liability in the Sewer Division's schedules.

<u>Rate Base Adjustment #3 – Intentionally Left Blank:</u>

Q. Please explain RUCO rate base Adjustment #3 for the Water and Sewer Divisions.

A. Rate base Adjustment #3 is intentionally left blank for both the Water and Sewer Divisions. This adjustment is a placeholder adjustment for possible use in RUCO's surrebuttal testimony. Therefore, RUCO does not recommend any adjustment for either the Water or Sewer Divisions for this adjustment in Direct Testimony.

Q. Is RUCO contemplating any specific adjustment to be included here in its surrebuttal testimony?

A. Yes. During a meeting with RUCO, Staff, and the Company, a Staff analyst inquired of the Company if the Corporate Allocations were cleaned up of any and all unnecessary expenses for the provisioning of public utility service (i.e., season tickets for professional sporting teams, awards for employee recognition, lobbying expenses, and similar type of expenses). The Company said "no" that the corporate allocations were not cleaned up in between rate case's TYs. In the meantime, Staff has asked a number of DRs requesting the indirect overheads ("INDOH") being capitalized to plant projects in the intervening years between LU-LPSCO rate cases, which are years 2013 through 2015. RUCO can only surmise that Staff will be recommending an adjustment that would reflect removal of some portion of the corporate allocations that have been capitalized to plant projects during 2013-2015. This is the reason for this placeholder adjustment at this phase of the proceeding.

<u>Rate Base Adjustment #4 – CIAC Adjustment:</u>

Q. Please explain RUCO rate base Adjustment #4 for the Water and Sewer Divisions.

A. RUCO performed a reconstruction of both the AIAC and CIAC balances that is identical to the UPIS and A/D Reconstruction that was explained in RUCO

UPIS and A/D labeled A and is included in RUCO rate base Adjustment No. 1.

Q. Were there adjustments that arose when doing the CIAC reconstruction calculation?

A. Yes.

Q. What were the reasons for the CIAC adjustments for the Water and Sewer Divisions respectively?

A. For the Water Division, the CIAC adjustment for rate base Adjustment No. 4 is insignificant but was ($1) to the CIAC Accumulated Amortization. This adjustment was due to a rounding factor.

For the Sewer Division, the CIAC adjustment for rate base Adjustment No. 4 is $1,603 to the CIAC Accumulated Amortization. This was due to the Company using a 6.67 percent amortization rate rather than the correct 10 percent rate. This increases the Company's rate base by $1,603. For both the Water and Sewer Divisions, these adjustments are shown on the respective RUCO Direct Schedules TJC-7 on pages 1-4. The summary adjustments are shown in RUCO rate base Schedules 2 and 3.

Rate Base Adjustment #5 – Accumulated Deferred Income Taxes ("ADIT") Adjustment:

Q. Please explain RUCO rate base Adjustment #5 for the Water and Sewer Divisions.

A. This adjustment is the culmination of essentially four separate components. The first being RUCO's recommended UPIS and A/D balances (less land), which was explained earlier in RUCO rate base Adjustment No. 1. The second component are RUCO's recommended AIAC, CIAC, and CIAC Accumulated Amortization balances, which have been previously explained also and are shown on the respective RUCO Direct Schedules TJC-3. The third component that resulted in the adjustment was the Company erroneously included $3,509,237 of land in its Gross CIAC balance, which RUCO removed. The Company failed to capture some solar federal income tax credits from two solar projects that were included in the UPIS balance.

Q. What adjustments to ADIT were necessary once those four components discussed above were either included or excluded from the ADIT calculation?

A. It was necessary to increase the ADIT liability balance, which is a deduction to rate base, by $35,849 for the Water Division and to also increase the ADIT liability balance by $98,605 for the Sewer Division.

Rate Base Adjustment #6 – Cash Working Capital:

Q. Please explain RUCO rate base Adjustment #6 for the Water and Sewer Divisions.

A. This adjustment uses RUCO's recommended levels of operating expenses and adds the component for interest expense proposed by the Company in its financing application.

Q. What adjustments to working capital does RUCO recommend for the Water and Sewer Divisions?

A. For the Water Division, RUCO recommends decreasing the Company's proposed cash working capital by $160,852, which is a reduction to rate base. For the Sewer Division, RUCO also recommends decreasing the Company's proposed cash working capital by $105,075, which is a reduction to rate base too.

Q. Does that complete RUCO's recommended rate base adjustments in this phase of the proceeding?

A. Yes. The next section of testimony will summarize RUCO's operating income and expense adjustments.

VI. SUMMARY OF OPERATING INCOME ADJUSTMENTS 1 – 13:

Q. Please summarize RUCO's recommended Operating Income Adjustments, revenues and expenses, for LU-LPSCO's Water and Sewer Divisions as filed in the Company's Application.

A. This is the sixth of eight sections of RUCO's testimony that provides a summary of its Operating Income Adjustments 1-13 for the Company's Water and Sewer Divisions. For the Water Division, RUCO recommends eleven Operating Income adjustments. The total sum of these eleven adjustments increases the adjusted TY operating income by $577,957, which is shown on RUCO Direct Schedule TJC-13 in Column [O] at line number 26 for the Water Division. Each of these eleven adjustments will be discussed in detail in the seventh and next section of this testimony. The eleven Water Operating Income adjustments are summarized and briefly identified in the table below:

Water Division – Operating Income Adjustments

Description	Debit / (Credit) Amount
Adjustment #1 – Depreciation Expense..................................	$ (304,382)
Adjustment #2 – Property Tax Expense..................................	3,894
Adjustment #3 – Water Testing Expense...................................	- 0 -
Adjustment #4 – Reverse Company's Declining Use Adjustment....	75,131
Adjustment #5 – Remove APUC Bonuses...............................	(60,680)
Adjustment #6 – Remove LUCC Bonuses...............................	(19,728)
Adjustment #7 – Remove LABS Bonuses................................	(46,713)
Adjustment #8 – Normalize LU8020 Bonuses............................	(47,746)

Adjustment #9 – Bad Debt Expense..	78
Adjustment #10 – Customer Growth Normalization........................	- 0 -
Adjustment #11 – Corporate Miscellaneous Expense..................	(23,814)
Adjustment #12 – Remove Double-Count of Media Expense.........	(245,000)
Adjustment #13 – Income Tax Expense....................................	241,265

Total Operating Income Adjustment.......................................	**$ 577,957**
	=========

The $577,957 total Operating Income adjustment above represents an increase to the Water Division's Operating Income due to the one revenue adjustment and ten expense adjustments.

For the Sewer Division, RUCO recommends eight Operating Income adjustments. The total sum of these eight adjustments increases the adjusted TY operating income by $1,092,775, which is shown on RUCO Direct Schedule TJC-13 in Column [O] at line number 26 for the Sewer Division. Each of these eight adjustments will be discussed in detail in the seventh and next section of this testimony. The eight Sewer Operating Income adjustments are summarized and briefly identified in the table below:

Sewer Division – Operating Income Adjustments

Description	Debit / (Credit) Amount
Adjustment #1 – Depreciation Expense	$ (1,401,484)
Adjustment #2 – Property Tax Expense	(4,960)
Adjustment #3 – Water Testing Expense	- 0 -
Adjustment #4 – Not Used for the Sewer Division	- 0 -
Adjustment #5 – Remove APUC Bonuses	(66,673)
Adjustment #6 – Remove LUCC Bonuses	(21,677)
Adjustment #7 – Remove LABS Bonuses	(51,327)
Adjustment #8 – Normalize LU8020 Bonuses	(52,463)
Adjustment #9 – Bad Debt Expense	- 0 -
Adjustment #10 – Customer Growth Normalization	- 0 -
Adjustment #11 – Corporate Miscellaneous Expense	(26,160)
Adjustment #12 – Not Used for the Sewer Division	- 0 -
Adjustment #13 – Income Tax Expense	531,969
Total Operating Income Adjustment	**$ 1,092,775**

The $1,092,775 total Operating Income adjustment above represents an increase to the Sewer Division's Operating Income due to the eight expense adjustments. The recommended operating income adjustments shown in the two previous summary tables above for the Water and Sewer Divisions will each be discussed in detail in the following section VII of RUCO's testimony.

VII. DETAILED OPERATING INCOME ADJUSTMENTS

Operating Income Adjustment #1 – Depreciation Expense:

Q. Please explain RUCO Operating Income Adjustment #1 – Depreciation Expense for the Water and Sewer Divisions.

A. For the Water Division, the two primary reasons for the difference between RUCO and the Company's depreciation expense calculation is the Company's Rate Application has zero retirements for the inclusion of its requested 2017 PTY plant additions. In the Company's response to RUCO DR 5.08, the Company admitted that it had "overlooked" all 2017 PTY plant retirements in its Rate Application as filed. In a follow-up DR response that was emailed to both RUCO and Staff on December 5, 2017, the Company provided RUCO and Staff data indicating its Rate Application had "overlooked" $1,955,917 of retirements that its 2017 PTY plant additions would replace. Therefore, it is necessary to remove the $1,955,917 of plant retirements from both the UPIS and A/D balances to account for this plant being retired and to recognize no further depreciation expense to be calculated on it as the Company's Rate Application has not properly excluded.

The second primary reason for RUCO's depreciation expense adjustment to the Water Division is the disallowance of any 2017 PTY plant additions falling outside of RUCO's six-month cutoff period when considering its inclusion or exclusion in order to maintain some credence to GAAP's backbone accounting principle, which is the Matching Principle. RUCO removed $3,500,494 of the Company's requested 2017 PTY plant additions as falling outside of RUCO's six-month cutoff period.

Q. What depreciation expense adjustment is necessary in the Water Division to account for the $1,955,917 of 2017 PTY plant retirements and RUCO's disallowance of $3,500,494 of 2017 PTY plant additions?

A. To remove 2017 PTY plant retirements of $1,955,917 and to account for the disallowance of $3,500,494 of 2017 PTY plant additions, RUCO recommends a $304,382 reduction to the Company's Water Division depreciation expense as filed. This adjustment is shown in RUCO's Direct Schedule TJC-13 and TJC-12 with the details shown on Schedule TJC-14 for the Water Division.

Q. What are the reasons for RUCO's recommended adjustment to the Company's depreciation expense for the Sewer Division?

A. For the Sewer Division, there are three primary reasons for the difference between RUCO and the Company's depreciation expense calculation. First, the Company's Rate Application has zero retirements for the inclusion of its requested 2017 PTY plant additions. In the Company's response to RUCO DR 5.08, the Company admitted that it had "overlooked" all 2017 PTY plant retirements in its Rate Application as filed. In a follow-up DR response that was emailed to both RUCO and Staff on December 5, 2017, the Company provided RUCO and Staff data indicating its Rate Application had "overlooked" $203,710 of retirements that its 2017 PTY plant additions would replace. Therefore, it is necessary to remove the $203,710 of plant retirements from both the UPIS and A/D balances to account for this plant being retired and to recognize no further depreciation expense to be calculated on it as the Company's Rate Application has not properly excluded.

The second primary reason for RUCO's depreciation expense adjustment to the Sewer Division is the disallowance of any 2017 PTY plant additions falling outside of RUCO's six-month cutoff period when considering its inclusion or exclusion in order to maintain some credence to GAAP's backbone accounting principle, which is the Matching Principle. RUCO removed $175,266 of the Company's requested 2017 PTY plant additions as falling outside of RUCO's six-month cutoff period.

The third primary and most significant reason for RUCO's depreciation expense adjustment to the Sewer Division is due to RUCO's establishment of a regulatory liability to be amortized over a three-year period as a credit to depreciation expense, which reduces the Company's allowed depreciation expense. This regulatory liability is the result of LU-LPSCO not disclosing nearly ten-years of revenues that were produced through treatment of raw sewer at the total expense of the ratepayers without any recognition of the nearly ten-years of nondisclosed revenues. In addition, $1,645,000 was received in cash that also went unrecorded and undisclosed as CIAC for nearly twelve-years. The $1,645,000 was used for the 2012 plant expansion to treat the sewer flows from the two HOAs previously discussed in the rate base section of this testimony. The nearly ten-years of revenues were being recorded in an unregulated, unchartered, and not licensed business in the State of Arizona, a shell company named Algonquin Environmental Services ("AES"). The $1,645,000 of cash received during 2005-2007 was also being recorded in an unregulated shell company named Northwest Sewer ("NWS"), before being reclassified to the regulated LU-LPSCO in the Company's current TY end 2016 rate case.

Q. How did RUCO calculate its regulatory liability for to try and make the ratepayers of LU-LPSCO whole?

A. RUCO's methodology in calculating its regulatory liability is quite simple in actuality. First, let's start with the $1,645,000 in cash that was received in ten separate payments on ten distinct dates in time during 2005-2008. When one of the ten cash payments were received, RUCO deposited each of the ten payments into the regulatory account that RUCO established, similar to a bank account, on the date of receipt of each ten cash payments. The ratepayers are entitled a rate of return ("ROR") equal to that granted by the ACC to the regulated LU-LPSCO. Recognizing the fact that this a two-way street for both the ratepayer and Company, RUCO's calculation for the ten payments totaling $1,645,000 begin to earn a ROR equivalent to the Company's ROR granted at that point in time. First, the receipt of each payment is deposited into the regulatory liability account where it begins to earn a ROR as the same ROR granted to the Company by the ACC, which is compounded monthly through the period ending June 30, 2018. That June 2018 date is the presumed date that a Commission Decision will be rendered in this case.

Q. What is the total principal and interest when compounded monthly on ten principal payments of CIAC received between 2005-2008 totaling $1,645,000 at the end of June 2018 when deposited into RUCO's regulatory account, earning the same ROR that the Commission granted the Company over a period beginning June 23, 2005 through June 2018?

A. For the unrecorded CIAC, the total principal and interest earned at the ROR granted to the Company during this thirteen-year time period is $2,684,865.[2] The **$2,684,865** represents RUCO's first component of three in its calculated regulatory liability.

[2] Rounded to nearest whole dollar.

Q. What is the total principal and interest on the unrecorded <u>revenues</u> during 2007-2015 when compounded monthly and deposited into RUCO's regulatory liability account, as just described for the $1,645,000 unrecorded CIAC payments?

A. There were two HOAs that were producing the unrecorded regulated revenues that the Company failed to disclose in either its 2008 and/or 2012 rate cases. For one of the two HOAs – Arroyo Mountain Estates, RUCO calculated a total of $437,153[3] in total average revenues between the years 2007-2015. When the ROR component, compounded monthly, is added to the average annual revenues for those years, Arroyo Mountain Estate's revenues with principal and interest totals $738,581[4] for years 2007-2015.

In addition, the ratepayers have been paying depreciation expense embedded in their rates on the $1,645,000 used for plant expansion in 2012 because the Company didn't properly record the developer payments as CIAC on the books and records of the regulated LU-LPSCO. The annual depreciation expense on $1,645,000 of plant recorded to plant account 380 – Treatment & Disposal Equipment at five percent per annum is $82,250 ($1,645,000 capacity payment x 5% annual depreciation rate = $82,250 annual depreciation expense). RUCO allocates half of the annual depreciation expense or $41,125 ($82,250 x 50% = $41,125) per year to

[3] Ibid.
[4] Ibid.

Arroyo and the other half to the second HOA – Savannah. For the two and one-half years of 2016 through June 2018, RUCO adds another $102,813[5] ($41,125 half of the annual depreciation expense x 2.5 years = $102,812.50) to its regulatory liability account. The total average annual revenues of $738,581 attributable to Arroyo plus the two and one-half years of depreciation of $102,813 totals $841,393 rounded to nearest whole dollar for Arroyo. The **$841,393** represents RUCO's second component of three in its calculated regulatory liability.

For the second HOA – Savannah, RUCO calculated a total of $358,958[6] in total average revenues between the years 2007-2015. When the ROR component, compounded monthly, is added to the average annual revenues for those years, Savannah's revenues with principal and interest totals $615,356[7] for years 2007-2015.

In addition, the ratepayers have also been paying depreciation expense embedded in their rates on the $1,645,000 used for plant expansion in 2012, because the Company didn't properly record the developer payments as CIAC on the books and records of the regulated LU-LPSCO. The annual depreciation expense on $1,645,000 of plant recorded to plant account 380 – Treatment & Disposal Equipment at five percent per annum is $82,250

[5] Ibid.
[6] Ibid.
[7] Ibid.

($1,645,000 capacity payment x 5% annual depreciation rate = $82,250 annual depreciation expense). RUCO allocates half of the annual depreciation expense or $41,125 ($82,250 x 50% = $41,125) per year to Savannah and the other half was allocated to Arroyo Mountain Estates earlier. For the two and one-half years of 2016 through June 2018, RUCO adds another $102,813[8] ($41,125 half of the annual depreciation expense x 2.5 years = $102,812.50) to its regulatory liability account. The total average annual revenues of $615,356 attributable to Savannah plus the two and one-half years of depreciation of $102,813 totals $718,169 rounded to nearest whole dollar for Savannah. The **$718,169** represents RUCO's third and last component in its calculated regulatory liability.

RUCO's recommends a total regulatory liability of **$4,244,427** for the unrecorded CIAC received between the years of 2005-2008, Arroyo Mountain Estates HOA for the unrecorded revenues received between the years 2007-2015 and depreciation expense paid by ratepayers on the 2012 plant expansion that was not offset by amortization expense of the unrecorded CIAC, and Savannah HOA for the unrecorded revenues received between the years of 2007-2015 and depreciation expense paid by ratepayers on the 2012 plant expansion that was not offset by amortization expense of the unrecorded CIAC.

[8] Ibid.

Q. Please summarize RUCO's three components for the 1) CIAC, 2) Arroyo Mountain Estates HOA revenues and depreciation expense, and 3) Savannah HOA revenues and depreciation expense discussed on the preceding pages.

A. The table below summarizes the three components discussed on the preceding pages that represents RUCO's total regulatory liability to be amortized over a three-year period to depreciation expense as follows:

RUCO Regulatory Liability for Sewer Division

1. CIAC..	$ 2,684,865
2. Arroyo Mountain Estates HOA.................	841,393
3. Savannah HOA....................................	718,169

Total Regulatory Liability.......................	**$ 4,244,427**
	=========

Q. Please explain the amortization process for the regulatory liability that RUCO recommends.

A. RUCO recommends that the regulatory liability be amortized over a three-year period to the Company's depreciation and amortization expense as a credit, which is a reduction to the Company's depreciation expense as filed. In other words, one-third of the $4,244,427 regulatory liability be amortized as a reduction to the Company's depreciation expense as filed. One-third of $4,244,427 is $1,414,809, which reduces depreciation expense accordingly.

Q. What depreciation expense adjustment is necessary in the Sewer Division to account for the $203,710 of 2017 PTY plant retirements, RUCO's disallowance of $175,266 of 2017 PTY plant additions, and its $4,244,427 regulatory liability for the unrecorded CIAC and revenues discussed in the preceding pages?

A. To remove 2017 PTY plant retirements of $203,710, account for the disallowance of $175,266 of 2017 PTY plant additions, and amortize one-third of the regulatory liability, RUCO recommends a $1,401,484 reduction to the Company's Sewer Division depreciation expense as filed. This adjustment is shown in RUCO's Direct Schedule TJC-13 and TJC-12 with the details shown on Schedule TJC-14 for the Sewer Division.

Operating Income Adjustment #2 – Property Tax Expense:

Q. Please explain RUCO's recommended property tax expense adjustments to the Company's property tax expense as filed for the Water and Sewer Divisions.

A. This expense is largely driven by the adjusted TY revenues, recommended revenues, assessment ratio, and property tax rates. For the Water Division, RUCO has accepted the Company's inputs with the exception of its Adjusted TY revenues and proposed level of revenues. For the Sewer Division, RUCO takes exception to the Company's "Net Book Value of Licensed Vehicles." Upon review of the Sewer Division's net book value of licensed vehicles that is reflected in Company's Plant Schedule B-2 on page

3 and Accumulated Depreciation Schedule B-2 on page 4, the net book value per those schedules reflects a net book value of licensed vehicles as $240,833 **not** the $26,727 amount shown on the Company's Property Tax Expense Schedule C-2 on page 3 at line 11. The amount shown on that schedule is over ten-times less than reflected in its plant and accumulated depreciation schedules referenced above.

Q. What adjustments are necessary to account for the differences and discrepancies notated by RUCO above for the Water and Sewer Divisions?

A. For the Water Division, RUCO's adjusted TY property tax expense adjustment is $3,894, which increases the Company's property tax expense due to the additional adjusted TY revenues that the Company had removed related to the Company's usage normalization adjustment that RUCO removed as not known and measurable. The usage normalization adjustment that the Company proposed and removed by RUCO will be further addressed when that adjustment is discussed.

RUCO reduces the property tax expense on a going forward basis by $17,397 due to RUCO's recommended decrease in revenue requirements for the Water Division.

For the Sewer Division, RUCO's adjusted TY property tax expense adjustment is ($4,960), which reduces the Company's property tax expense due to the Company's wrong net book value of licensed vehicles.

RUCO increases the property tax expense on a going forward basis by $1,446 due to RUCO's recommended increase in revenue requirements for the Sewer Division.

Operating Income Adjustment #3 – Water Testing Expense:

Q. Please explain RUCO Operating Income Adjustment #3 for Water Testing Expense for the Water and Sewer Divisions.

A. RUCO does not have an engineering staff that would have the costs per test or the expertise to determine how often a particular test should be conducted. Therefore, RUCO depends on Staff's engineers to determine this expense. When Staff files its direct testimony in this matter, RUCO normally adopts Staff's water testing expense recommendation. This is currently a placeholder adjustment for RUCO's surrebuttal testimony for both the Water and Sewer Divisions.

<u>Operating Income Adjustment #4 – To Reverse Company's Usage Normalization Adjustment in the Water Division:</u>

Q. Please explain RUCO's Operating Income Adjustment #4 to reverse the Company's usage normalization adjustment.

A. In LU-LPSCO parent Company's 2016 Annual Report on page 41, the Annual Report stated that its operating profit increased for its utility water and wastewater treatment through additional sales for "Water: Increase primarily related to higher demand at the LPSCo and Bella Vista Water Systems, and lower operating expenses at the Pine Bluff Water System." Now, the Company is trying to claim a declining water usage normalization adjustment using historical data. Any and all known and measurable water usage is captured in the TY used in this case. Any other adjustment claiming otherwise is mere speculation and should not be relied on to produce known and measurable results, which have already been captured in the TY end revenues.

Q. What adjustment did RUCO prepare but not include in its direct testimony that uses the exact same data that the Company utilized in making its usage normalization adjustment?

A. RUCO analyzed the annual customer growth from years 2012 through 2016 utilizing the exact same data that the Company used for its usage normalization adjustment, provided by the Company in its workpapers in response to RUCO DR 1.02. RUCO's average annual historical customer growth analysis resulted in a customer growth pattern for years 2012-2016. The number of customers either decreased or increased for each meter size classification over that 2012-2016 time period. The customer growth for each meter size and classification was multiplied by the 2016 present average customer bill by meter size classification. The results determine the additional revenues to be expected on a going forward projected basis exactly like the Company did. The only difference between the Company's and RUCO analyses is the Company used gallons consumed whereas RUCO's analysis used the number of customers in the same years the Company used.

Q. What was the result of RUCO's analysis for additional revenues due to the customer growth patterns from 2012-2016?

A. The annualized historical customer growth patterns for years 2012 through 2016, using the average present rates for each customer classification by meter size, resulted in an average increase of revenues of $263,618[9] for all of the Company's Water Division's customers.

[9] Ibid.

Q. Why didn't RUCO include its analysis of customer growth patterns during the 2012-2016 that projects the additional revenues into the future as a recommended adjustment as the Company did for gallons consumed?

A. Because RUCO finds the Company's proposed usage normalization as unreliable and speculative (i.e. not known and measurable). The Commission should reject the Company's proposed usage normalization. A possible alternative that RUCO could support is to include both the Company's usage normalization and revenues from RUCO's projected historical customer growth. RUCO's historical customer growth of $263,618 and the Company's usage normalization adjustment of ($75,131) combined, would net additional revenues of $188,487 for the Water Division. Since the Sewer Division doesn't have a commodity, such as water, to calculate consumption, this adjustment applies only to the Water Division. The Company's adjustment alone should be denied and rejected as unreliable and speculative.

Q. What adjustment is necessary to recognize the Company's Water Division ($75,131) usage normalization adjustment?

A. It necessary to reverse the Company's ($75,131) revenue adjustment and add the $75,131 back to the Water Division's adjusted TY revenue. This adjustment applies only to the Water Division. Therefore, there is no impact whatsoever for the Sewer Division.

<u>Operating Income Adjustment #5 – To Remove Algonquin Power & Utilities Corp. ("APUC") Bonus Allocations to LU-LPSCO:</u>

Q. Please explain RUCO's adjustment to remove all the parent Company, Algonquin Power & Utilities Corp ("APUC"), bonus pay, including stock options and long-term incentive pay that was allocated to LU-LPSCO's Water and Sewer Divisions.

A. RUCO has three well supported reasons for removing the APUC allocated bonuses that were allocated to the Water and Sewer Divisions. First, RUCO has already allowed 100 percent of all normal APUC salaries and wages being allocated to LU-LPSCO. The shareholders can at least share in a portion the discretionary bonus pay rather than saddle the ratepayers entirely with multiple levels of corporate costs. There is not a utility operating and serving Arizona ratepayers that has the number of corporate overheads being allocated down from APUC owned corporate affiliates.

Q. Doesn't RUCO generally recommend a 50:50 sharing of bonus pay between the ratepayers and shareholders rather than recommending the removal of all bonus related pay?

A. Yes, RUCO generally recommends a 50:50 ratio of sharing the bonus related pay between the ratepayers and shareholders.

Q. What is RUCO's second reason for its recommendation to disallow all bonus related pay at the APUC parent Company level?

A. RUCO questions why, with the documented issues directly relating to the corporate overhead in this case, these companies should be allowed any bonus pay?

Q. Mr. Coley, the parent APUC Company, located in Oakville, Canada, had nothing to do with LU-LPSCO's business practice of not recording revenues generated by a regulated sewer plant and unrecorded CIAC in the prior two rate cases in 2008 and 2012.

A. There are indications that arose in the discovery process regarding the AES and NWS issues that does indicate that the parent APUC was aware of the AES revenue issue.

Q. What arose during the discovery process that would indicate that the parent APUC was at least aware of the AES revenue issue?

A. In the Company's response to Staff DR TBH 5.5, LU-LPSCO provided the contracts between the two HOAs, Arroyo Mountain Estates and Savannah, AES, and Algonquin Water Resources of America, Inc. APUC's founding co-partner and current Chief Executive Officer ("CEO"), Ian Robertson was the signatory signer of both the Arroyo Mountain Estates and Savannah contracts for AES and Algonquin Water Resources of America, Inc. It seems no one is exactly certain why the "oversight". However, the record is clear that APUC's CEO, Ian Robertson, was the signatory party on both the Assignment and Consent contractual agreements for both HOA contracts. Such involvement from a high ranking APUC official seems to imply the importance of these agreements. Such importance, makes the "oversight" even more confusing.

Q. What is RUCO's third reason for recommending all APUC bonus pay to be disallowed in this case?

A. There are a number of prior Commission decisions that have largely disallowed most of the APUC corporate allocations as essentially being excessive, unreasonably necessary, and simply not needed in the provisioning of water and wastewater utility service in the State of Arizona.

Q. Please provide a few of those Commission Decision numbers and perhaps cite a few passages from the Decisions you reference in your response.

A. Examples include Commission Decisions Nos. 71865 heard by Administrative Law Judge ("ALJ") Dwight D. Nodes dated September 1, 2010 and 72059 heard by ALJ Jane L. Rodda dated January 6, 2011 are just two of the many examples where corporate allocations have been rejected by the Commission. Anyone interested in the complete findings on this topic should read the reasoning of the two ALJs for recommending the disallowance of large portions of the APUC corporate allocations, in those two cases. However, I will cite a few of the reasons cited by the Commission in those Decisions that recommended disallowance of large portions of the APUC corporate allocations next.

Per Decision No. 71865 – Black Mountain Sewer Corporation - at page 25 found only four of several categories of the APUC cost allocations beneficial to Arizona ratepayers. The four categories allowed in that Decision included legal, tax, audit, and depreciation expense. The Commission found those expense categories to have some benefit to Arizona ratepayers. There were no mention of bonuses being allowed and/or included in that case.

In Decision No. 72059 - Rio Rico Water and Wastewater, the Commission at pages 21-23 reached a similar conclusion regarding the APUC cost allocations. That decision stated the following:

> "Although shared services models can be an efficient method to operate utilities and can provide benefits to utility ratepayers that might not be able to be obtained if the utility were operating on a stand alone basis, it is important that the Commission carefully review the shared costs that are being sought from ratepayers. The utility is a captive of its parent, and may not have recourse to dispute charges incurred at the parental level and allocated to it, just as ratepayers are the captives of the utility. The Commission must scrutinize the common costs and allow only those costs which provide a benefit to the utility ratepayers. As we noted in the Black Mountain Sewer rate case, the standard for what the utility would have incurred as a stand alone entity may not necessarily be the standard for allowing the recovery of common costs. The common costs must be reasonable based on the size of the utility. The entity seeking recovery must show that the type of cost and the amount

> allocated to the utility are reasonable and reasonably necessary for the provision of utility service. What the utility would need to pay on a stand alone basis may provide a check on the reasonableness of the expense."

Q. Didn't you file a wages and labor study of various stand-alone utilities in the State of Arizona for comparing Liberty Utilities with those of stand-alone utilities, in a prior case?

A. Yes. The last sentence above in Decision No. 72059, (Rio Rico rate case) somewhat goes to the heart of what the study provided in that case. The study revealed that Liberty Utilities parent's, APUC's, cost allocations added another layer of corporate cost allocations excessively above what other stand-alone utility ratepayers had to bear, when the Commission stated, "What the utility would need to pay on a stand alone basis may provide a check on the reasonableness of the expense."

Q. Did RUCO rely upon those ACC Decisions when making its adjustments to the APUC bonus adjustments for those allocated costs?

A. Yes in part. However, the AES and NWS issues, discussed throughout this testimony, are of a very serious nature and played a significant part in disallowance.

Q. What adjustments are necessary to remove all bonus related pay related to APUC that is being allocated to the regulated LU-LPSCO Water and Sewer Divisions in this instant case today?

A. After removing the 21% that is charged to capitalized expenditures for plant work projects and making the allocation calculations from APUC's general ledger down to LU-LPSCO, to determine the expensed amount charged to LU-LPSCO, RUCO recommends disallowance of $60,680 from the Water Division and $66,673 disallowance from the Sewer Division for all bonuses allocated from the APUC level down to LU-LPSCO.

<u>Operating Income Adjustment #6 – To Remove Liberty Utilities Canada Corp. ("LUCC") Bonus Allocations to LU-LPSCO:</u>

Q. Please explain RUCO's adjustment to remove all the corporate affiliate LUCC's bonus pay, including stock options and long-term incentive pay that was allocated to LU-LPSCO's Water and Sewer Divisions.

A. RUCO again utilizes the same three reasons as was provided in its APUC bonus adjustment, which were 1) all regular salaries and wages are being allowed to be pushed down to ratepayers already, 2) the much talked about AES/NWS issues in this case and why any bonuses should be allowed to be pushed down, and 3) the prior Commission Decisions that have disallowed large portions of the corporate allocations in the past. In addition to those three reasons, RUCO provides two more reasons for its disallowance adjustments for the LUCC bonuses. There is not a utility operating and serving Arizona ratepayers, that RUCO is aware of, that has the number of corporate overheads being allocated down from corporate affiliates than the APUC owned utilities.[10]

Q. Since RUCO has already identified and discussed its three reasons in support of its APUC bonus adjustment, what are the two additional reasons that supports RUCO's LUCC bonus adjustments here?

A. The additional two reasons for RUCO's recommendation to disallow all LUCC bonuses can be summarized as follows:

1. A State of New Hampshire Public Utilities Commission Report; and
2. Diseconomies of Scale related to corporate expenses.

Q. Please address the first of two additional reasons, New Hampshire Report, cited above in support of RUCO's recommended adjustment to remove all related LUCC bonuses?

A. On June 26, 2015, the Public Utilities Commission of New Hampshire granted an "Order Approving Settlement Agreement and Permanent Rates." In that proceeding, the New Hampshire Commission "observed that a consultant should review the "effectiveness and efficiency" of Liberty Utilities NH's business processes, including: account creation and management; meter data management; billing; payments and collections;

[10] During the course of discovery in this proceeding, it was brought to RUCO's attention that two additional layers of corporate are currently being established in future proceedings.

the call center; vendor relationships; corporate services/IT support and service; staffing; accounting; business planning; and property records." The Order in the New Hampshire Public Utilities Commission gave directives that "permitted a broadening of audit scope to" other "related areas, should the consultant deem it appropriate."[11] The cover page of this report is included as Exhibit 1. The entire redacted report (over 100 pages in length) is available on the New Hampshire Public Service Commission's e-docket website.

Q. Please summarize the contents and findings contained in the New Hampshire Report ordered by the New Hampshire Public Service Commission performed by The Liberty Consulting Group dated August 12, 2016.

A. First, let me make it clear that The Liberty Consulting Group does not have any business affiliation with Liberty Utilities whatsoever. It's by mere coincidence that The Liberty Consulting Group and Liberty Utilities just share the common word of "Liberty" in their entities name only.

It's practically impossible to recite the entire findings in a report exceeding 100-pages and is filled with very pointed findings on each page. The list below highlights some of the findings in a brief summarized manner below:

[11] "The Liberty Consulting Group," Final Report on A Management and Operations Audit of The Customer Service and Accounting Functions of Liberty Utilities at page I-2.

1. The field work for the audit took place largely during the first quarter of 2016, which is the TY utilized in the current LU-LPSCO rate case at page I-2 of NH Report;
2. Liberty Utilities and LU-NH face operational performance challenges while also meeting the aggressive financial growth expectations of its holding company parent at page I-4;
3. An inexperienced and understaffed customer service organization compounded the difficulties in addressing problems, as did an unclear escalation path and problem resolution process between Liberty Utilities NH, Oakville Liberty Utilities LAB (Information Technology) group at page II-2;
4. Business offices should be located conveniently and meet customers' needs without causing excess costs to be incurred (and ultimately borne by others) at page II-4;
5. Employee bonus programs seek to align compensation with corporate targets and results with overall company performance providing the primary driver of the bonus payout at page II-8;
6. Customer satisfaction levels have been declining and unsatisfactory since 2013 at page II-18;
7. Insufficient supervision has led to issues in quality and employee misconduct in the satellite offices at page II-32;
8. Check payments for services get held for up to a week awaiting bank courier pickup and check deposits are delayed at page II-33;
9. As a result of the Cogsdale CIS system, manual work-arounds are used rather than automation. This results in more Customer Service resources to produce bills and resolve customer inquiries at page II-36;
10. APUC's business model focuses on growth, has depended on high rates of growth since its 1997 inception, and appears destined to continue to depend on acquisitions of small utility distribution and generation operations across the United States and Canada at page III-1;
11. Moreover, and perhaps most significantly, its culture, physical location, and corporate-level resources are not, at least on the surface, well grounded in US energy distribution utility experience. For example, all of its distribution utilities

operate within the United States. However, all of its corporate support structure and personnel operate from Ontario at page II-2;

12. Liberty Utilities, and in turn LU-NH, face significant operational performance challenges, while also meeting the aggressive financial growth expectations of its holding company parent at page III-3;
13. Liberty Utilities has had to address the challenges and uncertainties of incorporating new operations in new regions on a recurring basis at page III-3;
14. Liberty Utilities have a divergent set of Mission Statements were one set seeks to be (a) and the other (b) seeks another below:
    a. "The utility company most admired by customers, communities and investors for our people, passion and performance."
    b. "Deliver stable and predictable earnings and that establishes the investment thesis that "Maximum shareholder value is created by minimizing the risk associated with earning the permitted rate of return." At page III-4.
15. Some of the examples cited in the Report "tend to underscore Liberty Utilities' strength in acquisitions, and weaknesses in delivery (thin staffing and knowledge), and a view of opportunities and threats focusing on acquisitions versus operations." At page III-5;
16. "The forecasting process limits operating expenses to those established in rates, unless an existing rate mechanism permits adjustments between base rate cases." At page III-7.
17. The consultants looked at 10-different projects that experienced particularly large over-runs. Actual costs for those 10 projects in total ran over-budget cumulatively by 3.5 times at page III-12;
18. "Unbudgeted 2015 IT capital costs charged out from Oakville caused another 2015 capital cost variance" at page III-14;
19. Insufficiencies found in the CapEx budgeting process was found, that is crucial in effectively operating capital intensive utility companies at page III-25;

20. One over-run of close to 20 times the corporate IT charges budgeted to be assigned to New Hampshire at page III-27;
21. "The capital budget processes violate the company's own capital expenditure policies as well as that of good utility business practice" at page III-28;
22. "The monitoring and control of capital expenditures also shows little attention paid to this area as compared with greater focus on earnings, revenue and operating expenses." At page III-28;
23. "Growth has strained the capability of APUC's model for providing IT support to continue supporting New Hampshire needs." At page IV-10;
24. "Limitations in some software applications have impaired the quality of some of the LU-NH utilities' operations." At page IV-11;
25. "The vendor management process lacks sufficient systemization and formal documentation." At page IV-12;
26. "We found resistance to the view that our work received going beyond trusting management representations (i.e., those views were not in keeping with our experience at a very large number of other U.S. utilities. In other words, management's "cultural" perspective on regulatory interaction also appears not to be sensitive to (or perhaps not to accept) what we view as norms in the U.S. utility industry." At page VI-2; and
27. "APUC can no longer rely on a continuation of its corporate structure as the optimum means for providing New Hampshire with optimum planning and budgeting, customer service, and IT." At page VI-2.

The same cost over-runs identified in the New Hampshire Report above are the same corporate affiliates, APUC, LUCC, and LABS, that are pushing costs down onto the Arizona ratepayers. In other words, Arizona ratepayers will be paying higher rates due to the cost overs of APUC, LUCC, and LABS cost over-runs that are being pushed down to Arizona ratepayers in the allocation process. These cost over-runs are a primary cause of the diseconomies of scale, which will be discussed next.

Q. What is RUCO's second additional reason for its recommendation to disallow all bonus related pay at the LUCC level?

A. In addition to the four reasons that RUCO has already cited to disallow all LUCC bonuses, the recent Bella Vista rate case exhibited that as the APUC parent continues its strong position of acquiring other companies, such as the recent Empire acquisition, the corporate allocations are increasing for each Arizona water and wastewater customers rather than decreasing. When costs increase per customer, that is a detrimental phenomenon referred to as diseconomies of scale. That phenomenon is perhaps best illustrated in the findings of the New Hampshire Report cited earlier. Growth through acquisitions can also create inefficiencies that end up costing existing entities more through pushing the costs down from those inefficiencies. That is what RUCO noticed when Empire was added into the corporate cost pool to be allocated down to the Bella Vista customers. Obviously, that phenomenon of diseconomy of scale is the opposite of economies of scale, which is best illustrated in the New Hampshire Report concerning the cost over-runs the report identified. It is RUCO's understanding that LU-LPSCO recognizes this diseconomy of scale is taking place with APUC's continued growth.

Q. What adjustments are necessary to remove all bonus related pay related to LUCC that is being allocated to the regulated LU-LPSCO Water and Sewer Divisions in this instant case today?

A. After removing the 21% that is charged to capitalized expenditures for plant work projects and making the allocation calculations from LUCC's general ledger down to LU-LPSCO to determine the expensed amount charged to LU-LPSCO, RUCO recommends disallowance of $19,728 from the Water Division and $21,677 disallowance from the Sewer Division for all bonuses allocated from the LUCC level down to LU-LPSCO.

<u>Operating Income Adjustment #7 – To Remove Liberty Algonquin Business Services ("LABS") Bonus Allocations to LU-LPSCO:</u>

Q. Please explain RUCO's adjustment to remove all the corporate affiliate LABS's bonus pay, including stock options and long-term incentive pay that was allocated to LU-LPSCO's Water and Sewer Divisions.

A. This adjustment is based on the same five reasons as was given in the previous LUCC bonus adjustment.

Q. What adjustments are necessary to remove all bonus related pay related to LABS that is being allocated to the regulated LU-LPSCO Water and Sewer Divisions in this instant case today?

A. After removing the 21% that is charged to capitalized expenditures for plant work projects and making the allocation calculations from LABS's general ledger down to LU-LPSCO to determine the expensed amount charged to LU-LPSCO, RUCO recommends disallowance of $46,713 from the Water Division and $51,327 disallowance from the Sewer Division for all bonuses allocated from the LABS level down to LU-LPSCO.

Operating Income Adjustment #8 – Normalize LU8020 Bonus Allocations to LU-LPSCO:

Q. Please explain RUCO's adjustment to normalize all the local corporate affiliate LU8020 bonus pay, including stock options and long-term incentive pay that was allocated to LU-LPSCO's Water and Sewer Divisions.

A. This adjustment normalizes the 2016 TY level of LU8020 bonuses to the last known and measurable amounts in the three-months of October through December 2016, which was $28,554. The other months reflected bonuses of $53,000 per month for the periods of January through September. Considering the AES issue cited throughout this testimony, RUCO believes the $28,554 to be more than fair under these circumstances.

Q. What adjustments are necessary to normalize all bonus related pay related to LU8020 that is being allocated to the regulated LU-LPSCO Water and Sewer Divisions in this instant case today?

A. After normalizing the bonuses to the October through December 2016 levels and removing the 21% that is charged to capitalized expenditures for plant work projects and making the allocation calculations from LU8020 general ledger down to LU-LPSCO to determine the expensed amount charged to LU-LPSCO, RUCO recommends a normalized decrease adjustment of $47,746 for the Water Division and $52,463 normalized decrease adjustment for the Sewer Division for all bonuses allocated from the LU8020 to LU-LPSCO.

<u>Operating Income Adjustment #9 – Bad Debt Expense:</u>

Q. Please explain RUCO's adjustment for bad debt expense to LU-LPSCO's Water and Sewer Divisions.

A. This adjustment applies only to the Water Division. RUCO reversed the Company's proposed revenue usage normalization adjustment of ($75,131). Thus, RUCO's adjusted TY revenues are $75,131 more than the Company proposed. With every dollar of additional revenue, there is also a greater likelihood that a portion of the additional $75,131 in revenues could become uncollectible due to bad debt expense. Therefore, it's necessary to adjust the Company's bad debt expense to account for the additional $75,131 in additional revenue.

Q. What adjustment is necessary to account for bad expense related to the $75,131 in additional revenue for the Water Division?

A. For the Water Division, RUCO adjusted the Company's bad expense as proposed in its filing to include an increase of $78 for bad debt expense related to the additional $75,131 of TY revenues that RUCO recommends. Again, there is no adjustment necessary for the Sewer Division.

<u>Operating Income Adjustment #10 – Customer Growth Normalization Adjustment:</u>

Q. Please explain RUCO's adjustment for Customer Growth Normalization to LU-LPSCO's Water and Sewer Divisions.

A. This adjustment was discussed earlier in RUCO adjustment #4 where RUCO reversed the Company's usage normalization adjustment. It is a placeholder adjustment for potential use in surrebuttal testimony. Therefore, RUCO recommends no adjustment for either the Water or Sewer Divisions at this time.

<u>Operating Income Adjustment #11 – Corporate Miscellaneous Expense:</u>

Q. Please explain RUCO's Corporate Miscellaneous Expense adjustment for the Water and Sewer Divisions.

A. This adjustment removes expenses either identified by RUCO and Staff during the discovery process or was identified in the general ledgers of LU-LPSCO and/or the corporate general ledgers. The type of expenses being recommended for disallowance are membership dues, charitable donations, party expenses, and massage therapy treatments that are not legitimate and necessary expenses in the provisioning of utility service.

Q. What adjustments are necessary to remove the expenses found during this proceeding that are not legitimate and necessary expenses for the provision of utility service for the Water and Sewer Divisions?

A. For the Water Division, RUCO removed $23,814 for these type of expenses. For the Sewer Division, RUCO removed $26,160 of the same type of expenses.

<u>Operating Income Adjustment #12 – Remove Double-Count of Media Expense:</u>

Q. Please explain RUCO's Corporate Miscellaneous Expense adjustment for the Water and Sewer Divisions.

A. Per the Company's supplemental response to Staff DR TBH 3.2 provided on October 31, 2017, this adjustment removes $245,000 of media expense for the GAC unit that was also included in UPIS. Thus, it is a double-count of the expenditure. In addition, the media has a life expectancy of approximately 1½-years and should not be included as an expense. Expenses are presumed to be consumed or for one-year or less. Therefore, the media not only is double-counted it is also inappropriate to include an item as an expense due to its life expectancy exceeding one-year. The media expenditure of $245,000 is more appropriately to be included as a capitalized expenditure as UPIS where the Company also included the expenditure. RUCO left the media expenditure in UPIS where it was also double-counted there. This adjustment applies only to the Water Division. There is no impact or recommended adjustment for the Sewer Division.

Q. What adjustment is necessary to remove the double-count of the media expenditure from the Water Division's expenses as filed by the Company?

A. RUCO reduced the Water Division's chemical expense by $245,000 that was double-counted and inappropriately charged as an expense as filed by the Company.

Q. Please continue to RUCO's final recommended operating income adjustment #13.

<u>Operating Income Adjustment #13 – Income Tax Expense:</u>

A. This adjustment provides for income taxes at RUCO's recommended level of operating income less income taxes. For the Water Division, RUCO's adjusted TY income tax adjustment increases the income tax expense by $241,265. For the Sewer Division, RUCO's adjusted TY income tax adjustment increases the income tax expense by $531,969.

Q. Have you calculated income tax expense based on both RUCO's recommended adjusted operating income and the recommended operating income associated with RUCO's revenue increase?

A. Yes. These adjustments for RUCO's recommended adjusted operating income and the recommended operating income associated with RUCO's revenue increase are shown on Schedules TJC-12 in Column [C] for the adjusted TY and in Column [E] for its recommended level of income tax expense going forward.

Q. Have you included an interest synchronization calculation in your computation of income tax expense?

A. Yes. The interest synchronization calculation, which computes an interest expense deduction for income taxes, can be viewed in the schedules noted above. The interest synchronization calculation is the adjusted rate base multiplied by the weighted cost of debt.

Q. Does this complete section seven of RUCO's recommended operating income adjustments?

A. Yes.

Q. Will you please continue to RUCO section eight, which is the final section of RUCO's testimony?

A. Yes.

VIII. OTHER ISSUES

Q. What are the other issues that RUCO needs to address that was included in the Company's Rate Application?

A. The following three issues as requested by the Company still needs to be addressed in this final section of RUCO's testimony as shown below:

1. Purchased Power Adjustment Mechanism ("PPAM");
2. Property Tax Adjustment Mechanism ("PTAM"); and
3. Water and Sewer System Improvement Benefits Mechanism ("SIB").

Purchased Power Adjustment Mechanism ("PPAM"):

Q. Did the Company request a PPAM in its Rate Application?

A. Yes.

Q. What is RUCO's position and recommendation regarding the Company's requested PPAM?

A. RUCO's position on the Company's proposed PPAM is it constitutes single issue ratemaking and recommends the Commission deny the Company's request for a PPAM.

Q. Please explain what a PPAM is and how it works.

A. The adjustment is being requested so the Company can pass the additional or reduced cost of electric power on to its customers thereby recovering or reducing the expense. Since overall electric and gas utility rates very rarely or generally never decrease, the Company's request is one-way proposal that adversely impacts ratepayers to increase utility rates outside of a full rate case. This adjustment mechanism is inappropriate considering the fact that the State of Arizona requires a finding of "Fair Value" in determining fair and reasonable rates. In the past, the price of purchased power has not experienced much volatility with monthly fluctuations periodically increase and that rarely decrease the cost of either purchased electric or natural gas power. In fact, the Commission eliminated the use of PPAM's and purchased water adjustment mechanisms in an Arizona Water Company ("AWC") rate case for its Eastern Group in Decision No. 66849, dated March 19, 2004. RUCO supports that Commission decision of adjustment mechanisms here in the LU-LPSCO case too.

Q. Would you please explain why the PPAM should be denied by the Commission in this case as it was in the AWC rate case?

A. Adjustment mechanisms traditionally have been established to mitigate the regulatory lag for 1) volatile and 2) very large expense items (such as purchased coal, oil, and gas in the case of electric utilities and purchased gas for natural gas distribution companies) that may have a negative impact on the financial health of a utility. In the LU-LPSCO Water and Sewer case, purchased power does not qualify as volatile and does not represent an unusually large level of expense to place the Company in financial jeopardy.

RUCO will quote a prior Commission staff rate analyst that provided testimony in the referenced AWC rate case earlier. The staff analyst relied upon an author, Dr. Michael Schmidt, who is an expert in the field of automatic adjustment clauses as follows:

> In his book, Automatic Adjustment Clauses: Theory and Application, Dr. Michael Schmidt states that the automatic adjustment clause is not a substitute for a formal rate case. Dr. Schmidt goes on to say that adjustment mechanisms are strictly a policy option of the regulatory commission to ease unnecessary financial jeopardy of the utility during adverse economic conditions and should not serve as a mechanism to preserve the company's allowed rate of return.

LU-LPSCO Water and Sewer Divisions do not have significantly large purchased power bills and none meet the volatility criteria since increases in purchased power costs do not occur frequently. Per the Company's percentage of purchased power expense to its total operating expense represents only an approximate 9.6 percent for its proposed levels of total expenses for the Water Division and an approximate 6.5 percent for the Sewer Division. Purchased power does not represent a significant component of the Company's operating expense and does not warrant an adjustment mechanism. Such an adjustment mechanism is inherently unfair to ratepayers, not to mention it violates the fair value finding required in the Arizona Constitution, when other expenses could very well be decreasing with no benefit to the ratepayer whatsoever. In many respects, cherry picking particular expenses to have adjustment mechanisms applied to it is discriminatory in nature, when viewing ratemaking principles as a whole in establishing fair and reasonable rates. Automatic adjustment mechanisms should not be a substitute for a formal rate case and should not be used to preserve the Company's allowed rate of return as Dr. Schmidt so eloquently stated.

Property Tax Adjustment Mechanism ("PTAM"):

Q. Did the Company request a PTAM in its Rate Application?

A. Yes.

Q. What is RUCO's position and recommendation regarding the Company's requested PTAM?

A. RUCO's position on the Company's proposed PTAM is it also constitutes single issue ratemaking and recommends the Commission deny the Company's request for a PTAM. Please see RUCO's previous PPAM regarding its position and recommendation as it applies to the Company's requested PTAM here also. The Company's Water Division's adjusted TY percentage of property tax expense to its total operating expense represents approximately 6.3 percent, which is less than the previous purchased power expense of approximately 9.6 percent for the Water Division.

The Company's Sewer Division's adjusted TY percentage of property tax expense to its total operating expense represents approximately 5.4

percent, which is less than the previous purchased power expense of approximately 6.5 percent for the Sewer Division. The property tax expense does not represent a significant component of the Company's operating expense and does not warrant an adjustment mechanism for all the previous PPAM reasons provided in that adjustment.

System Improvement Benefits Mechanism ("SIB") for the Water and Sewer Divisions:

Q. Did the Company request a SIB mechanism in its Rate Application for both its Water and Sewer Divisions?

A. The Company did file a SIB mechanism in this rate case. However, it is RUCO's understanding that the SIB mechanism, in this rate case, is no longer being pursued. With this understanding we have no further comment

Q. Mr. Coley, are there any other matters you would like to address regarding your revenue requirement recommendations.

A. Yes. RUCO is working on further addressing the accounting anomalies discussed in detail above. Specifically, RUCO is considering accounting and other types of protocols to address the Companies behaviors and provide ratepayers with future assurance that the same type of behavior does not take place again. The Company's failure to account for obvious revenues seems to be a symptom or larger systematic issues. RUCO is deeply concerned with the Company's failure to report the "oversight" when it was first discovered by the Company and failure to propose a solution that makes ratepayers whole because of the "oversight", in its original application. Knowledge of the "oversight" was known at the time of filing the application, by evidence of the 2016 revenues from Arroyo and Savannah HOAs and the associated CIAC being included in application. This is especially troubling because a large number of ratepayers, who have been harmed by the "oversight", will never be made whole. RUCO continues to consider the issue and expects to have additional recommendations on accounting and other protocols in its Surrebuttal testimony.

IX. RATE DESIGN:

Q. Will RUCO be filing its recommended rate design simultaneously with its recommended revenue requirements as just discussed in this testimony?

A. RUCO will be filing its recommended rate design on the same day as its revenue requirements testimony but under separate cover.

Q. Does your silence on any of the issues, matters or findings addressed in the testimony of any of the witnesses for LPSCO constitute your acceptance of their positions on such issues, matters, or findings?

A. No, it does not.

Q. Does this conclude your testimony on LPSCO's Water and Wastewater Divisions?

A. Yes, it does.

APPENDIX 1

Qualifications of Timothy J. Coley

WORK HISTORY

July 2000 – Present: **RESIDENTIAL UTILITY CONSUMER OFFICE,** Phoenix, Arizona
Public Utilities Analyst V. The Residential Utility Consumer Office (RUCO) is a consumer advocate group providing residential consumers a voice in utility regulation and backed by a professional staff with legal and financial expertise. Responsibilities include: audited, reviewed and analyzed public utility companies various filings; prepared written testimony, schedules, financial statements, and spreadsheet models and analyses. Testified and stand cross-examination before the Arizona Corporation Commission.

January 2000 - April 2000: **JACKSON HEWITT TAX SERVICE,** Phoenix, Arizona
Tax Preparer. Interviewed clients, determined tax situation, and explained how the tax laws benefited them in their specific situation. Ensured that each customer received every deduction that they were entitled. Prepared individual and business income tax returns, which best utilized each specific situation that minimized their tax obligations.

May 1998 - November 1999: **BENEFITS CONSULTING,** Cypress, Texas
Consultant Assistant. The consulting firm specialized in alleged medical claim charges brought against the government of Harris County in Houston, Texas. Assisted in the review, examination, and analysis of the attested charges. Determined if the purported medical claim charges were prudent, customary, and reasonable for the alleged sustained injuries. The firm analyzed cases for both the County's Risk Department and Attorneys Office.

January 1992 - April 1998: **PHOENIX SERVICES,** Villa Rica, Georgia
Owner. Provided landscaping services primarily in a high growth gated community where the Property Owners' Association approved mandated ordinances to be strictly adhered and abided by. Coordinated and supervised all aspects of projects from inception to completion, from master planning to site design to installation.

May 1989 - October 1991: **GEORGIA PUBLIC SERVICE COMMISSION,** Atlanta, GA
Senior Auditor. The Public Service Commission (PSC) was responsible for regulating many intrastate telecommunications, electric, and gas utility industries operating in Georgia. It was the PSC's job to ensure that consumers received adequate and reliable service at reasonable rates. It must also assure the utility companies and investors an opportunity to earn a fair rate of return on prudent investments. The Commission participated significantly in Georgia's economic health and growth. I was promoted to the PSC's Electric/Gas Division where I examined, verified, and analyzed various financial documents, accounting records, reports, ledgers, and statements. In addition, I was assigned to automate the PSC's Electric Division where I utilized a computer application process that I had developed earlier while with the (PSC) Telecommunication Division. I was later ascribed to work in conjunction with the Engineering Department and established a procedure to track and compare costs of operation and maintenance (O&M) expenses of nuclear electric generating plants. This effort determined a comparative price per kilowatt-hour produced that influenced the awareness for the company to control the O&M costs, which benefited the consumer through lower prices.

- Developed computer application system that streamlined audit procedures by 30 – 40%.
- Various other schedules were implemented to track, maintain, and control costs.

GEORGIA PUBLIC SERVICE COMMISSION (continued)

November 1986 - April 1989: **Georgia Public Service Commission,** Atlanta, Georgia
Auditor. Regulated telecommunications and also oversaw the deregulation process that was currently under way in that industry. Examined and analyzed accounting records to determine financial status of companies and prepared financial reports concerning audit findings. Reviewed data including payroll, time sheets, purchase vouchers, cash receipt ledgers, financial reports, and disbursements. Verified statewide telephone company transaction classifications and documentation.

- Developed computer application utilizing Lotus to completely automate and streamline the entire telecommunication audit process. The results saved 25% in field audit time and produced a product of professional appearance.
- Created, coordinated, and implemented "Operational Project Training" automated procedure-training program. Trained and supervised staff of five auditors.
- Computerized "Desk Audit Analysis" program that identified 11 independent telephone companies in the state of over-earning and resulted in $4.1M annual savings to the Georgia ratepayers affected.

October 1985 - October 1986: **Georgia Public Service Commission,** Atlanta, Georgia
Junior Auditor. Assisted in planning and performing telecommunication audit engagements. Examined financial records, internal management control, correspondence, bills, and records of services delivered in order to verify or recommend compliance with company specifications contained in contracts, agreements, regulations, and/or laws.

- As a special project, I was assigned to analyze the results of a survey designed to evaluate "Interest in Organizing a Multi-State Nuclear Management Review Group" by the Director of Utilities. Wrote the draft and findings for the speech that was presented to all participatory commissions.

PROFESSIONAL MEMBERSHIPS

- Elected Member of the National Honor Society for Public Affairs and Administration.
- Active Member of Delta Sigma Pi - Professional Business Fraternity.

SPECIAL TRAINING AND CERTIFICATES

- The Graduate School of Business Administration - Michigan State University; completed the Annual Regulatory Studies Program of the National Association of Regulatory Utility Commissioners.
- Completed Graduate Exit Paper on "Deregulation of the Electric Industry".
- Attended Eastern Utility Rate School in 2000 and 2005.

EDUCATION

- Currently enrolled at Arizona State University - West in the Post Baccalaureate Graduate Certificate Program in Accountancy with two courses remaining.
- Master of Public Administration, State University of West Georgia, 1997, GPA 3.5.
- BS Business Management & Administration, Minor in Economics, Sorrel School of Business, Troy State University, 1985.
- AA Business Administration, Miles Community College, 1981.

RESUME OF PUBLIC UTILITY RATE CASES & AUDITS PARTICIPATION

Residential Utility Consumer Office For Years 2000 To Present

Arizona-American Water Company – Docket No. WS-01303A-05-0405

Arizona Public Service Co. – Docket No. E-01345A-03-0437

Tucson Electric Power Company – Docket No. E-01933A-04-0408

UniSource Merger – Docket No. E-04230A-03-0933

Arizona-American Water Company – Docket No. WS-01303A-02-0867

Arizona Water Company (Eastern Group) – Docket No. W01445A-02-0619

Litchfield Park Service Company – Docket Nos. W-01427A-01-0487 &
SW-01428A-01-0487

Arizona Water Company (Northern Group) – Docket No. W-01445A-00-0962

Rio Verde Utilities, Inc. – Docket Nos. W-02156A-00-0321 &
SW-02156A-00-0323

Arizona-American Water Company (Paradise Valley) –
Docket Nos. W-01303A-05-0405 &
W-01303A-05-0910

Arizona-American Water Company (Mohave District) –
Docket No. WS-01303A-06-0014

Arizona-American Water Company (Sun City & Sun Cit West Wastewater) –
Docket No. WS-01303A-06-0491

Arizona-American Water Company - Docket No. W-01303A-07-0209

Chaparral City Water Company – Docket No. W-02113A-07-0551

Arizona-American Water Company - Docket No. W-01303A-08-0227

Residential Utility Consumer Office For Years 2000 To Present (cont'd)

Arizona Water Company - Docket No. W-01445A-08-0440

Far West Water & Sewer Company – Docket No. WS-03478A-08-0608

Rio Rico Utilities, Inc. – Docket No. WS-02676A-08-09-0257

Bella Vista Water Company – Docket No. W-02465A-09-0411

Goodman Water Company – Docket No. W-02500A-10-0382

Arizona Water Company – Western Group – Docket No. W-01445A-10-0517

Pima Utility Company – Docket No. W-02199A-11-0329 et al.

Arizona Water Company, San Manuel System ACRM – Docket No. W-01445A-11-0310

Rio Rico Utilities, Inc. – Docket No. WS-02676A-12-0196

Tucson Electric Power Company – Docket No. E-01933A-12-0504

Far West Water & Sewer Company – Docket No. WS-03478A-12-0307

Litchfield Park Service Company – Docket No. SW-01428A-13-0042 et al.

Utility Source – Docket No. WS-04235A-13-0331

EPCOR – Docket No. WS-01303A-14-0010

Black Mountain Sewer Company – Docket No. SW-02361A-15-0207 et al.

Bella Vista Water and Rio Rico Water & Sewer Companies – Docket No. W-02465A-15-0367 et al.

EPCOR – Wastewater Consolidation Case; Docket No. WS-01303A-16-0145

<u>Georgia Public Service Commission For Years 1985 – 1991</u>

Atlanta Gas Light Company

Georgia Power Company

Atlanta Gas Light Company (Management Audit)

Georgia Power Company

Trenton Telephone Company

Fairmount Telephone Company

Ellijay Telephone Company

GTE, Inc.

ALL-TEL Telephone Company

Citizens Utilities Co.

Ball Ground Telephone Company

Lanett Telephone Company

Brantley Telephone Company

Blue Ridge Telephone Company

Waverly Hall Telephone Company

St. Marys Telephone Company

Darien Telephone Company

Statesboro Telephone Company

Statesboro Telephone Co-op

Wilkes Telephone Company

WATER SCHEDULES

TABLE OF CONTENTS TO TJC SCHEDULES

REVENUE REQUIREMENT

Line No.	Description	[A] Company OCRB/FVRB Cost	[B] RUCO OCRB/FVRB Cost
1	Fair Value Rate Base	$ 41,860,046	$ 38,229,949
2	Adjusted Operating Income (Loss)	$ 2,684,138	$ 3,262,095
3	Current Rate Of Return (L2 / L1)	6.41%	8.53%
4	Required Operating Income (L5 X L1)	$ 3,629,266	$ 2,641,690
5	Required Rate Of Return On Fair Value Rate Base	8.67%	6.91%
6	Operating Income Deficiency (L4 - L2)	$ 945,128	$ (620,405)
7	Gross Revenue Conversion Factor (RLM-1, Pg 2)	1.6230	1.6229
8	Increase In Gross Revenue Requirement (L7 X L6)	$ 1,533,896	$ (1,006,881)
9	Adjusted Test Year Revenue	$ 13,510,828	$ 13,585,959
10	Proposed Annual Revenue (L8 + L9)	$ 15,044,723	$ 12,579,078
11	Required Percentage Increase In Revenue (L8 / L9)	11.35%	-7.41%
12	Rate Of Return On Common Equity	10.70%	9.57%

References:

Column [A]: Company Schedules A-1 and C-1
Column [B]: RUCO Schedule TJC-2, TJC-12 and TJC-22

RUCO INCOME TAXES & GROSS REVENUE CONVERSION FACTOR ("GRCF")

LINE NO.	DESCRIPTION	[A]	[B]	[C]
	Calculation of Gross Revenue Conversion Factor:			
1	Revenue	100.0000%		
2	Uncollecible Factor	0.0650%		
3	Revenues (L1 - L2)	99.9350%		
4	Combined Federal and State Income Tax and Property Tax Rate (Line 23)	38.3185%		
5	Subtotal (L3 - L4)	61.6165%		
6	**Revenue Conversion Factor (L1 / L5)**	1.622941		
	Calculation of Uncollecttible Factor:			
7	Unity	100.0000%		
8	Combined Federal and State Tax Rate (Line 17)	37.2340%		
9	One Minus Combined Income Tax Rate (L7 - L8)	62.7660%		
10	Uncollectible Rate	0.1035%		
11	Uncollectible Factor (L9 * L10)		0.0650%	
	Calculation of Effective Tax Rate:			
12	Operating Income Before Taxes (Arizona Taxable Income)	100.0000%		
13	Arizona State Income Tax Rate	4.9000%		
14	Federal Taxable Income (L12 - L13)	95.1000%		
15	Applicable Federal Income Tax Rate (Col. [C], L56)	34.0000%		
16	Effective Federal Income Tax Rate (L14 x L15)	32.3340%		
17	Combined Federal and State Effective Income Tax Rate (L13 + L16)		37.2340%	
	Calculation of Effective Property Tax Factor			
18	Unity	100.0000%		
19	Combined Federal and State Income Tax Rate (Col. [B], L17)	37.2340%		
20	One Minus Combined Income Tax Rate (L18-L19)	62.7660%		
21	Property Tax Factor (RUCO Property Tax Schedule, Col. [B], L24)	1.7278%		
22	Effective Property Tax Factor (L20 x L21)		1.0845%	
23	Combined Federal and State Income Tax and Property Tax Rate (Col. [B], L17 + L22)			38.3185%
24	Required Operating Income (Sch. TJC-1, Col. [B] Line 4)	$ 2,641,690		
25	Adjusted Test Year Operating Income (Loss) (Sch. TJC-1, Col. [B], L2)	3,262,095		
26	Required Increase in Operating Income (L24 - L25)		$ (620,405)	
27	Income Taxes on Recommended Revenue (Col. [C], L55)	$ 1,172,491		
28	Income Taxes on Test Year Revenue (Col. [A], L55)	1,540,528		
29	Required Increase in Revenue to Provide for Income Taxes (L27 - L28)		(368,036)	
30	Recommended Revenue Requirement (Sch. TJC-1, Col. [B], Line 10)	$ 12,579,078		
31	Uncollectible Rate (L10)	0.1035%		
32	Uncolllectible Expense on Recommended Revenue (L30 x L31)	$ 13,023		
33	Adjusted Test Year Uncollectible Expense (RUCO Bad Debt Expense Schedule)	$ 14,065		
34	Required Increase in Revenue to Provide for Uncollectible Exp. (L32 - L33)		(1,042)	
35	Property Tax with Recommended Revenue (RUCO Property Tax Schedule)	$ 671,591		
36	Property Tax on Adjusted Test Year Revenue (RUCO Property Tax Schedule)	688,989		
37	Increase in Property Tax Due to Increase in Revenue (L35 - 36)		(17,397)	
38	Total Required Increase in Revenue (Col. [B], L26 + L29 + L34 + L37)		$ (1,006,881)	

LINE NO.	*Calculation of Income Tax:*	Test Year	Revenue Increase/(Decrease)	RUCO Recommended
39	Revenue (Sch. TJC-1, Col. [B], Line 9 & Sch. TJC-1, Col. [B], L10)	$ 13,585,959	$ (1,006,881)	$ 12,579,078
40	Operating Expenses Excluding Income Taxes	8,783,336		8,764,897
41	Synchronized Interest (Col. [C], L59)	665,201		665,201
42	Arizona Taxable Income (L39 - L40 - L41)	$ 4,137,422		$ 3,148,980
43	Arizona State Income Tax Rate	4.9000%		4.9000%
44	Arizona Income Tax (L42 x L43)	$ 202,734		$ 154,300
45	Federal Taxable Income (L42 - L44)	$ 3,934,688		$ 2,994,680
46	Federal Tax on First Income Bracket ($1 - $50,000) @ 15%	$ 7,500		$ 7,500
47	Federal Tax on Second Income Bracket ($51,001 - $75,000) @ 25%	$ 6,250		$ 6,250
48	Federal Tax on Third Income Bracket ($75,001 - $100,000) @ 34%	$ 8,500		$ 8,500
49	Federal Tax on Fourth Income Bracket ($100,001 - $335,000) @ 39%	$ 91,650		$ 91,650
50	Federal Tax on Fifth Income Bracket ($335,001 - $10,000,000) @ 34%	$ 1,223,894		$ 904,291
51	Federal Tax on Sixth Income Bracket ($10,000,001 - $15,000,000) @ 35%	$ -		$ -
52	Federal Tax on Seventh Income Bracket ($15,000,001 - $18,333,333) @ 38%	$ -		$ -
53	Federal Tax on Eighth Income Bracket ($18,333,334 - $100,000,000,000) @ 35%	$ -		$ -
54	Total Federal Income Tax	$ 1,337,794		$ 1,018,191
55	Combined Federal and State Income Tax (L44 + L54)	$ 1,540,528		$ 1,172,491
56	Applicable Federal Income Tax Rate (Col. [C], L54 - Col. [A], L54] / [Col. [C], L45 - Col. [A], L45)			34.00%

Synchronized Interest Calculation:

LINE NO.	DESCRIPTION	
57	Original Cost Rate Base	$ 38,229,949
58	x Weighted Average Cost of Debt	1.7400%
59	Synchronized Interest Expense	$ 665,201

SUMMARY OF ORIGINAL COST RATE BASE WITH RUCO ADJUSTMENTS

Line No.	Description		(A) Company As Filed OCRB/FVRB		(B) RUCO Adjustments		(C) RUCO As Adjusted OCRB/FVRB
1	Gross Utility Plant In Service	$	108,641,713	$	(5,456,411)	$	103,185,301
2	Accumulated Depreciation		(28,329,351)		2,023,017		(26,306,334)
3	Net Utility Plant In Service (L1 + L2)	$	80,312,362	$	(3,433,394)	$	76,878,967
	Less:						
4	Advances In Aid Of Construction ("AIAC")	$	(16,306,103)	$	-	$	(16,306,103)
5	Gross Contributions In Aid Of Construction ("CIAC")		(19,466,317)		-		(19,466,317)
6	Accumulated Amortization Of CIAC		2,290,993		(1)		2,290,992
7	NET CIAC (L5 + L6)	$	(17,175,324)	$	(1)	$	(17,175,324)
8	Customer Meter Deposits	$	(431,822)	$	-	$	(431,822)
9	Customer Security Deposits		(492,166)		-		(492,166)
10	Accumulated Deferred Income Taxes ("ADIT")		(5,028,125)		(35,849)		(5,063,974)
	Plus:						
11	Deferred Regulatory Assets - TCE Plume	$	50,027	$	-	$	50,027
12	Deferred Regulatory Assets - PFOA		699,676		-		699,676
13	Prepayments		95,059		-		95,059
14	Materials and Supplies		-		-		-
15	Cash Working Capital		136,462		(160,852)		(24,391)
			-				
16	TOTAL RATE BASE (Sum L's 3, 4, 7, 8 Thru 15)	$	41,860,046	$	(3,630,096)	$	38,229,949

References:

Column [A]: Company Schedule B-1;
Column [B]: TJC-3, Column [H];
Column [C]: Column [A] + Column [B]

Liberty Utilities (Litchfield Park Water & Sewer) Corp. - Water Division
Docket No. SW-01427A-17-0058 et al.
Test Year Ended December 31, 2016

ORIGINAL COST RATE BASE ("OCRB") ADJUSTMENTS

Line No.	Description	[A] Company Adjusted TY OCRB/FVRB As Filed	[B] Adjust No. 1 TJC-4 p1 & p2 UPIS & A/D Adjustments	[C] Adjust No. 2 Not Used For Water Div.	[D] Adjust No. 3 Intentionally Left Blank	[E] Adjust No. 4 CIAC Adjustment	[F] Adjust No. 5 Accum. Deferred Income Taxes Adjustment	[G] Adjust No. 6 Working Capital Adjustment	[H] RUCO Recommended Adjustments	[I] Test Year Adjusted OCRB/FVRB
1	Gross Utility Plant In Service	$ 108,641,713	$ (5,456,411)	$ -	$ -	$ -	$ -	$ -	$ (5,456,411)	$ 103,185,301
2	Accumulated Depreciation	(28,329,351)	2,023,017	-	-	-	-	-	2,023,017	(26,306,334)
3	Net Utility Plant In Service (L1 + L2)	$ 80,312,362	$ (3,433,394)	$ -	$ -	$ -	$ -	$ -	$ (3,433,394)	$ 76,878,967
	Less:									
4	Advances In Aid Of Construction ("AIAC")	$ (16,306,103)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (16,306,103)
5	Gross Contributions In Aid Of Construction ("CIAC")	(19,466,317)	-	-	-	-	-	-	-	(19,466,317)
6	Accumulated Amortization Of CIAC	2,290,993	-	-	-	(1)	-	-	(1)	2,290,992
7	NET CIAC (L5 + L6)	$ (17,175,324)	$ -	$ -	$ -	$ (1)	$ -	$ -	$ (1)	$ (17,175,324)
8	Customer Meter Deposits	$ (431,822)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (431,822)
9	Customer Security Deposits	(492,166)	-	-	-	-	-	-	-	(492,166)
10	Accumulated Deferred Income Taxes ("ADIT")	(5,028,125)	-	-	-	-	(35,849)	-	(35,849)	(5,063,974)
	Plus:									
11	Deferred Regulatory Assets - TCE Plume	$ 50,027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 50,027
12	Deferred Regulatory Assets - PFOA	699,676	-	-	-	-	-	-	-	699,676
13	Prepayments	95,059	-	-	-	-	-	-	-	95,059
14	Materials and Supplies	-	-	-	-	-	-	-	-	-
15	Cash Working Capital	136,462	-	-	-	-	-	(160,852)	(160,852)	(24,391)
16	TOTAL RATE BASE (Sum L's 3, 4, 7, 8 Thru 15)	$ 41,860,046	$ (3,433,394)	$ -	$ -	$ (1)	$ (35,849)	$ (160,852)	$ (3,630,096)	$ 38,229,949

References:

Column [A]: Company Schedule B-1;
Column [B]: RUCO Adjustment No. 1 - RUCO Summary of UPIS & A/D Adjustments on Schedules TJC-4 at p1 & p2;
Column [C]: RUCO Adjustment No. 2 - Not Used for the Water Division;
Column [D]: RUCO Adjustment No. 3 - Intentionally Left Blank for both Water and Sewer Divisions;
Column [E]: RUCO Adjustment No. 4 - Contributions-in-Aid-of-Construction ("CIAC") and Accumulated Amortization Schedules TJC-7 pages 1-4;
Column [F]: RUCO Adjustment No. 5 - Accumulated Deferred Income Taxes ("ADIT") Scdehules TJC-9 pages 1-2;
Column [G]: Allowance for Working Capital Schedules TJC-10 pages 1-2;
Column [H]: Sum of RUCO Adjustments No. 1 thru 6 in Columns [B] thru [G];
Column [I]: Column [A] + [H].

RATE BASE ADJUSTMENT NO. 1
SUMMARY OF UTILITY PLANT IN SERVICE (UPIS) ADJUSTMENTS
TEST YEAR ENDED DECEMBER 31, 2016

Line No.	Acct No	Account Description	[A] Company Adjusted TY Plant in Service As Filed	[B] RUCO Adjustment A UPIS Reconstruction	[C] RUCO Adjustment B Stranded A/D Only	[D] RUCO Adjustment C PTY Plant Adjustments	[E] RUCO Adjustment D PTY Plant Retirements	[F] RUCO Adjustment E Intentionally Left Blank	[G] RUCO Total Plant in Service Adjustments	[H] RUCO Total Plant in Service Recommended
	Direct UPIS:									
1	301	Organization Cost	$ 21,100	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,100
2	302	Franchise Cost	-	-	-	-	-	-	-	-
3	303	Land and Land Rights	1,514,452	-	-	23,043	-	-	23,043	1,537,495
4	304	Structures & Improvements	28,063,635	(0)	-	(283,277)	(42,614)	-	(325,892)	27,737,743
5	305	Collecting & Impounding Reservoirs	-	-	-	-	-	-	-	-
6	306	Lake, River, Canal Intakes	-	-	-	-	-	-	-	-
7	307	Wells & Springs	3,438,909	-	-	(61,229)	-	-	(61,229)	3,377,680
8	308	Infiltration Galleries and Tunnels	-	-	-	-	-	-	-	-
9	309	Supply Mains	1,050,583	-	-	(1,050,583)	-	-	(1,050,583)	-
10	310	Power Generation Equipment	617,349	-	-	(226,676)	(9,031)	-	(235,707)	381,642
11	311	Electric Pumping Equipment	1,685,731	(0)	-	(261,719)	(163,602)	-	(425,322)	1,260,410
12	320	Water Treatment Equipment	-	-	-	-	-	-	-	-
13	320.1	Water Treatment Plants	5,462,634	-	-	(759,790)	(137,801)	-	(897,591)	4,565,043
14	320.2	Chemical Solution Feeders	154,285	0	-	(97,960)	-	-	(97,960)	56,325
15	330	Distribution Reservoirs & Standpipes	492,176	-	-	-	-	-	-	492,176
16	330.1	Storage Tanks	1,684,463	-	-	(646,193)	-	-	(646,193)	1,038,270
17	330.2	Pressure Tanks	-	-	-	-	-	-	-	-
18	331	Transmission & Distribution Mains	42,132,946	(0)	-	(8,141)	(61,469)	-	(69,610)	42,063,336
19	333	Services	6,199,914	-	-	58,799	(166,262)	-	(107,463)	6,092,452
20	334	Meters	7,848,588	(0)	-	(163,230)	(1,349,185)	-	(1,512,415)	6,336,173
21	335	Hydrants	3,548,220	(0)	-	(14,062)	(137)	-	(14,199)	3,534,021
22	336	Backflow Prevention Devices	38,387	-	-	-	-	-	-	38,387
23	339	Other Plant & Misc Equipment	315,978	-	-	-	-	-	-	315,978
24	340	Office Furniture & Equipment	698,255	-	-	(1,628)	-	-	(1,628)	696,626
25	340.1	Computers & Software	83,819	0	-	-	-	-	0	83,819
26	341	Transportation Equipment	813,834	-	-	-	-	-	-	813,834
27	342	Stores Equipment	37,143	-	-	-	-	-	-	37,143
28	343	Tools, Shop & Garage Equipment	165,253	(0)	-	3,007	(711)	-	2,297	167,549
29	344	Laboratory Equipment	5,803	-	-	-	-	-	-	5,803
30	345	Power Operated Equipment	18,956	-	-	-	-	-	-	18,956
31	346	Communication Equipment	245,970	-	-	(10,854)	(25,105)	-	(35,959)	210,011
32	347	Miscellaneous Equipment	728,632	-	-	-	-	-	-	728,632
33	348	Other Tangible Plant	130,467	0	-	-	-	-	0	130,467
34		**Total Direct UPIS**	$ 107,197,484	$ (0)	$ -	$ (3,500,494)	$ (1,955,917)	$ -	$ (5,456,411)	$ 101,741,073
		Allocated Corporate UPIS:								
35	903	Land and Land Rights	$ 36,676	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,676
36	904	Structures and Improvments	489,213	-	-	-	-	-	-	489,213
37	940	Office Furniture and Fixtures	62,500	-	-	-	-	-	-	62,500
38	940.1	Computers and Software	851,809	-	-	-	-	-	-	851,809
39	947	Miscellaneous Equipment	4,031	-	-	-	-	-	-	4,031
40		**Total Allocated Corporate UPIS**	$ 1,444,228	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,444,228
41		**Total Direct & Allocated Corp. UPIS**	**$ 108,641,713**	**$ (0)**	**$ -**	**$ (3,500,494)**	**$ (1,955,917)**	**$ -**	**$ (5,456,411)**	**$ 103,185,301**

References:

Column [A]: Company Schedule B-2 Page 3 as Filed;
Column [B]: RUCO UPIS Adjustment A - Reconstruction of Utility Plant in Service (UPIS) Schedules TJC-4(a) Pages 1-5;
Column [C]: RUCO UPIS Adjustment B - Stranded Accumulated Depreciation ("A/D") Balances Used Only for A/D Schedules TJC-4(b) Page 2;
Column [D]: RUCO UPIS Adjustment C - 2017 Post Test Year ("PTY") Plant Disallowances Schedules TJC-4(c) Page 1;
Column [E]: RUCO UPIS Adjustment D - 2017 PTY Plant Retirements Schedules TJC-4(d) Page 1;
Column [F]: RUCO UPIS Adjustment E - Intentionally Left Blank for Future Use;
Column [G]: Sum of RUCO Adjustments A thru E in Columns [B] thru [F];
Column [H]: Column [A] + [G].

RATE BASE ADJUSTMENT NO. 1
SUMMARY OF UPIS ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENTS
TEST YEAR ENDED DECEMBER 31, 2016

Line No.	Acct No		[A] Company Adjusted TY Accum. Depre. As Filed	[B] RUCO Adjustment A Accum. Depre. Reconstruction	[C] RUCO Adjustment B Stranded A/D Balances	[D] RUCO Adjustment C PTY Plant A/D Adjustments	[E] RUCO Adjustment D PTY Plant Retirements	[F] RUCO Adjustment E Intentionally Left Blank	[G] RUCO Total Accum. Depre. Adjustments	[H] RUCO Total Accum. Depre. Recommended
		Direct UPIS Accumulated Depreciation:								
1	301	Organization Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	302	Franchise Cost	-	-	-	-	-	-	-	-
3	303	Land and Land Rights	-	-	-	-	-	-	-	-
4	304	Structures & Improvements	(7,220,670)	(0)	-	4,717	42,614	-	47,331	(7,173,340)
5	305	Collecting & Impounding Reservoirs	-	-	-	-	-	-	-	-
6	306	Lake, River, Canal Intakes	-	-	-	-	-	-	-	-
7	307	Wells & Springs	(1,376,393)	(0)	-	1,019	-	-	1,019	(1,375,373)
8	308	Infiltration Galleries and Tunnels	-	-	-	-	-	-	-	-
9	309	Supply Mains	(10,506)	-	-	10,506	-	-	10,506	-
10	310	Power Generation Equipment	(155,578)	-	-	5,667	9,031	-	14,698	(140,880)
11	311	Electric Pumping Equipment	(815,816)	(0)	-	16,357	163,602	-	179,960	(635,856)
12	320	Water Treatment Equipment	-	-	-	-	-	-	-	-
13	320.1	Water Treatment Plants	(889,535)	(0)	-	12,651	137,801	-	150,452	(739,083)
14	320.2	Chemical Solution Feeders	(82)	(0)	(7,349)	9,796	-	-	2,447	2,364
15	330	Distribution Reservoirs & Standpipes	(261,362)	0	-	-	-	-	0	(261,362)
16	330.1	Storage Tanks	(149,168)	0	-	7,173	-	-	7,173	(141,996)
17	330.2	Pressure Tanks	-	-	-	-	-	-	-	-
18	331	Transmission & Distribution Mains	(9,454,335)	0	-	81	61,469	-	61,550	(9,392,785)
19	333	Services	(1,993,699)	0	-	(979)	166,262	-	165,283	(1,828,416)
20	334	Meters	(3,763,126)	0	-	6,799	1,349,185	-	1,355,983	(2,407,142)
21	335	Hydrants	(594,507)	(0)	-	141	137	-	278	(594,229)
22	336	Backflow Prevention Devices	(28,669)	(0)	-	-	-	-	(0)	(28,670)
23	339	Other Plant & Misc Equipment	(182,526)	0	-	-	-	-	0	(182,526)
24	340	Office Furniture & Equipment	(467,601)	0	-	54	-	-	54	(467,547)
25	340.1	Computers & Software	(9,235)	0	-	-	-	-	0	(9,235)
26	341	Transportation Equipment	(225,978)	(0)	-	-	-	-	(0)	(225,978)
27	342	Stores Equipment	(13,368)	0	-	-	-	-	0	(13,368)
28	343	Tools, Shop & Garage Equipment	(20,374)	(0)	-	(75)	711	-	636	(19,739)
29	344	Laboratory Equipment	(2,611)	0	-	-	-	-	0	(2,611)
30	345	Power Operated Equipment	(7,480)	0	-	-	-	-	0	(7,480)
31	346	Communication Equipment	(114,895)	0	-	543	25,105	-	25,648	(89,247)
32	347	Miscellaneous Equipment	(36,432)	0	-	-	-	-	0	(36,432)
33	348	Other Tangible Plant	(71,648)	(0)	-	-	-	-	(0)	(71,648)
34		**Total Direct UPIS Accumulated Depreciation**	$ (27,865,594)	$ 0	$ (7,349)	$ 74,449	$ 1,955,917	$ -	$ 2,023,017	$ (25,842,578)
		Allocated Corporate UPIS Accum. Depre.:								
35	903	Land and Land Rights	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
36	904	Structures and Improvments	(44,659)	-	-	-	-	-	-	(44,659)
37	940	Office Furniture and Fixtures	(13,673)	-	-	-	-	-	-	(13,673)
38	940.1	Computers and Software	(405,323)	-	-	-	-	-	-	(405,323)
39	947	Miscellaneous Equipment	(101)	-	-	-	-	-	-	(101)
40		**Total Allocated Corp. UPIS Accum. Depre.**	$ (463,757)	$ -	$ -	$ -	$ -	$ -	$ -	$ (463,757)
41		**Total Direct & Allocated Corp. UPIS Accum. Depre.**	$ (28,329,351)	$ 0	$ (7,349)	$ 74,449	$ 1,955,917	$ -	$ 2,023,017	$ (26,306,334)

References:
Column [A]: Company Schedule B-2 Page 4 as Filed;
Column [B]: RUCO UPIS Adjustment A - Reconstruction of Utility Plant in Service (UPIS) Accumulated Depreciation ("A/D") Schedules TJC-4(a) Pages 1-5;
Column [C]: RUCO UPIS Adjustment B - Stranded Accumulated Depreciation ("A/D") Balances Used Only for A/D Schedules TJC-4(b) Page 2;
Column [D]: RUCO UPIS Adjustment C - 2017 Post Test Year ("PTY") Plant Accumulated Depreciation ("A/D") Disallowances Schedules TJC-4(c) Page 2;
Column [E]: RUCO UPIS Adjustment D - 2017 PTY Plant Retirements Accumulated Depreciation ("A/D") Schedules TJC-4(d) Page 2;
Column [F]: RUCO UPIS Adjustment E - Intentionally Left Blank for Future Use;
Column [G]: Sum of RUCO Adjustments A thru E in Columns [B] thru [F];
Column [H]: Column [A] + [G].

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT A
RECONSTRUCTION OF UPIS & A/D BALANCES

								2013								
LINE NO.	NARUC ACCT NO.	Account Description	Vintage Year	Depreciation Rate Thru 12/31/2016	Plant In Service Per Decision No. 74437 12/31/2012	Accum. Deprec. Per Decision No. 74437 12/31/2012	Net Plant Per Decision No. 74437 12/31/2012	Plant Additions (Per Books)	Plant Adjustments	Adjusted Plant Additions	Plant Retirements	Salvage A/D Only	Depreciation (Calculated)	Plant Balance	Accum. Deprec.	Net Plant
1	301	Organization Cost		0.00%	$ 21,100	$ -	$ 21,100	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,100	$ -	$ 21,100
2	302	Franchise Cost		0.00%	-	-	-	-	-	-	-	-	-	-	-	-
3	303	Land and Land Rights		0.00%	1,450,278	-	1,450,278	-	-	-	-	-	-	1,450,278	-	1,450,278
4	304	Structures & Improvements		3.33%	25,036,371	(3,855,501)	21,180,870	130,061	2,723	132,784	(1,533)	-	835,896	25,167,622	(4,689,865)	20,477,757
5	305	Collecting & Impounding Reservoirs		2.50%	-	-	-	-	-	-	-	-	-	-	-	-
6	306	Lake, River, Canal Intakes		2.50%	-	-	-	-	-	-	-	-	-	-	-	-
7	307	Wells & Springs		3.33%	3,214,114	(1,033,909)	2,180,205	14,729	-	14,729	-	-	107,275	3,228,844	(1,141,185)	2,087,659
8	308	Infiltration Galleries		6.67%	-	-	-	-	-	-	-	-	-	-	-	-
9	309	Raw Water Supply Mains		2.00%	-	-	-	-	-	-	-	-	-	-	-	-
10	310	Power Generation Equipment		5.00%	225,130	(101,092)	124,038	-	-	-	-	-	11,257	225,130	(112,349)	112,781
11	311	Pumping Equipment		12.50%	874,290	(467,627)	406,663	6,400	-	6,400	(38,604)	-	107,273	842,086	(536,297)	305,789
12	320	Water Treatment Equipment		3.33%	-	-	-	-	-	-	-	-	-	-	-	-
13	320.1	Water Treatment Plants		3.33%	3,425,394	(398,928)	3,026,466	-	-	-	-	-	114,066	3,425,394	(512,994)	2,912,400
14	320.2	Solution Chemical Feeders		20.00%	-	-	-	12,726	-	12,726	-	-	1,273	12,726	(1,273)	11,453
15	330	Distribution Reservoirs & Standpipes		2.22%	492,176	(217,657)	274,519	-	-	-	-	-	10,926	492,176	(228,583)	263,593
16	330.1	Storage Tanks		2.22%	901,841	(59,973)	841,868	6,376	-	6,376	-	-	20,092	908,217	(80,065)	828,152
17	330.2	Pressure Tanks		5.00%	-	-	-	-	-	-	-	-	-	-	-	-
18	331	Transmission & Distribution Mains		2.00%	40,256,187	(6,706,853)	33,549,334	306,896	(346)	306,550	(7,112)	-	808,118	40,555,624	(7,507,859)	33,047,766
19	333	Services		3.33%	5,350,963	(1,618,468)	3,732,496	67,770	-	67,770	(25,120)	-	178,897	5,393,613	(1,772,245)	3,621,368
20	334	Meters		8.33%	4,759,560	(3,401,292)	1,358,268	246,407	-	246,407	(47,835)	-	404,742	4,958,132	(3,758,199)	1,199,933
21	335	Hydrants		2.00%	3,302,148	(391,667)	2,910,481	20,868	(60)	20,807	(1,133)	-	66,240	3,321,822	(456,774)	2,865,048
22	336	Backflow Prevention Devices		6.67%	38,387	(18,428)	19,960	-	-	-	-	-	2,560	38,387	(20,988)	17,399
23	339	Other Plant & Misc Equipment		6.67%	259,531	(107,636)	151,895	-	-	-	-	-	17,311	259,531	(124,947)	134,584
24	340	Office Furniture & Equipment		6.67%	657,653	(286,464)	371,189	27,396	-	27,396	-	-	44,779	685,050	(331,244)	353,806
25	340.1	Computers & Software		20.00%	7,995	(5,597)	2,399	-	-	-	-	-	1,599	7,995	(7,196)	800
26	341	Transportation Equipment		20.00%	234,697	(138,363)	96,334	3,977	-	3,977	-	-	47,337	238,674	(185,700)	52,973
27	342	Stores Equipment		4.00%	37,143	(7,425)	29,718	-	-	-	-	-	1,486	37,143	(8,910)	28,232
28	343	Tools, Shop & Garage Equipment		5.00%	47,434	(12,800)	34,634	6,391	-	6,391	(1,770)	-	2,487	52,056	(13,518)	38,538
29	344	Laboratory Equipment		10.00%	5,803	(290)	5,513	-	-	-	-	-	580	5,803	(870)	4,932
30	345	Power Operated Equipment		5.00%	18,003	(3,713)	14,290	953	-	953	-	-	924	18,956	(4,637)	14,319
31	346	Communication Equipment		10.00%	128,402	(73,934)	54,469	-	-	-	-	-	12,840	128,402	(86,774)	41,629
32	347	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	-	-	-	-	-	-
33	348	Other Tangible Plant		10.00%	122,414	(19,980)	102,435	6,915	(24)	6,891	-	-	12,586	129,306	(32,566)	96,740
34		RUCO UPIS & Accum. Depre. Balances			$ 90,867,015	$ (18,927,598)	$ 71,939,418	$ 857,864	$ 2,293	$ 860,157	$ (123,106)	$ -	$ 2,810,545	$ 91,604,066	$ (21,615,036)	$ 69,989,030
35		Company UPIS & Accum. Depre. As Filed														
36		RUCO UPIS & Accum. Depre. Adjustments														

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT A
RECONSTRUCTION OF UPIS & A/D BALANCES

LINE NO.	NARUC ACCT NO.	Account Description	Vintage Year	Depreciation Rate Thru 12/31/2016	2014 Plant Additions (Per Books)	Plant Adjustments	Adjusted Plant Additions	Plant Retirements	Salvage A/D Only	Depreciation (Calculated)	Plant Balance	Accum. Deprec.	Net Plant
1	301	Organization Cost		0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,100	$ -	$ 21,100
2	302	Franchise Cost		0.00%	-	-	-	-	-	-	-	-	-
3	303	Land and Land Rights		0.00%	-	-	-	-	-	-	1,450,278	-	1,450,278
4	304	Structures & Improvements		3.33%	95,508	(259)	95,249	(1,288)	-	839,646	25,261,584	(5,528,224)	19,733,360
5	305	Collecting & Impounding Reservoirs		2.50%	-	-	-	-	-	-	-	-	-
6	306	Lake, River, Canal Intakes		2.50%	-	-	-	-	-	-	-	-	-
7	307	Wells & Springs		3.33%	-	-	-	-	-	107,520	3,228,844	(1,248,705)	1,980,138
8	308	Infiltration Galleries		6.67%	-	-	-	-	-	-	-	-	-
9	309	Raw Water Supply Mains		2.00%	-	-	-	-	-	-	-	-	-
10	310	Power Generation Equipment		5.00%	-	-	-	(314)	-	11,249	224,816	(123,283)	101,532
11	311	Pumping Equipment		12.50%	33,354	-	33,354	(25,594)	-	105,746	849,846	(616,448)	233,398
12	320	Water Treatment Equipment		3.33%	-	-	-	-	-	-	-	-	-
13	320.1	Water Treatment Plants		3.33%	-	-	-	-	-	114,066	3,425,394	(627,060)	2,798,334
14	320.2	Solution Chemical Feeders		20.00%	9,510	-	9,510	(586)	-	3,438	21,650	(4,124)	17,526
15	330	Distribution Reservoirs & Standpipes		2.22%	-	-	-	-	-	10,926	492,176	(239,510)	252,666
16	330.1	Storage Tanks		2.22%	-	-	-	-	-	20,162	908,217	(100,227)	807,989
17	330.2	Pressure Tanks		5.00%	-	-	-	-	-	-	-	-	-
18	331	Transmission & Distribution Mains		2.00%	(416,262)	(62)	(416,324)	(8,419)	-	806,865	40,130,882	(8,306,305)	31,824,577
19	333	Services		3.33%	95,675	-	95,675	(6,101)	-	181,099	5,483,188	(1,947,243)	3,535,945
20	334	Meters		8.33%	160,667	-	160,667	(29,706)	-	418,467	5,089,092	(4,146,960)	942,133
21	335	Hydrants		2.00%	44,386	-	44,386	(828)	-	66,872	3,365,380	(522,818)	2,842,562
22	336	Backflow Prevention Devices		6.67%	-	-	-	-	-	2,560	38,387	(23,549)	14,839
23	339	Other Plant & Misc Equipment		6.67%	-	-	-	-	-	17,311	259,531	(142,257)	117,273
24	340	Office Furniture & Equipment		6.67%	-	-	-	-	-	45,693	685,050	(376,936)	308,113
25	340.1	Computers & Software		20.00%	273	-	273	-	-	827	8,268	(8,022)	246
26	341	Transportation Equipment		20.00%	8,323	-	8,323	10,906	-	49,658	257,903	(246,264)	11,639
27	342	Stores Equipment		4.00%	-	-	-	-	-	1,486	37,143	(10,396)	26,747
28	343	Tools, Shop & Garage Equipment		5.00%	7,332	-	7,332	-	-	2,786	59,388	(16,304)	43,084
29	344	Laboratory Equipment		10.00%	-	-	-	-	-	580	5,803	(1,451)	4,352
30	345	Power Operated Equipment		5.00%	-	-	-	-	-	948	18,956	(5,585)	13,371
31	346	Communication Equipment		10.00%	25,737	-	25,737	-	-	14,127	154,139	(100,901)	53,238
32	347	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	-	-	-
33	348	Other Tangible Plant		10.00%	1,161	-	1,161	-	-	12,989	130,467	(45,554)	84,913
34		RUCO UPIS & Accum. Depre. Balances			$ 65,664	$ (321)	$ 65,343	$ (61,930)	$ -	$ 2,835,020	$ 91,607,480	$ (24,388,126)	$ 67,219,354
35		Company UPIS & Accum. Depre. As Filed											
36		RUCO UPIS & Accum. Depre. Adjustments											

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT A
RECONSTRUCTION OF UPIS & A/D BALANCES

				Depreciation	2015								
LINE NO.	NARUC ACCT NO.	Account Description	Vintage Year	Rate Thru 12/31/2016	Plant Additions (Per Books)	Plant Adjustments	Adjusted Plant Additions	Plant Retirements	Salvage A/D Only	Depreciation (Calculated)	Plant Balance	Accum. Deprec.	Net Plant
1	301	Organization Cost		0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,100	$ -	$ 21,100
2	302	Franchise Cost		0.00%	-	-	-	-	-	-	-	-	-
3	303	Land and Land Rights		0.00%	29,150	-	29,150	-	-	-	1,479,428	-	1,479,428
4	304	Structures & Improvements		3.33%	2,388,030	-	2,388,030	(33,047)	-	880,421	27,616,566	(6,375,597)	21,240,969
5	305	Collecting & Impounding Reservoirs		2.50%	-	-	-	-	-	-	-	-	-
6	306	Lake, River, Canal Intakes		2.50%	-	-	-	-	-	-	-	-	-
7	307	Wells & Springs		3.33%	108,615	-	108,615	(91,423)	-	107,807	3,246,035	(1,265,088)	1,980,946
8	308	Infiltration Galleries		6.67%	-	-	-	-	-	-	-	-	-
9	309	Raw Water Supply Mains		2.00%	-	-	-	-	-	-	-	-	-
10	310	Power Generation Equipment		5.00%	-	-	-	-	-	11,241	224,816	(134,524)	90,292
11	311	Pumping Equipment		12.50%	-	-	-	-	-	106,231	849,846	(722,679)	127,167
12	320	Water Treatment Equipment		3.33%	-	-	-	-	-	-	-	-	-
13	320.1	Water Treatment Plants		3.33%	12,726	-	12,726	-	-	114,278	3,438,120	(741,337)	2,696,783
14	320.2	Solution Chemical Feeders		20.00%	11,903	-	11,903	(10,123)	-	4,508	23,430	1,491	24,921
15	330	Distribution Reservoirs & Standpipes		2.22%	-	-	-	-	-	10,926	492,176	(250,436)	241,740
16	330.1	Storage Tanks		2.22%	-	-	-	-	-	20,162	908,217	(120,390)	787,827
17	330.2	Pressure Tanks		5.00%	-	-	-	-	-	-	-	-	-
18	331	Transmission & Distribution Mains		2.00%	1,272,747	122,362	1,395,109	(376,825)	-	812,800	41,149,165	(8,742,280)	32,406,885
19	333	Services		3.33%	344,876	(122,362)	222,514	(114,880)	-	184,382	5,590,821	(2,016,745)	3,574,076
20	334	Meters		8.33%	717,986	-	717,986	(40,398)	-	452,143	5,766,680	(4,558,704)	1,207,976
21	335	Hydrants		2.00%	139,926	-	139,926	(53,170)	-	68,175	3,452,136	(537,824)	2,914,312
22	336	Backflow Prevention Devices		6.67%	-	-	-	-	-	2,560	38,387	(26,109)	12,278
23	339	Other Plant & Misc Equipment		6.67%	56,447	-	56,447	-	-	19,193	315,978	(161,450)	154,528
24	340	Office Furniture & Equipment		6.67%	-	-	-	-	-	45,693	685,050	(422,629)	262,420
25	340.1	Computers & Software		20.00%	1,178	-	1,178	-	-	172	9,446	(8,195)	1,251
26	341	Transportation Equipment		20.00%	422,314	-	422,314	(8,322)	-	46,056	671,894	(283,997)	387,897
27	342	Stores Equipment		4.00%	-	-	-	-	-	1,486	37,143	(11,882)	25,261
28	343	Tools, Shop & Garage Equipment		5.00%	3,241	-	3,241	(3,777)	-	2,956	58,851	(15,483)	43,368
29	344	Laboratory Equipment		10.00%	-	-	-	-	-	580	5,803	(2,031)	3,772
30	345	Power Operated Equipment		5.00%	-	-	-	-	-	948	18,956	(6,533)	12,423
31	346	Communication Equipment		10.00%	44,722	-	44,722	-	-	17,650	198,861	(118,551)	80,310
32	347	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	-	-	-
33	348	Other Tangible Plant		10.00%	-	-	-	-	-	13,047	130,467	(58,601)	71,866
34		RUCO UPIS & Accum. Depre. Balances			$ 5,553,860	$ -	$ 5,553,860	$ (731,967)	$ -	$ 2,923,416	$ 96,429,373	$ (26,579,575)	$ 69,849,798
35		Company UPIS & Accum. Depre. As Filed											
36		RUCO UPIS & Accum. Depre. Adjustments											

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT A
RECONSTRUCTION OF UPIS & A/D BALANCES

LINE NO.	NARUC ACCT NO.	Account Description	Vintage Year	Depreciation Rate Thru 12/31/2016	2016 Plant Additions (Per Books)	Account 106 Plant Reclass Adjustments	Accruals Plant Adjustments	Adjusted Plant Additions	Plant Retirements (Per Books)	Retirement Accrual Adjustments	Adjusted Plant Retirements	Salvage A/D Only	Depreciation (Calculated)	Plant Balance	Accum. Deprec.	Net Plant
1	301	Organization Cost		0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,100	$ -	$ 21,100
2	302	Franchise Cost		0.00%	-	-	-	-	-	-	-	-	-	-	-	-
3	303	Land and Land Rights		0.00%	-	-	-	-	-	-	-	-	-	1,479,428	-	1,479,428
4	304	Structures & Improvements		3.33%	65,028	119,725	-	184,754	(33,641)	(48,362)	(82,002)	-	921,342	27,719,317	(7,214,937)	20,504,380
5	305	Collecting & Impounding Reservoirs		2.50%	-	-	-	-	-	-	-	-	-	-	-	-
6	306	Lake, River, Canal Intakes		2.50%	-	-	-	-	-	-	-	-	-	-	-	-
7	307	Wells & Springs		3.33%	131,645	-	-	131,645	-	-	-	-	110,285	3,377,680	(1,375,373)	2,002,307
8	308	Infiltration Galleries		6.67%	-	-	-	-	-	-	-	-	-	-	-	-
9	309	Raw Water Supply Mains		2.00%	-	-	-	-	-	-	-	-	-	-	-	-
10	310	Power Generation Equipment		5.00%	-	-	-	-	-	-	-	-	11,241	224,816	(145,765)	79,051
11	311	Pumping Equipment		12.50%	58,527	43,757	400,217	502,501	(24,718)	(39,007)	(63,725)	-	132,042	1,288,622	(790,996)	497,626
12	320	Water Treatment Equipment		3.33%	-	-	-	-	-	-	-	-	-	-	-	-
13	320.1	Water Treatment Plants		3.33%	-	690,404	574,320	1,264,724	-	-	-	-	135,547	4,702,844	(876,884)	3,825,960
14	320.2	Solution Chemical Feeders		20.00%	44,501	4,592	-	49,093	(14,565)	(1,633)	(16,199)	-	7,976	56,325	9,714	66,039
15	330	Distribution Reservoirs & Standpipes		2.22%	-	-	-	-	-	-	-	-	10,926	492,176	(261,362)	230,814
16	330.1	Storage Tanks		2.22%	-	130,053	-	130,053	-	-	-	-	21,606	1,038,270	(141,996)	896,274
17	330.2	Pressure Tanks		5.00%	-	-	-	-	-	-	-	-	-	-	-	-
18	331	Transmission & Distribution Mains		2.00%	688,186	-	-	688,186	(106,633)	(14,133)	(120,766)	-	828,657	41,716,585	(9,450,171)	32,266,414
19	333	Services		3.33%	279,420	505,619	-	785,038	(98,465)	(120,897)	(219,362)	-	195,593	6,156,498	(1,992,976)	4,163,522
20	334	Meters		8.33%	582,471	1,826,453	510,242	2,919,165	(128,694)	(1,081,946)	(1,210,641)	-	399,510	7,475,205	(3,747,574)	3,727,631
21	335	Hydrants		2.00%	93,123	-	-	93,123	(13,320)	-	(13,320)	-	69,841	3,531,939	(594,344)	2,937,595
22	336	Backflow Prevention Devices		6.67%	-	-	-	-	-	-	-	-	2,560	38,387	(28,670)	9,718
23	339	Other Plant & Misc Equipment		6.67%	-	-	-	-	-	-	-	-	21,076	315,978	(182,526)	133,452
24	340	Office Furniture & Equipment		6.67%	4,371	6,293	2,073	12,738	(1,161)	-	(1,161)	-	46,079	696,626	(467,547)	229,080
25	340.1	Computers & Software		20.00%	23,841	18,743	39,220	81,804	(7,430)	-	(7,430)	-	8,471	83,819	(9,235)	74,584
26	341	Transportation Equipment		20.00%	318,758	-	-	318,758	(176,817)	-	(176,817)	-	118,799	813,834	(225,978)	587,856
27	342	Stores Equipment		4.00%	-	-	-	-	-	-	-	-	1,486	37,143	(13,368)	23,775
28	343	Tools, Shop & Garage Equipment		5.00%	7,141	38,265	52,373	97,778	-	(711)	(711)	-	5,369	155,918	(20,141)	135,777
29	344	Laboratory Equipment		10.00%	-	-	-	-	-	-	-	-	580	5,803	(2,611)	3,192
30	345	Power Operated Equipment		5.00%	-	-	-	-	-	-	-	-	948	18,956	(7,480)	11,475
31	346	Communication Equipment		10.00%	23,511	38,642	-	62,153	(3,488)	(22,410)	(25,898)	-	21,699	235,116	(114,352)	120,764
32	347	Miscellaneous Equipment		10.00%	728,632	-	-	728,632	-	-	-	-	36,432	728,632	(36,432)	692,201
33	348	Other Tangible Plant		10.00%	-	-	-	-	-	-	-	-	13,047	130,467	(71,648)	58,819
34		RUCO UPIS & Accum. Depre. Balances			$ 3,049,156	$ 3,422,546	$ 1,578,444	$ 8,050,147	$ (608,933)	$ (1,329,100)	$ (1,938,033)	$ -	$ 3,121,111	$ 102,541,486	$ (27,762,653)	74,778,833
35		Company UPIS & Accum. Depre. As Filed														
36		RUCO UPIS & Accum. Depre. Adjustments														

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT A
RECONSTRUCTION OF UPIS & A/D BALANCES

				Depreciation	2017 HALF-YEAR CONVENTION OF DEPRECIATION ON POST TEST YEAR PLANT ONLY								
LINE NO.	NARUC ACCT NO.	Account Description	Vintage Year	Rate Thru 12/31/2016	Plant Additions (Per Books)	Plant Adjustments	Adjusted Plant Additions	Plant Retirements	Salvage A/D Only	Depreciation (Calculated)	Plant Balance	Accum. Deprec.	Net Plant
1	301	Organization Cost		0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,100	$ -	$ 21,100
2	302	Franchise Cost		0.00%	-	-	-	-	-	-	-	-	-
3	303	Land and Land Rights		0.00%	35,023	-	35,023	-	-	-	1,514,452	-	1,514,452
4	304	Structures & Improvements		3.33%	344,318	-	344,318	-	-	5,733	28,063,635	(7,220,670)	20,842,965
5	305	Collecting & Impounding Reservoirs		2.50%	-	-	-	-	-	-	-	-	-
6	306	Lake, River, Canal Intakes		2.50%	-	-	-	-	-	-	-	-	-
7	307	Wells & Springs		3.33%	61,229	-	61,229	-	-	1,019	3,438,909	(1,376,393)	2,062,517
8	308	Infiltration Galleries		6.67%	-	-	-	-	-	-	-	-	-
9	309	Raw Water Supply Mains		2.00%	1,050,583	-	1,050,583	-	-	10,506	1,050,583	(10,506)	1,040,077
10	310	Power Generation Equipment		5.00%	392,533	-	392,533	-	-	9,813	617,349	(155,578)	461,770
11	311	Pumping Equipment		12.50%	397,110	-	397,110	-	-	24,819	1,685,731	(815,816)	869,916
12	320	Water Treatment Equipment		3.33%	-	-	-	-	-	-	-	-	-
13	320.1	Water Treatment Plants		3.33%	759,790	-	759,790	-	-	12,651	5,462,634	(889,535)	4,573,100
14	320.2	Solution Chemical Feeders		20.00%	97,960	-	97,960	-	-	9,796	154,285	(82)	154,203
15	330	Distribution Reservoirs & Standpipes		2.22%	-	-	-	-	-	-	492,176	(261,362)	230,814
16	330.1	Storage Tanks		2.22%	646,193	-	646,193	-	-	7,173	1,684,463	(149,168)	1,535,295
17	330.2	Pressure Tanks		5.00%	-	-	-	-	-	-	-	-	-
18	331	Transmission & Distribution Mains		2.00%	416,361	-	416,361	-	-	4,164	42,132,946	(9,454,335)	32,678,611
19	333	Services		3.33%	43,417	-	43,417	-	-	723	6,199,914	(1,993,699)	4,206,216
20	334	Meters		8.33%	373,383	-	373,383	-	-	15,551	7,848,588	(3,763,126)	4,085,462
21	335	Hydrants		2.00%	16,281	-	16,281	-	-	163	3,548,220	(594,507)	2,953,713
22	336	Backflow Prevention Devices		6.67%	-	-	-	-	-	-	38,387	(28,670)	9,718
23	339	Other Plant & Misc Equipment		6.67%	-	-	-	-	-	-	315,978	(182,526)	133,452
24	340	Office Furniture & Equipment		6.67%	1,628	-	1,628	-	-	54	698,255	(467,601)	230,653
25	340.1	Computers & Software		20.00%	-	-	-	-	-	-	83,819	(9,235)	74,584
26	341	Transportation Equipment		20.00%	-	-	-	-	-	-	813,834	(225,978)	587,856
27	342	Stores Equipment		4.00%	-	-	-	-	-	-	37,143	(13,368)	23,775
28	343	Tools, Shop & Garage Equipment		5.00%	9,335	-	9,335	-	-	233	165,253	(20,374)	144,878
29	344	Laboratory Equipment		10.00%	-	-	-	-	-	-	5,803	(2,611)	3,192
30	345	Power Operated Equipment		5.00%	-	-	-	-	-	-	18,956	(7,480)	11,475
31	346	Communication Equipment		10.00%	10,854	-	10,854	-	-	543	245,970	(114,894)	131,076
32	347	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	728,632	(36,432)	692,201
33	348	Other Tangible Plant		10.00%	-	-	-	-	-	-	130,467	(71,648)	58,819
34		RUCO UPIS & Accum. Depre. Balances			4,655,998	-	4,655,998	$ -	$ -	$ 102,941	$ 107,197,484	$ (27,865,594)	$ 79,331,890
35		Company UPIS & Accum. Depre. As Filed									107,197,484	(27,865,594)	
36		RUCO UPIS & Accum. Depre. Adjustments									$ -	$ 0	

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT B
STRANDED A/D BALANCES ADJUSTMENT

Line No.	Acct No	Account Description	Vintage Year	[A] Per Company As Filed	[B] Accumulated Depreciation Debit Balance	[C] RUCO Stranded Accum. Depre. Adjustments
	Direct PTY UPIS Accumulated Depreciation:					
1	320.2	Chemical Solution Feeders	2013	$ -	$ (7,349)	$ (7,349)
2		**RUCO Totals**		$ -	$ (7,349)	$ (7,349)
3		RUCO Adjustments				$ (7,349)

References:
Column [A]: Company Schedule B-2 on Page 4;
Column [B]: RUCO Removal of Stranded Accumulated Depreciation Balances Schedules TJC-4(a) Page 5;
Column [C]: Column [B] Minus Column [A]

Liberty Utilities (Litchfield Park Water & Sewer) Corp. - Water Division
Docket No. SW-01427A-17-0058 et al.
Test Year Ended December 31, 2016

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT C
POST TEST YEAR UPIS DISALLOWANCE ADJUSTMENT

Line No.	Acct No	Account Description	[A] Company As Filed	[B] Actual Costs June 30, 2017	[C] Actual Costs Less Requested Thru June 30, 2017	[D] Requested In Application or In Service on 6/30/2017	[E] RUCO Backbone Plant In Service PTY Plant Allowance & Disallowance Adjm'ts
	Direct UPIS:						
1	301	Organization Cost	$ -	$ -	$ -	No	$ -
2	302	Franchise Cost	-	-	-	No	-
3	303	Land and Land Rights	35,023	88,702	53,678	Yes	23,043
4	304	Structures & Improvements	344,318	328,104	(16,213)	Partially	(283,277)
5	305	Collecting & Impounding Reservoirs	-	-	-	No	-
6	306	Lake, River, Canal Intakes	-	-	-	No	-
7	307	Wells & Springs	61,229	36,144	(25,086)	No	(61,229)
8	308	Infiltration Galleries and Tunnels	-	-	-	No	-
9	309	Supply Mains	1,050,583	948,125	(102,458)	No	(1,050,583)
10	310	Power Generation Equipment	392,533	165,857	(226,676)	Partially	(226,676)
11	311	Electric Pumping Equipment	397,110	389,395	(7,715)	Partially	(261,719)
12	320	Water Treatment Equipment	-	12,227	12,227	No	-
13	320.1	Water Treatment Plants	759,790	176,581	(583,209)	No	(759,790)
14	320.2	Chemical Solution Feeders	97,960	-	(97,960)	No	(97,960)
15	330	Distribution Reservoirs & Standpipes	-	-	-	No	-
16	330.1	Storage Tanks	646,193	581,175	(65,018)	No	(646,193)
17	330.2	Pressure Tanks	-	-	-	No	-
18	331	Transmission & Distribution Mains	416,361	461,778	45,417	Partially	(8,141)
19	333	Services	43,417	163,915	120,499	Partially	58,799
20	334	Meters	373,383	237,453	(135,929)	Partially	(163,230)
21	335	Hydrants	16,281	2,219	(14,062)	Partially	(14,062)
22	336	Backflow Prevention Devices	-	-	-	No	-
23	339	Other Plant & Misc Equipment	-	-	-	No	-
24	340	Office Furniture & Equipment	1,628	-	(1,628)	No	(1,628)
25	340.1	Computers & Software	-	1,183	1,183	No	-
26	341	Transportation Equipment	-	3,567	3,567	No	-
27	342	Stores Equipment	-	-	-	No	-
28	343	Tools, Shop & Garage Equipment	9,335	12,342	3,007	Yes	3,007
29	344	Laboratory Equipment	-	4,692	4,692	No	-
30	345	Power Operated Equipment	-	-	-	No	-
31	346	Communication Equipment	10,854	201,117	190,263	No	(10,854)
32	347	Miscellaneous Equipment	-	31,612	31,612	No	-
33	348	Other Tangible Plant	-	-	-	No	-
34		**Total Direct UPIS**	$ 4,655,998	$ 3,846,190	$ (809,808)		$ (3,500,494)
	Allocated Corporate UPIS:						
35	903	Land and Land Rights	$ -	$ -	$ -	N/A	$ -
36	904	Structures and Improvments	-	-	-	N/A	-
37	940	Office Furniture and Fixtures	-	-	-	N/A	-
38	940.1	Computers and Software	-	-	-	N/A	-
39	947	Miscellaneous Equipment	-	-	-	N/A	-
40		**Total Allocated Corporate UPIS**	$ -	$ -	$ -		$ -
41		**Total Direct & Allocated Corp. UPIS**	$ 4,655,998	$ 3,846,190	$ (809,808)		$ (3,500,494)

Note: = Completed Work Order Projects Placed in Service
= Partially Completed Work Order Projects Placed in Service

References:
Column [A]: Company Schedule B-2 on Page 3 Column D;
Column [B]: Company Response Provided to RUCO DR 6.04 - "Summary PTY Plant By NARUC" Worksheet Tab
Column [C]: RUCO UPIS Adjustment No. 3 - Column [B] Minus Column [A]
Column [D]: Company Response Provided to RUCO DR 6.04 - "Cost Water PTY Plant" Worksheet Tab
Column [E]: Company Response Provided to RUCO DR 6.04 - "Cost Water PTY Plant" Worksheet Tab

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT C
POST TEST YEAR UPIS A/D DISALLOWANCE ADJUSTMENT

Line No.	Acct No	Account Description	Depreciation Rates	[A] Company As Filed	[B] RUCO As Recommended	[C] RUCO Recommended Adjustments
	Direct PTY UPIS Accumulated Depreciation:					
1	301	Organization Cost	0.00%	$ -	$ -	$ -
2	302	Franchise Cost	0.00%	-	-	-
3	303	Land and Land Rights	0.00%	-	-	-
4	304	Structures & Improvements	3.33%	(5,733)	(1,016)	4,717
5	305	Collecting & Impounding Reservoirs	2.50%	-	-	-
6	306	Lake, River, Canal Intakes	2.50%	-	-	-
7	307	Wells & Springs	3.33%	(1,019)	-	1,019
8	308	Infiltration Galleries and Tunnels	6.67%	-	-	-
9	309	Supply Mains	2.00%	(10,506)	-	10,506
10	310	Power Generation Equipment	5.00%	(9,813)	(4,146)	5,667
11	311	Electric Pumping Equipment	12.50%	(24,819)	(8,462)	16,357
12	320	Water Treatment Equipment	3.33%	-	-	-
13	320.1	Water Treatment Plants	3.33%	(12,651)	-	12,651
14	320.2	Chemical Solution Feeders	20.00%	(9,796)	-	9,796
15	330	Distribution Reservoirs & Standpipes	2.22%	-	-	-
16	330.1	Storage Tanks	2.22%	(7,173)	-	7,173
17	330.2	Pressure Tanks	5.00%	-	-	-
18	331	Transmission & Distribution Mains	2.00%	(4,164)	(4,082)	81
19	333	Services	3.33%	(723)	(1,702)	(979)
20	334	Meters	8.33%	(15,551)	(8,753)	6,799
21	335	Hydrants	2.00%	(163)	(22)	141
22	336	Backflow Prevention Devices	6.67%	-	-	-
23	339	Other Plant & Misc Equipment	6.67%	-	-	-
24	340	Office Furniture & Equipment	6.67%	(54)	-	54
25	340.1	Computers & Software	20.00%	-	-	-
26	341	Transportation Equipment	20.00%	-	-	-
27	342	Stores Equipment	4.00%	-	-	-
28	343	Tools, Shop & Garage Equipment	5.00%	(233)	(309)	(75)
29	344	Laboratory Equipment	10.00%	-	-	-
30	345	Power Operated Equipment	5.00%	-	-	-
31	346	Communication Equipment	10.00%	(543)	-	543
32	347	Miscellaneous Equipment	10.00%	-	-	-
33	348	Other Tangible Plant	10.00%	-	-	-
34		**Total Direct UPIS**		$ (102,941)	$ (28,492)	$ 74,449
	Allocated PTY Corporate UPIS A/D:					
35	903	Land and Land Rights	0.00%	$ -	$ -	$ -
36	904	Structures and Improvments	2.00%	-	-	-
37	940	Office Furniture and Fixtures	6.67%	-	-	-
38	940.1	Computers and Software	20.00%	-	-	-
39	947	Miscellaneous Equipment	10.00%	-	-	-
40		**Total Allocated Corporate UPIS**		$ -	$ -	$ -
41		**Total Direct & Allocated Corp. UPIS**		$ (102,941)	$ (28,492)	$ 74,449

Note: = Completed Work Order Projects Placed in Service
= Partially Completed Work Order Projects Placed in Service

References:
Column [A]: Company Schedule B-2 on Page 4;
Column [B]: RUCO Recommended Depreciable PTY Plant Balance from RUCO Schedule TJC-4(b) in Column [A] less Column [E];
Column [C]: Column [B] Minus Column [A]

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT D
POST TEST YEAR UPIS RETIREMENTS ADJUSTMENT

Line No.	Acct No	Account Description	[A] Company PTY Plant Retirements As Filed	[B] PTY Plant Retirements Per RUCO DR 5.08
1	301	Organization Cost	$ -	$ -
2	302	Franchise Cost	-	-
3	303	Land and Land Rights	-	-
4	304	Structures & Improvements	-	(42,614)
5	305	Collecting & Impounding Reservoirs	-	-
6	306	Lake, River, Canal Intakes	-	-
7	307	Wells & Springs	-	-
8	308	Infiltration Galleries and Tunnels	-	-
9	309	Supply Mains	-	-
10	310	Power Generation Equipment	-	(9,031)
11	311	Electric Pumping Equipment	-	(163,602)
12	320	Water Treatment Equipment	-	-
13	320.1	Water Treatment Plants	-	(137,801)
14	320.2	Chemical Solution Feeders	-	-
15	330	Distribution Reservoirs & Standpipes	-	-
16	330.1	Storage Tanks	-	-
17	330.2	Pressure Tanks	-	-
18	331	Transmission & Distribution Mains	-	(61,469)
19	333	Services	-	(166,262)
20	334	Meters	-	(1,349,185)
21	335	Hydrants	-	(137)
22	336	Backflow Prevention Devices	-	-
23	339	Other Plant & Misc Equipment	-	-
24	340	Office Furniture & Equipment	-	-
25	340.1	Computers & Software	-	-
26	341	Transportation Equipment	-	-
27	342	Stores Equipment	-	-
28	343	Tools, Shop & Garage Equipment	-	(711)
29	344	Laboratory Equipment	-	-
30	345	Power Operated Equipment	-	-
31	346	Communication Equipment	-	(25,105)
32	347	Miscellaneous Equipment	-	-
33	348	Other Tangible Plant	-	-
34		**Total Direct UPIS**	$ -	$ (1,955,917)

References:

Column [A]: Company B-2 Schedules;
Column [B]: Company Supplemental Response to Staff TBH 2.2 Delivered on 12/5/2017

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT D
POST TEST YEAR UPIS A/D RETIREMENTS ADJUSTMENT

Line No.	Acct No	Account Description	[A] Company PTY Plant Retirements As Filed	[B] PTY Plant Retirements Per RUCO DR 5.08	[C] RUCO Accum. Depre. Adjustments
1	301	Organization Cost	$ -	$ -	$ -
2	302	Franchise Cost	-	-	-
3	303	Land and Land Rights	-	-	-
4	304	Structures & Improvements	-	42,614	42,614
5	305	Collecting & Impounding Reservoirs	-	-	-
6	306	Lake, River, Canal Intakes	-	-	-
7	307	Wells & Springs	-	-	-
8	308	Infiltration Galleries and Tunnels	-	-	-
9	309	Supply Mains	-	-	-
10	310	Power Generation Equipment	-	9,031	9,031
11	311	Electric Pumping Equipment	-	163,602	163,602
12	320	Water Treatment Equipment	-	-	-
13	320.1	Water Treatment Plants	-	137,801	137,801
14	320.2	Chemical Solution Feeders	-	-	-
15	330	Distribution Reservoirs & Standpipes	-	-	-
16	330.1	Storage Tanks	-	-	-
17	330.2	Pressure Tanks	-	-	-
18	331	Transmission & Distribution Mains	-	61,469	61,469
19	333	Services	-	166,262	166,262
20	334	Meters	-	1,349,185	1,349,185
21	335	Hydrants	-	137	137
22	336	Backflow Prevention Devices	-	-	-
23	339	Other Plant & Misc Equipment	-	-	-
24	340	Office Furniture & Equipment	-	-	-
25	340.1	Computers & Software	-	-	-
26	341	Transportation Equipment	-	-	-
27	342	Stores Equipment	-	-	-
28	343	Tools, Shop & Garage Equipment	-	711	711
29	344	Laboratory Equipment	-	-	-
30	345	Power Operated Equipment	-	-	-
31	346	Communication Equipment	-	25,105	25,105
32	347	Miscellaneous Equipment	-	-	-
33	348	Other Tangible Plant	-	-	-
34		**Total Direct UPIS**	$ -	$ 1,955,917	$ 1,955,917

References:
Column [A]: Company B-2 Schedules;
Column [B]: Company Supplemental Response to Staff TBH 2.2 Delivered on 12/5/2017;
Column [C]: RUCO UPIS Adjustment No. 4 - Column [A] + Column [B].

RATE BASE ADJUSTMENT NO. 2
NOT USED FOR WATER DIVISION / SEWER DIVISION ONLY

Line No.	Description	Amount
1		$ -
2		-
3		-
4		$ -

References:

RATE BASE ADJUSTMENT NO. 3
ADVANCES-IN-AID-OF-CONSTRUCTION ("AIAC") ADJUSTMENT

Line No.	Description	Amount
1	RUCO Recommended AIAC Balance[1]	$ 16,306,103
2	Company AIAC Balance as Filed	16,306,103
3	RUCO Recommended Adjustment	$ -

References:

1 See RUCO Schedule TJC-6 on Page 3 of 3 at Line 4;
Per Company Schedule B-2 on Page 6 and 6.1 AIAC Activity.

RATE BASE ADJUSTMENT NO. 3
ADVANCES-IN-AID-OF-CONSTRUCTION ("AIAC")

		AIAC Balance	2013						2014					
Line No.	Description	Per Decision No. 74437 12/31/2012	AIAC Additions (Per Books)	AIAC Adjustments	Adjusted AIAC Additions	AIAC Refunds	AIAC Converted to CIAC	AIAC Balance 12/31/2013	AIAC Additions (Per Books)	AIAC Adjustments	Adjusted AIAC Additions	AIAC Refunds	AIAC Converted to CIAC	AIAC Balance 12/31/2014
1	Advances-In-Aid-of-Construction (AIAC)	$ 30,374,274	$ -	$ (566,007)	$ (566,007)	$ (540,591)	$ (790,480)	$ 28,477,196	$ 163,238	$ -	$ 163,238	$ (460,544)	$ (1,534,534)	$ 26,645,356
2	RUCO AIAC Balance as Calculated	$ 30,374,274	$ -	$ (566,007)	$ (566,007)	$ (540,591)	$ (790,480)	$ 28,477,196	$ 163,238	$ -	$ 163,238	$ (460,544)	$ (1,534,534)	$ 26,645,356
3	Per Company As Filed	30,374,274	-	(566,007)	(566,007)	(540,591)	(790,480)	28,477,196	163,238	-	163,238	(460,544)	(1,534,534)	26,645,356
4	RUCO Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

References:
Per Company Schedule B-2 on Page 6.1

RATE BASE ADJUSTMENT NO. 3
ADVANCES-IN-AID-OF-CONSTRUCTION ("AIAC")

		2015						2016					
Line No.	Description	AIAC Additions (Per Books)	AIAC Adjustments	Adjusted AIAC Additions	AIAC Refunds	AIAC Converted to CIAC	AIAC Balance 12/31/2015	AIAC Additions (Per Books)	AIAC Adjustments	Adjusted AIAC Additions	AIAC Refunds	AIAC Converted to CIAC	AIAC Balance 12/30/2016
1	Advances-In-Aid-of-Construction (AIAC)	$ -	$ -	$ -	$ (425,925)	$ (2,404,445)	$ 23,814,985	$ 263,799	$ -	$ 263,799	$ (350,196)	$ (7,422,485)	$ 16,306,103
2	RUCO AIAC Balance as Calculated	$ -	$ -	$ -	$ (425,925)	$ (2,404,445)	$ 23,814,985	$ 263,799	$ -	$ 263,799	$ (350,196)	$ (7,422,485)	$ 16,306,103
3	Per Company As Filed	-	-	-	(425,925)	(2,404,445)	23,814,985	263,799	-	263,799	(350,196)	(7,422,485)	16,306,103
4	RUCO Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

References:
Per Company Schedule B-2 on Page 6.1

RATE BASE ADJUSTMENT NO. 4
CONTRIBUTIONS-IN-AID-OF-CONSTRUCTION ("CIAC") ADJUSTMENT

Line No.	Description	Gross CIAC	CIAC Accumulated Amortization	Net CIAC Balance
1	RUCO Recommended CIAC & Accumulated Amortization Balances[1]	$ (19,466,317)	$ 2,290,992	$ (17,175,324)
2	Company CIAC & Accumulated Amortization Balances as Filed	(19,466,317)	2,290,993	(17,175,324)
3	RUCO Recommended Adjustment	$ -	$ (1)	$ (1)

References:
1 See RUCO Schedule TJC-7 on Page 3 of 3 at Line 9;
Per Company Schedule B-2 on Page 5, 5.1 thru 5.3 CIAC Amort.

RATE BASE ADJUSTMENT NO. 4
CONTRIBUTIONS-IN-AID-OF-CONSTRUCTION ("CIAC")

LINE NO.	NARUC ACCT NO.	DESCRIPTION	Amortization Rate Thru 12/31/2016	Amortization Rate After 12/31/2016	CIAC Per Decision No. 74437 12/31/2012	Accum. Amort. Per Decision No. 74437 12/31/2012	Net CIAC Per Decision No. 74437 12/31/2012	2013 CIAC Additions (Per Books)	2013 CIAC Adjustments	2013 Adjusted CIAC Additions	2013 CIAC Retirements	2013 Salvage A/A Only	2013 Amortization (Calculated)	2013 Gross CIAC Balance	2013 Accum. Amortization	2013 Net CIAC
1	307	Wells & Springs Contributed	3.33%	3.33%	$ 499,000	$ (58,158)	$ 440,842	$ -	$ -	$ -	$ -	$ -	$ 16,617	$ 499,000	$ (74,775)	$ 424,225
2	311	Pumping Equipment Contributed	12.50%	12.50%	40,572	(31,663)	8,909	-	-	-	-	-	5,071	40,572	(36,734)	3,837
3	331	Transmission Dist. Main Contributed	2.00%	2.00%	5,893,218	(1,014,837)	4,878,381	790,480	-	790,480	-	-	125,769	6,683,698	(1,140,606)	5,543,092
4	333	Services Contributed	3.33%	3.33%	772,209	(113,292)	658,917	-	(129,600)	(129,600)	-	-	23,557	642,609	(136,849)	505,760
5	334	Meters Contributed	8.33%	8.33%	29,899	(29,899)	-	-	-	-	-	-	-	29,899	(29,899)	-
6	335	Hydrants Contributed	2.00%	2.00%	98,419	(38,006)	60,414	-	-	-	-	-	1,968	98,419	(39,974)	58,445
7	339	Other Plant Contributed	6.67%	6.67%	-	-	-	13,750	-	13,750	-	-	459	13,750	(459)	13,291
8	301	Land Contributed	0.00%	0.00%	92,495	-	92,495	-	-	-	-	-	-	92,495	-	92,495
9		**RUCO CIAC & Accumulated Amortization (AA)**			**$ 7,425,812**	**$ (1,285,854)**	**$ 6,139,957**	**$ 804,230**	**$ (129,600)**	**$ 674,630**	**$ -**	**$ -**	**$ 173,441**	**$ 8,100,442**	**$ (1,459,295)**	**$ 6,641,147**
10		Per Company As Filed			7,425,812	(1,285,854)	6,139,957	804,230	(129,600)	674,630	-	-	173,441	8,100,442	(1,459,295)	6,641,147
11		RUCO Adjustments			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

References:
1 Per Company Schedule B-2 on Page 5.1 thru 5.3

RATE BASE ADJUSTMENT NO. 4
CONTRIBUTIONS-IN-AID-OF-CONSTRUCTION ("CIAC")

2014

LINE NO.	NARUC ACCT NO.	DESCRIPTION	CIAC Additions (Per Books)	CIAC Adjustments	Adjusted CIAC Additions	CIAC Retirements	Salvage A/A Only	Amortization (Calculated)	Gross CIAC Balance	Accum. Amortization	Net CIAC
1	307	Wells & Springs Contributed	$ -	$ -	$ -	$ -	$ -	$ 16,617	$ 499,000	$ (91,392)	$ 407,608
2	311	Pumping Equipment Contributed	-	-	-	-	-	3,837	40,572	(40,572)	-
3	331	Transmission Dist. Main Contributed	1,501,948	-	1,501,948	-	-	148,693	8,185,646	(1,289,299)	6,896,347
4	333	Services Contributed	16,093	-	16,093	-	-	21,667	658,702	(158,515)	500,186
5	334	Meters Contributed	-	-	-	-	-	-	29,899	(29,899)	-
6	335	Hydrants Contributed	20,904	-	20,904	-	-	2,177	119,323	(42,151)	77,172
7	339	Other Plant Contributed	-	-	-	-	-	917	13,750	(1,376)	12,374
8	301	Land Contributed	-	-	-	-	-	-	92,495	-	92,495
9		**RUCO CIAC & Accumulated Amortization (AA)**	**$ 1,538,945**	**$ -**	**$ 1,538,945**	**$ -**	**$ -**	**$ 193,909**	**$ 9,639,387**	**$ (1,653,204)**	**$ 7,986,182**
10		Per Company As Filed	1,538,945	-	1,538,945	-	-	193,910	9,639,387	(1,653,205)	7,986,182
11		RUCO Adjustments	$ -	$ -	$ -	$ -	$ -	$ (1)	$ -	$ 1	$ 1

2015

LINE NO.	NARUC ACCT NO.	DESCRIPTION	CIAC Additions (Per Books)	CIAC Adjustments	Adjusted CIAC Additions	CIAC Retirements	Salvage A/A Only	Amortization (Calculated)	Gross CIAC Balance	Accum. Amortization	Net CIAC
1	307	Wells & Springs Contributed	$ -	$ -	$ -	$ -	$ -	$ 16,617	$ 499,000	$ (108,009)	$ 390,991
2	311	Pumping Equipment Contributed	-	-	-	-	-	-	40,572	(40,572)	-
3	331	Transmission Dist. Main Contributed	1,973,232	-	1,973,232	-	-	183,445	10,158,878	(1,472,745)	8,686,134
4	333	Services Contributed	237,262	-	237,262	-	-	25,885	895,963	(184,401)	711,563
5	334	Meters Contributed	-	-	-	-	-	-	29,899	(29,899)	-
6	335	Hydrants Contributed	193,952	-	193,952	-	-	4,326	313,275	(46,477)	266,797
7	339	Other Plant Contributed	-	-	-	-	-	917	13,750	(2,293)	11,457
8	301	Land Contributed	-	-	-	-	-	-	92,495	-	92,495
9		**RUCO CIAC & Accumulated Amortization (AA)**	**$ 2,404,445**	**$ -**	**$ 2,404,445**	**$ -**	**$ -**	**$ 231,190**	**$ 12,043,832**	**$ (1,884,394)**	**$ 10,159,438**
10		Per Company As Filed	2,404,445	-	2,404,445	-	-	231,190	12,043,832	(1,884,395)	10,159,437
11		RUCO Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1	$ 1

References:
1 Per Company Schedule B-2 on Page 5.1 thru 5.3

RATE BASE ADJUSTMENT NO. 4
CONTRIBUTIONS-IN-AID-OF-CONSTRUCTION ("CIAC")

LINE NO.	NARUC ACCT NO.	DESCRIPTION	2016 CIAC Additions (Per Books)	CIAC Adjustments	Adjusted CIAC Additions	CIAC Retirements	Salvage A/A Only	Amortization (Calculated)	Gross CIAC Balance	Accum. Amortization	Net CIAC
1	307	Wells & Springs Contributed	$ -	$ -	$ -	$ -	$ -	$ 16,617	$ 499,000	$ (124,625)	$ 374,375
			Corrections	152,708	152,708		Corrections	63,565	152,708	(63,565)	89,143
2	311	Pumping Equipment Contributed	-	-	-	-	-	-	40,572	(40,572)	-
3	331	Transmission Dist. Main Contributed	6,996,644	-	6,996,644	-	-	273,144	17,155,522	(1,745,889)	15,409,634
4	333	Services Contributed	137,159	-	137,159	-	-	32,119	1,033,123	(216,520)	816,603
			Corrections	1,800	1,800		Corrections	749	1,800	(749)	1,051
5	334	Meters Contributed	-	-	-	-	-	-	29,899	(29,899)	-
			Corrections	12,000	12,000		Corrections	12,000	12,000	(12,000)	-
6	335	Hydrants Contributed	122,174	-	122,174	-	-	7,487	435,449	(53,965)	381,484
7	339	Other Plant Contributed	-	-	-	-	-	917	13,750	(3,210)	10,540
8	301	Land Contributed	-	-	-	-	-	-	92,495	-	92,495
9		**RUCO CIAC & Accumulated Amortization (AA)**	**$ 7,255,977**	**$ 166,508**	**$ 7,422,485**	**$ -**	**$ -**	**$ 406,598**	**$ 19,466,317**	**$ (2,290,992)**	**$ 17,175,324**
10		Per Company As Filed	7,255,977	166,508	7,422,485	-	-	406,598	19,466,317	(2,290,993)	17,175,324
11		RUCO Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1	$ 1

References:
1 Per Company Schedule B-2 on Page 5.1 thru 5.3

RATE BASE ADJUSTMENT NO. X - NOT USED IN DIRECT TESTIMONY FILING
CUSTOMER METER DEPOSITS

Line No.		Description	Amount
		Water Division:	
1	**1**	Customer Meter Deposits As Filed by Company	$ -
2		RUCO Recommended 13-Month Average - Meter Deposits	-
3		RUCO's Recommended Adjustment to Company's Test Year End Meter Deposits as Proposed	$ -
		Wastewater Division:	
4	**1**	Customer Meter Deposits As Filed by Company	$ -
5		RUCO Recommended 13-Month Average - Meter Deposits	-
6		RUCO's Recommended Adjustment to Company's Test Year End Meter Deposits as Proposed	$ -

References:

RATE BASE ADJUSTMENT NO. X - NOT USED IN DIRECT TESTIMONY FILING
CUSTOMER SECURITY DEPOSITS

Line No.		Description	Amount
		Water Division:	
1	1	Customer Security Deposits As Filed by Company	$ -
2		RUCO Recommended 13-Month Average - Customer Security Deposits	-
3		RUCO's Recommended Adjustment to Company's Test Year End Customer Security Deposits as Proposed	$ -
		Wastewater Division:	
4	1	Customer Security Deposits As Filed by Company	$ -
5		RUCO Recommended 13-Month Average - Customer Security Deposits	-
6		RUCO's Recommended Adjustment to Company's Test Year End Customer Security Deposits as Proposed	$ -

References:

RATE BASE ADJUSTMENT NO. 5
ACCUMULATED DEFERRED INCOME TAXES ("ADIT") ADJUSTMENT

Deferred Income Tax as of December 31, 2016

Line No.			Water & Sewer Adjusted Book Value	Water & Sewer Tax Value	Probability of Realization of Future Tax Benefit	Deductible TD (Taxable TD) Expected to be Realized	Effective Tax Rate	Future Tax Asset Current	Future Tax Asset Non Current	Future Tax Liability Current	Future Tax Liability Non Current
1		Plant-in-Service	$ 209,562,644 [1]								
2		Accum. Deprec.	(48,980,211) [1]								
3		CIAC	(67,492,173) [3]								
4	Fed.	Fixed Assets	$ 93,090,260	$ 53,003,701 [2]	100.0%	$ (40,086,560)	32.33%		-		(12,961,588)
5	State	Fixed Assets	$ 93,090,260	$ 98,898,757 [2]	100.0%	$ 5,808,497	4.900%		284,616		-
6	Fed &State	AIAC		6,240,231 [4]	100.0%	$ 6,240,231 [4]	37.23%		$ 2,323,488		
								$ -	$ 2,608,104	$ -	$ (12,961,588)

Line No.		
7	Net Asset (Liability)	$ (10,353,484)
8	Allocation Factor - Water Division (based on rate base before ADIT)	0.4784
9	Net Asset (Liability) Water Division	$ (4,952,946)
10	Allocated Corporate ADIT[5]	$ (111,029)
11	Total Asset (Liability) Water Division	$ (5,063,974)
12	DIT Asset (Liability) per Books	$ (2,622,025)
13	Adjustment to DIT	$ 2,441,949
14	RUCO Adjusted TY ADIT Balance Recommended	$ (5,063,974)
15	Company Adjusted TY ADIT Balance as Filed	$ (5,028,125)
16	RUCO Recommended ADIT Adjustment	$ (35,849)

Footnotes - See page 7.1

[1] **Per adjusted book balances, land not included**

Line	**2 Computation of Net Tax Value December 31, 2016**	FEDERAL		STATE	
	Based on 2015 Tax Depreciation report:				
1	Unadjusted Cost at December 31, 2015 per federal and state tax depr. report	$110,332,607		$ 110,332,607	
	Reconciling Items not on tax report:				
2	Land on Tax and not on included in adjusted plant balance	(1,055,392)		(1,055,392)	
3	PTY Plant - not on tax report	27,013,782		27,013,782	
4	2016 Plant Adds - not on tax report (excluding Land)	3,941,159		3,941,159	
5	2016 Retirements	(2,426,189)		(2,426,189)	
				-	
		-		-	
				-	
6	Net Unadjusted Cost tax Basis at December 31, 2016		$ 137,805,967		$ 137,805,967
	Reductions:				
7	Basis Reduction 2015 and Prior Years per federal and state tax depr. report	$ (41,514,253)		$ (529,629)	
8	Accumulated Depreciation 2015 and prior per federal and state tax depr. report	(26,361,327)		(35,938,243)	
9	2016 Depreciation on 2015 and Prior Plant	(2,425,285)		(4,246,428)	
10	2014 Solar Federal Tax Credits	(512,359)		-	
11	Depreciation Estimate on PTY Plant	(810,413)		(540,276)	
12	Basis Reduction on PTY Plant	(13,506,891)		-	
13	2016 Depreciation Estimate on 2016 Plant	(127,347)		(78,823)	
14	Basis Reduction on 2016 Plant Adds	(1,970,579)		-	
15	2016 Retirements	2,426,189		2,426,189	
16	Net Reductions through December 31, 2016		(84,802,266)		(38,907,210)
17	Net tax value of plant-in-service at December 31, 2016		$ 53,003,701		$ 98,898,757

Line				
	[3] **CIAC (including impact of change to probability of realization):**			
18	Gross CIAC per adjusted book balances (excluding land)		$ 64,363,623	
	CIAC reductions/addtions:			
19	A/A per adjusted book balances	$ (10,424,407)		
		-		
			(10,424,407)	
20	Net CIAC before unrealized AIAC			$ 53,939,217
	Unrealized AIAC Component:			
21	AIAC per adjusted book balances		$ 19,361,366	
22	Adjusted Net AIAC (see footnote 5 below)		70.0%	
23	Unrealized AIAC Component % (1-Realized AIAC Component)			$ 13,552,956
24	Total realizable CIAC			$ 67,492,173
	[4] **AIAC (including impact of change in probability of realization):**			
25	AIAC per adjusted book balances			$ 19,361,366
26	Less: Unrealized AIAC (from Note 3, above)			$ (13,552,956)
27	Subtotal			$ 5,808,410
28	Meter and Service Line Installation Charges per adjusted book balances			431,822
29	Total realizable AIAC			$ 6,240,231

[5] **See work papers**

RATE BASE ADJUSTMENT NO. 6
ALLOWANCE FOR WORKING CAPITAL

Line No.	Description	Per Company As Filed	RUCO Recommended Adjustments	RUCO Recommended Amount
1	Prepayments	$ 95,059	$ -	$ 95,059
2	Materials and Supplies	-	-	-
3	Allowance for Cash Working Capital	136,462	(160,852)	(24,391)
4	Totals	$ 231,521	$ (160,852)	$ 70,669
5	RUCO Recommended Adjustment		$ (160,852)	

References:
Company Schedule B-1;
RUCO Schedule TJC-10 Page 2.

RATE BASE ADJUSTMENT NO. 6
LEAD / LAG STUDY FOR CASH WORKING CAPITAL ADJUSTMENT

Line No.	Description	[A] Company Adjusted Test Year As Filed	[B] RUCO Expense Adjustments	[C] RUCO Recommended Expense	[D] Revenue Lag Days	[E] Expense (Lead)/Lag Days	[F] Net (Lead)/Lag Days Col. [D] - Col. [E]	[G] (Lead)/Lag Factor Col. [F] / 365	[H] Cash Working Capital Requirement Col. [C] x Col. [G]
1	Salaries and Wages	$ -	$ -	$ -	43.55	-	43.55	0.11931	$ -
2	Purchased Water	13,324	-	13,324	43.55	28.12	15.43	0.04227	563
3	Purchased Power	1,095,790	-	1,095,790	43.55	29.99	13.56	0.03715	40,707
4	Chemicals	443,559	(245,000)	198,559	43.55	(29.32)	72.87	0.19964	39,641
5	Fuel for Power Production	118	-	118	43.55	32.29	11.26	0.03085	4
6	Repairs and Maintenance	62,448	-	62,448	43.55	(36.24)	79.79	0.21860	13,651
7	Office Supplies and Expense	26,622	-	26,622	43.55	35.72	7.83	0.02145	571
8	Contractual Services - Professional	1,996,169	(174,867)	1,821,302	43.55	19.97	23.58	0.06460	117,657
9	Contractual Services - Testing	85,445	-	85,445	43.55	28.36	15.19	0.04161	3,556
10	Contractual Services - Other	1,417,759	(23,814)	1,393,945	43.55	21.78	21.77	0.05964	83,137
11	Rents	2,270	-	2,270	43.55	(31.91)	75.46	0.20674	469
12	Transportation	69,155	-	69,155	43.55	(61.64)	105.19	0.28819	19,930
13	Insurance - General Liability	52,296	-	52,296	43.55	(182.50)	226.05	0.61931	32,388
14	Miscellaneous**1**	370,461	(2,561)	367,901	43.55	22.45	21.10	0.05781	21,267
15	Property Taxes**1**	711,597	(40,006)	671,591	43.55	213.96	(170.41)	(0.46687)	(313,549)
16	Income Taxes**1**	1,859,931	(687,440)	1,172,491	43.55	37.00	6.55	0.01794	21,038
17	**Total Operating Expenses**	$ 8,206,945	$ (1,173,687)	$ 7,033,258					
18	Interest Expense on Proposed Long-Term Debt**2**	$ -	$ 823,917	$ 823,917	43.55	90.25	(46.70)	(0.12795)	(105,418)
19	Revenue Taxes and Assessments	-	-	-	43.55	-	43.55	0.11931	-
20	Regulatory Commission Expense	-	-	-	43.55	-	-	-	-
21	Total Cash Working Capital Expenses	$ 8,206,945	$ (349,769)	$ 7,857,176					
22	Total RUCO Recommended Cash Working Capital								$ (24,391)
23	Total Company Proposed Cash Working Capital as Filed								136,462
24	RUCO Cash Working Capital Adjustment								$ (160,852)

1 At Proposed Rates
2 Company Schedule D-2

OPERATING INCOME SUMMARY

Line No.	Description	[A] Company Adjusted Test Year As Filed	[B] RUCO Recommended Adjustments	[C] RUCO Recommended Adjusted Test Year Amounts	[D] RUCO Recommended Changes	[E] RUCO Recommended Amounts
	Revenues:					
1	Metered Water Revenues	$ 13,239,238	$ 75,131	$ 13,314,370	$ (1,006,881)	$ 12,307,489
2	Unmetered Water Revenues	-	-	-	-	-
3	Other Water Revenues	271,589	-	271,589	-	271,589
4	**Total Revenues**	$ 13,510,828	$ 75,131	$ 13,585,959	$ (1,006,881)	$ 12,579,078
	Operating Expenses:					
5	Salaries and Wages	$ -	$ -	$ -	$ -	$ -
6	Purchased Water	13,324	-	13,324	-	13,324
7	Purchased Power	1,095,790	-	1,095,790	-	1,095,790
8	Chemicals	443,559	(245,000)	198,559	-	198,559
9	Fuel for Power Production	118	-	118	-	118
10	Repairs and Maintenance	62,448	-	62,448	-	62,448
11	Office Supplies and Expense	26,622	-	26,622	-	26,622
12	Contractual Services - Professional	1,996,169	(174,867)	1,821,302	-	1,821,302
13	Contractual Services - Testing	85,445	-	85,445	-	85,445
14	Contractual Services - Other	1,417,759	(23,814)	1,393,945	-	1,393,945
15	Rents	2,270	-	2,270	-	2,270
16	Transportation	69,155	-	69,155	-	69,155
17	Insurance - General Liability	52,296	-	52,296	-	52,296
18	Regulatory Commission Expense	75,120	-	75,120	-	75,120
19	Miscellaneous	368,865	78	368,943	(1,042)	367,901
20	Depreciation	3,099,243	(304,382)	2,794,861	-	2,794,861
21	Deferred Asset Amortization	34,149	-	34,149	-	34,149
22	Taxes Other Than Income	-	-	-	-	-
23	Property Taxes	685,094	3,894	688,989	(17,397)	671,591
24	Income Tax	1,299,263	241,265	1,540,528	(368,036)	1,172,491
25	**Total Operating Expenses**	$ 10,826,690	$ (502,826)	$ 10,323,864	$ (386,476)	$ 9,937,388
26	**Operating Income**	**$ 2,684,138**	**$ 577,957**	**$ 3,262,095**	**$ (620,405)**	**$ 2,641,690**

References:

Column [A]: Company Schedule C-1;
Column [B]: RUCO Recommended Total Adjustments Per Schedule TJC-13 on page 1 in Column [O] at line 26;
Column [C]: Column [A] + [B] - RUCO Recommended Adjusted Test Year Amounts Per Schedule TJC-12 on page 1 in Column [P];
Column [D]: RUCO Recommended Increase/(Decrease) to Revenue Requirement;
Column [E]: Column [C] + [D] - RUCO Recommended Increase/(Decrease) Amounts for Revenue Requirement.

OPERATING INCOME ADJUSTMENTS

Line No.	Description	[A] Company Adjusted Test Year As Filed	[B] Adj. No. 1 Depreciation	[C] Adj. No. 2 Property Taxes	[D] Adj. No. 3 Water Testing	[E] Adj. No. 4 Reverse Company Declining Usage	[F] Adj. No. 5 Remove APUC Bonuses	[G] Adj. No. 6 Remove LUCC Bonuses	[H] Adj. No. 7 Remove LABS Bonuses	[I] Adj. No. 8 Normalize LU 8020 Bonuses	[J] Adj. No. 9 Bad Debt Expense Adjustment	[K] Adj. No. 10 Customer Growth Normalization	[L] Adj. No. 11 Corporate Misc. Expense	[M] Adj. No. 12 Remove Double-Count of Media	[N] Adj. No. 13 Income Taxes	[O] RUCO Total Recommended Adjustments	[P] RUCO As Recommended
	Revenues:																
1	Metered Water Revenues	$ 13,239,238	$ -	$ -	$ -	$ 75,131	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 75,131	$ 13,314,370
2	Unmetered Water Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	Other Water Revenues	271,589	-	-	-	-	-	-	-	-	-	-	-	-	-	-	271,589
4	**Total Revenues**	$ 13,510,828	$ -	$ -	$ -	$ 75,131	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 75,131	$ 13,585,959
	Operating Expenses:																
5	Salaries and Wages	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6	Purchased Water	13,324	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13,324
7	Purchased Power	1,095,790	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,095,790
8	Chemicals	443,559	-	-	-	-	-	-	-	-	-	-	-	(245,000)	-	(245,000)	198,559
9	Fuel for Power Production	118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	118
10	Repairs and Maintenance	62,448	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62,448
11	Office Supplies and Expense	26,622	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,622
12	Contractual Services - Professional	1,996,169	-	-	-	-	(60,680)	(19,728)	(46,713)	(47,746)	-	-	-	-	-	(174,867)	1,821,302
13	Contractual Services - Testing	85,445	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85,445
14	Contractual Services - Other	1,417,759	-	-	-	-	-	-	-	-	-	-	(23,814)	-	-	(23,814)	1,393,945
15	Rents	2,270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,270
16	Transportation	69,155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69,155
17	Insurance - General Liability	52,296	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52,296
18	Regulatory Commission Expense	75,120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75,120
19	Miscellaneous	368,865	-	-	-	-	-	-	-	-	78	-	-	-	-	78	368,943
20	Depreciation	3,099,243	(304,382)	-	-	-	-	-	-	-	-	-	-	-	-	(304,382)	2,794,861
21	Deferred Asset Amortization	34,149	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34,149
22	Taxes Other Than Income	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	Property Taxes	685,094	-	3,894	-	-	-	-	-	-	-	-	-	-	-	3,894	688,989
24	Income Tax	1,299,263	-	-	-	-	-	-	-	-	-	-	-	-	241,265	241,265	1,540,528
25	**Total Operating Expenses**	$ 10,826,690	$ (304,382)	$ 3,894	$ -	$ -	$ (60,680)	$ (19,728)	$ (46,713)	$ (47,746)	$ 78	$ -	$ (23,814)	$ (245,000)	$ 241,265	$ (502,826)	$ 10,323,864
26	**Operating Income**	**$ 2,684,138**	**$ 304,382**	**$ (3,894)**	**$ -**	**$ 75,131**	**$ 60,680**	**$ 19,728**	**$ 46,713**	**$ 47,746**	**$ (78)**	**$ -**	**$ 23,814**	**$ 245,000**	**$ (241,265)**	**$ 577,957**	**$ 3,262,095**

References:
Column [A]: Company Schedule C-1;
Column [B]: Depreciation Expense Schedule TJC-14;
Column [C]: Property Tax Expense Schedule TJC-15;
Column [D]: Water Testing Expense;
Column [E]: Reverse Company's Usage Normalization Adjustment;
Column [F]: APUC Cost Allocation Removals Schedule TJC-16;
Column [G]: LUCC Cost Allocation Removals Schedule TJC-17;
Column [H]: LABS Cost Allocation Removals Schedule TJC-18;
Column [I]: LU8020 Cost Allocation Normalizations Schedule TJC-19;
Column [J]: Bad Debt Expense Schedule TJC-21;
Column [K]: Customer Growth Normalization Schedule TJC-22 Not Used;
Column [L]: Corporate Miscellaneous Expense Schedule TJC-23;
Column [M]: Chemical Expense Media Double Count Schedule TJC-24;
Column [N]: Income Tax Expense Schedule TJC-25
Column [O]: Sum of Columns [B] thru [N];
Column [P]: Column [A] + [B].

OPERATING INCOME ADJUSTMENT NO. 1
DEPRECIATION EXPENSE

Line No.	NARUC Account	Description	[A] Company As Filed	[B] RUCO UPIS Adjustments	[C] RUCO Adjusted UPIS Balances	[D] RUCO Non-Depre. Fully Depre.	[E] RUCO Depreciable UPIS Recommended	[F] Authorized Depreciation Rate	[G] RUCO Depreciation Expense Recommended
		Direct UPIS:							
1	301	Organization Cost	$ 21,100	$ -	$ 21,100	$ (21,100) *	$ -	0.00%	$ -
2	302	Franchise Cost	-	-	-	-	-	0.00%	-
3	303	Land and Land Rights	1,514,452	23,043	1,537,495	(1,514,452) *	23,043	0.00%	-
4	304	Structures & Improvements	28,063,635	(325,892)	27,737,743	-	27,737,743	3.33%	923,667
5	305	Collecting & Impounding Reservoirs	-	-	-	-	-	2.50%	-
6	306	Lake, River, Canal Intakes	-	-	-	-	-	2.50%	-
7	307	Wells & Springs	3,438,909	(61,229)	3,377,680	-	3,377,680	3.33%	112,477
8	308	Infiltration Galleries and Tunnels	-	-	-	-	-	6.67%	-
9	309	Supply Mains	1,050,583	(1,050,583)	-	-	-	2.00%	-
10	310	Power Generation Equipment	617,349	(235,707)	381,642	-	381,642	5.00%	19,082
11	311	Electric Pumping Equipment	1,685,731	(425,322)	1,260,410	(746,367) *	514,043	12.50%	64,255
12	320	Water Treatment Equipment	-	-	-	-	-	3.33%	-
13	320.1	Water Treatment Plants	5,462,634	(897,591)	4,565,043	-	4,565,043	3.33%	152,016
14	320.2	Chemical Solution Feeders	154,285	(97,960)	56,325	-	56,325	20.00%	11,265
15	330	Distribution Reservoirs & Standpipes	492,176	-	492,176	-	492,176	2.22%	10,926
16	330.1	Storage Tanks	1,684,463	(646,193)	1,038,270	-	1,038,270	2.22%	23,050
17	330.2	Pressure Tanks	-	-	-	-	-	5.00%	-
18	331	Transmission & Distribution Mains	42,132,946	(69,610)	42,063,336	-	42,063,336	2.00%	841,267
19	333	Services	6,199,914	(107,463)	6,092,452	-	6,092,452	3.33%	202,879
20	334	Meters	7,848,588	(1,512,415)	6,336,173	(3,430,980) *	2,905,193	8.33%	242,003
21	335	Hydrants	3,548,220	(14,199)	3,534,021	-	3,534,021	2.00%	70,680
22	336	Backflow Prevention Devices	38,387	-	38,387	-	38,387	6.67%	2,560
23	339	Other Plant & Misc Equipment	315,978	-	315,978	-	315,978	6.67%	21,076
24	340	Office Furniture & Equipment	698,255	(1,628)	696,626	-	696,626	6.67%	46,465
25	340.1	Computers & Software	83,819	0	83,819	(565) *	83,254	20.00%	16,651
26	341	Transportation Equipment	813,834	-	813,834	(60,463) *	753,372	20.00%	150,674
27	342	Stores Equipment	37,143	-	37,143	-	37,143	4.00%	1,486
28	343	Tools, Shop & Garage Equipment	165,253	2,297	167,549	-	167,549	5.00%	8,377
29	344	Laboratory Equipment	5,803	-	5,803	-	5,803	10.00%	580
30	345	Power Operated Equipment	18,956	-	18,956	-	18,956	5.00%	948
31	346	Communication Equipment	245,970	(35,959)	210,011	(102,504) *	107,507	10.00%	10,751
32	347	Miscellaneous Equipment	728,632	-	728,632	-	728,632	10.00%	72,863
33	348	Other Tangible Plant	130,467	0	130,467	-	130,467	10.00%	13,047
34		**Total Direct UPIS**	$ 107,197,484	$ (5,456,411)	$ 101,741,073	$ (5,876,430)	$ 95,864,643		$ 3,019,045
		Allocated Corporate UPIS:							
35	903	Land and Land Rights	$ 36,676	$ -	$ 36,676	$ (36,676) *	$ -	0.00%	$ -
36	904	Structures and Improvments	489,213	-	489,213	-	489,213	2.00%	9,784
37	940	Office Furniture and Fixtures	62,500	-	62,500	-	62,500	6.67%	4,169
38	940.1	Computers and Software	851,809	-	851,809	-	851,809	20.00%	170,362
39	947	Miscellaneous Equipment	4,031	-	4,031	-	4,031	10.00%	403
40		**Total Allocated Corporate UPIS**	$ 1,444,228	$ -	$ 1,444,228	$ (36,676)	$ 1,407,553		$ 184,718
41		**Total Direct and Allocated Corporate Plant**	$ 108,641,713	$ (5,456,411)	$ 103,185,301	$ (5,913,106)	$ 97,272,196		$ 3,203,762
		Less: Contributions-in-Aid-of-Construction (CIAC) & Amortizations:	Gross CIAC	RUCO Adjustments	RUCO CIAC Balance	Non-Amortizable Fully Amortized	Amortizable CIAC CIAC		
42	301	Land Contributed	$ 92,495	$ -	$ 92,495	$ (92,495) *	$ -	0.00%	$ -
43	307	Wells & Springs Contributed	651,708	-	651,708	-	651,708	3.33%	(21,702)
44	311	Pumping Equipment Contributed	40,572	-	40,572	(40,572) *	-	12.50%	-
45	331	Transmission Dist. Main Contributed	17,155,522	-	17,155,522	-	17,155,522	2.00%	(343,110)
46	333	Services Contributed	1,034,923	-	1,034,923	-	1,034,923	3.33%	(34,463)
47	334	Meters Contributed	41,899	-	41,899	(41,899) *	-	8.33%	-
48	335	Hydrants Contributed	435,449	-	435,449	-	435,449	2.00%	(8,709)
49	339	Other Plant Contributed	13,750	-	13,750	-	13,750	6.67%	(917)
50		Total CIAC	$ 19,466,317	$ -	$ 19,466,317	$ (174,966)	$ 19,291,351		$ (408,901)
51		RUCO Total Depreciation Expense							$ 2,794,861
52		Company Adjusted Depreciation Expense As Filed							3,099,243
53		RUCO Increase/(Decrease) Expense Adjustment							$ (304,382)

References:
Company B-2 and C-1 Schedules, and RUCO Schedule TJC-4, page 1
* = Non or Fully Depreciated Plant & CIAC Balances

OPERATING INCOME ADJUSTMENT NO. 2
PROPERTY TAXES

Line No.	Property Tax Calculation		[A] RUCO AS ADJUSTED		[B] RUCO RECOMMENDED
1	RUCO Adjusted Test Year Gross Revenues	$	13,585,959	$	13,585,959
2	Multiplied by 2		2		2
3	Subtotal (Line 1 * Line 2)	$	27,171,918	$	27,171,918
4a	RUCO Adjusted Test Year Gross Revenues		13,585,959		
4b	RUCO Recommended Revenue				12,579,078
5	Subtotal (Line 3 + Line 4a)	$	40,757,876	$	39,750,995
6	Number of Years		3		3
7	Three Year Average (Line 5 / Line 6)	$	13,585,959	$	13,250,332
8	Department of Revenue Mutilplier		2		2
9	Revenue Base Value (Line 7 * Line 8)	$	27,171,918	$	26,500,664
10	Plus: 10% of CWIP Per Company Schedule E-1 As Filed (Intentionally Excluded)		-		-
11	Less: Net Book Value of Licensed Vehicles		587,856		587,856
12	Full Cash Value (Line 9 + Line 10 - Line 11)	$	26,584,061	$	25,912,807
13	Assessment Ratio		18.0%		18.0%
14	Assessed Value (Line 12 * Line 13)	$	4,785,131	$	4,664,305
15	Composite Property Tax Rate (Per RUCO Effective Property Tax Calculation)		14.3985%		14.3985%
16	RUCO Adjusted Test Year Property Tax Expense (Line 14 * Line 15)	$	688,989		
17	Company Adjusted Test Year Property Tax Expense (Per Company Schedule C-1)		685,094		
18	RUCO Test Year Adjustment (Line 16-Line 17)	$	3,894		
19	Property Tax - RUCO Recommended Revenue (Line 14 * Line 15)			$	671,591
20	RUCO Test Year Adjusted Property Tax Expense (Line 16)				688,989
21	Increase/(Decrease) to Property Tax Expense			$	(17,397)
22	Increase/(Decrease) to Property Tax Expense			$	(17,397)
23	Increase in Revenue Requirement				(1,006,881)
24	Increase /(Decrease) to Property Tax per Dollar Increase in Revenue (Line 22 / Line 23)				1.7278%

References:
RUCO Schedule TJC-12;
RUCO Schedule TJC-4(a) Pages 1-5.

OPERATING INCOME ADJUSTMENT NO. 5
REMOVE APUC BONUSES

Line No.	Description		Amount
1	Total APUC Bonus Charged to LU 8020	$	265,208
2	Remove APUC Bonuses Charged to LU 8020		100.00%
3	RUCO LU 8020 Adjustment	$	(265,208)
4	**LPSCO Water Division Allocator**		**22.88%**
5	LPSCO Sewer Division Allocator		25.14%
6	LPSCO Water Division Adjustment (Line 3 x Line 4)	$	(60,680)

References:
RUCO Bonus Adjustments Workpaper;
RUCO Supporting Doc WP for Bonus Adjustments TBH 2.8 APUC Admin Costs 2016.

OPERATING INCOME ADJUSTMENT NO. 6
REMOVE LUCC BONUSES

Line No.	Description		Amount
1	Total LUCC Bonus Charged to LU 8020	$	86,225
2	Remove LUCC Bonuses Charged to LU 8020		100.00%
3	RUCO LU 8020 Adjustment	$	(86,225)
4	**LPSCO Water Division Allocator**		**22.88%**
5	LPSCO Sewer Division Allocator		25.14%
6	LPSCO Water Division Adjustment (Line 3 x Line 4)	$	(19,728)

References:
RUCO Bonus Adjustments Workpaper;
RUCO Supporting Doc WP for Bonus Adjustments TBH 2.8 LUCC Admin Costs 2016.

OPERATING INCOME ADJUSTMENT NO. 7
REMOVE LABS BONUSES

Line No.	Description	Amount
1	Total LUCC Bonus Charged to LU 8020	$ 204,164
2	Remove LABS Bonuses Charged to LU 8020	100.00%
3	RUCO LU 8020 Adjustment	$ (204,164)
4	**LPSCO Water Division Allocator**	**22.88%**
5	LPSCO Sewer Division Allocator	25.14%
6	LPSCO Water Division Adjustment (Line 3 x Line 4)	$ (46,713)

References:
RUCO Bonus Adjustments Workpaper;
RUCO Supporting Doc WP for Bonus Adjustments TBH 2.8 LABS Admin Costs 2016.

OPERATING INCOME ADJUSTMENT NO. 8
NORMALIZE LU 8020 BONUSES

Line No.	Description		Amount
1	Total LU8020 Bonuses	$	479,379
2	RUCO Normalized to October-December Levels of 2016 Bonuses		270,696
3	RUCO LU 8020 Adjustment	$	(208,682)
4	**LPSCO Water Division Allocator**		**22.88%**
5	LPSCO Sewer Division Allocator		25.14%
6	LPSCO Water Division Adjustment (Line 3 x Line 4)	$	$\boxed{(47,746)}$

References:
RUCO Bonus Adjustments Workpaper;
RUCO Supporting Doc WP for Bonus Adjustments TBH 2.22(e) Admin Costs 2016.

OPERATING INCOME ADJUSTMENT NO. 9
ADJUSTED TEST YEAR AND RECOMMENDED BAD DEBT EXPENSE

Line No.	Description		Amount
1	2014 Bad Debt Expense	$	18,534
2	2015 Bad Debt Expense		34,432
3	2016 Bad Debt Expense		(10,770)
4	Total 3-Years Bad Debt Expense (Sum of Lines 1-3)	$	42,196
5	3-Year Average Bad Debt Expense (Line 4 / 3-Years)	$	14,065
6	Test Year Bad Debt Expense (Line 3)		(10,770)
7	Company Adjustment to Miscellaneous Expense for Bad Debt Expense (Line 5 Minus 6)	**$**	**24,836**
8	Company Test Year Adjusted Revenues Per Company Schedule C-1	$	13,510,828
9	RUCO Test Year Adjusted Revenues Per RUCO Schedule TJC-12		13,585,959
10	RUCO Difference In Adjusted Test Year Revenues (Line 9 Minus 8)	$	75,131
11	RUCO Adjustment to Bad Debt Expense for RUCO Adjusted Test Year Revenues (L10 x L12)	$	78
12	RUCO Bad Debt percent of Revenues (L5 / L9)		0.1035%
13	RUCO Recommended Revenues Per RUCO Schedule TJC-12	$	12,579,078
14	RUCO Bad Debt at Proposed Revenues (L12 * L13)	$	13,023
15	RUCO Change in Bad Debt Expense Adjustment (L14 - L5)	$	(1,042)

References:
Company Schedule C-1;
RUCO Income Statement Schedule TJC-12.

OPERATING INCOME ADJUSTMENT NO. 10
HISTORICAL CUSTOMER GROWTH ADJUSTMENT - NOT USED IN DIRECT FILING

Line
No.

OPERATING INCOME ADJUSTMENT NO. 11
DISALLOWED EXPENSES PER COMPANY RESPONSE TO STAFF DR #2.23

Line No.	Description	Amount
1	Membership & Industry Associations Fees	$ (1,359)
2	Charitable Contributions	(92)
3	Lobbying Expenses	(12,584)
4	Meals for Luncheons and Dinners	(9,408)
5	* Christmas Party	(360)
6	Massage Therapy Treatments	(11)
7	RUCO Total Adjustment	$ (23,814)

References:
Line 1 @ 50% Sharing Between Ratepayers & Shareholders
Line 2 @ 100% Disallowance
Line 3 @ 100% Disallowance
Line 4 @ 50% Sharing Between Ratepayers & Shareholders
* Line 5 @ 100% Disallowance not included in Company's response to Staff DR TBH 2.23 - Single Invoice shown to Becker

OPERATING INCOME ADJUSTMENT NO. 12
REMOVE DOUBLE-COUNT OF PFOA MEDIA EXPENSE

Line No.	Description		Amount
1	Per Company Schedule C-2 on Page 8 - PFOA Expected Annual PFOA Exp	$	245,000
2	To Remove Double-Count of PFOA Media Expenses Capitalized to UPIS		(245,000)
3	RUCO Recommended Amount	$	-
4	RUCO Recommended Adjustment	$	(245,000)

References:
Company Supplemental Response to Staff DR TBH 3.2

OPERATING INCOME ADJUSTMENT NO. 13
INCOME TAX EXPENSE

Line No.	Description	[A] Adjusted Test Year	[B] Proposed and Recommended
1	Company Income Tax Expense	$ 1,299,263	$ 1,859,931
2	RUCO Recommended Income Tax Expense	1,540,528	1,172,491
3	RUCO Recommended Adjustments	$ 241,265	$ (687,440)

References:
Line 1: Company Schedule C-1;
Line 2: RUCO Schedule TJC-12.

GROSS REVENUE CONVERSION FACTOR ("GRCF")

Line No.	Description		Amount
1	Combined Federal & State Effective Income Tax Rate		37.2340%
2	Property Tax Effective Rate		1.0845%
3	Uncollectible Revenue Effective Rate		0.0650%
4	Total Cobined Federal, State, Property, and Uncollectible Effective Rates (Sum of L1 + L2 + L3)		38.3835%
5	Operating Income % = 100% Minus Combined Federal, State, Property, Uncollectible Effective Rates (100% Minus Line 4)		61.6165%
6	1 / Operating Income % on Line 5	=	1.6229

References:
RUCO Schedule TJC-1, Page 1 of 2 and Page 2 of 2;
RUCO Schedule TJC-12.

COST OF CAPITAL

Line No.	Description	[A] DOLLAR AMOUNT	[B] CAPITAL RATIO	[C] COST RATE	[D] WEIGHTED COST RATE
1	Long-Term Debt	$ 36,175,010	46.00%	3.78%	1.74%
2	Short-Term Debt	-	0.00%	0.00%	0.00%
3	Common Equity	42,466,317	54.00%	9.57%	5.17%
4	Total Capitalization	$ 78,641,327	100.00%		6.91%
5	WEIGHTED AVERAGE COST OF CAPITAL ("WACC")				6.91%

References:
Columns [A] Thru [D]: JAC Schedules & Testimony

SEWER SCHEDULES

TABLE OF CONTENTS TO TJC SCHEDULES

REVENUE REQUIREMENT

Line No.	Description	(A) Company OCRB/FVRB Cost	(B) RUCO OCRB/FVRB Cost
1	Fair Value Rate Base	$ 44,854,137	$ 41,684,214
2	Adjusted Operating Income (Loss)	$ 1,729,629	$ 2,822,404
3	Current Rate Of Return (L2 / L1)	3.86%	6.77%
4	Required Operating Income (L5 X L1)	$ 3,888,854	$ 2,880,379
5	Required Rate Of Return On Fair Value Rate Base	8.67%	6.91%
6	Operating Income Deficiency (L4 - L2)	$ 2,159,225	$ 57,975
7	Gross Revenue Conversion Factor (RLM-1, Pg 2)	1.6195	1.6195
8	Increase In Gross Revenue Requirement (L7 X L6)	$ 3,496,801	$ 93,889
9	Adjusted Test Year Revenue	$ 11,633,954	$ 11,633,954
10	Proposed Annual Revenue (L8 + L9)	$ 15,130,755	$ 11,727,843
11	Required Percentage Increase In Revenue (L8 / L9)	30.06%	0.81%
12	Rate Of Return On Common Equity	10.70%	9.57%

References:

Column (A): Company Schedules A-1 and C-1
Column (B): RUCO Schedule TJC-2, TJC-12 and TJC-22

RUCO INCOME TAXES & GROSS REVENUE CONVERSION FACTOR ("GRCF")

LINE NO.	DESCRIPTION	[A]	[B]	[C]
	Calculation of Gross Revenue Conversion Factor:			
1	Revenue	100.0000%		
2	Uncollecible Factor	0.0505%		
3	Revenues (L1 - L2)	99.9495%		
4	Combined Federal and State Income Tax and Property Tax Rate (Line 23)	38.2009%		
5	Subtotal (L3 - L4)	61.7486%		
6	**Revenue Conversion Factor (L1 / L5)**	1.619470		
	Calculation of Uncollecttible Factor:			
7	Unity	100.0000%		
8	Combined Federal and State Tax Rate (Line 17)	37.2340%		
9	One Minus Combined Income Tax Rate (L7 - L8)	62.7660%		
10	Uncollectible Rate	0.0804%		
11	Uncollectible Factor (L9 * L10)		0.0505%	
	Calculation of Effective Tax Rate:			
12	Operating Income Before Taxes (Arizona Taxable Income)	100.0000%		
13	Arizona State Income Tax Rate	4.9000%		
14	Federal Taxable Income (L12 - L13)	95.1000%		
15	Applicable Federal Income Tax Rate (Col. [C], L56)	34.0000%		
16	Effective Federal Income Tax Rate (L14 x L15)	32.3340%		
17	Combined Federal and State Effective Income Tax Rate (L13 + L16)		37.2340%	
	Calculation of Effective Property Tax Factor			
18	Unity	100.0000%		
19	Combined Federal and State Income Tax Rate (Col. [B], L17)	37.2340%		
20	One Minus Combined Income Tax Rate (L18-L19)	62.7660%		
21	Property Tax Factor (RUCO Property Tax Schedule, Col. [B], L24)	1.5405%		
22	Effective Property Tax Factor (L20 x L21)		0.9669%	
23	Combined Federal and State Income Tax and Property Tax Rate (Col. [B], L17 + L22)			38.2009%
24	Required Operating Income (Sch. TJC-1, Col. [B] Line 4)	$ 2,880,379		
25	Adjusted Test Year Operating Income (Loss) (Sch. TJC-1, Col. [B], L2)	2,822,404		
26	Required Increase in Operating Income (L24 - L25)		$ 57,975	
27	Income Taxes on Recommended Revenue (Col. [C], L55)	$ 1,278,431		
28	Income Taxes on Test Year Revenue (Col. [A], L55)	1,244,039		
29	Required Increase in Revenue to Provide for Income Taxes (L27 - L28)		34,392	
30	Recommended Revenue Requirement (Sch. TJC-1, Col. [B], Line 10)	$ 11,727,843		
31	Uncollectible Rate (L10)	0.0804%		
32	Uncolllectible Expense on Recommended Revenue (L30 x L31)	$ 9,427		
33	Adjusted Test Year Uncollectible Expense (RUCO Bad Debt Expense Schedule)	$ 9,351		
34	Required Increase in Revenue to Provide for Uncollectible Exp. (L32 - L33)		76	
35	Property Tax with Recommended Revenue (RUCO Property Tax Schedule)	$ 533,545		
36	Property Tax on Adjusted Test Year Revenue (RUCO Property Tax Schedule)	532,099		
37	Increase in Property Tax Due to Increase in Revenue (L35 - 36)		1,446	
38	Total Required Increase in Revenue (Col. [B], L26 + L29 + L34 + L37)		$ 93,889	

LINE NO.	*Calculation of Income Tax:*	Test Year	Revenue Increase/(Decrease)	RUCO Recommended
39	Revenue (Sch. TJC-1, Col. [B], Line 9 & Sch. TJC-1, Col. [B], L10)	$ 11,633,954	$ 93,889	$ 11,727,843
40	Operating Expenses Excluding Income Taxes	7,567,510		7,569,032
41	Synchronized Interest (Col. [C], L59)	725,305		725,305
42	Arizona Taxable Income (L39 - L40 - L41)	$ 3,341,138		$ 3,433,505
43	Arizona State Income Tax Rate	4.9000%		4.9000%
44	Arizona Income Tax (L42 x L43)	$ 163,716		$ 168,242
45	Federal Taxable Income (L42 - L44)	$ 3,177,422		$ 3,265,263
46	Federal Tax on First Income Bracket ($1 - $50,000) @ 15%	$ 7,500		$ 7,500
47	Federal Tax on Second Income Bracket ($51,001 - $75,000) @ 25%	$ 6,250		$ 6,250
48	Federal Tax on Third Income Bracket ($75,001 - $100,000) @ 34%	$ 8,500		$ 8,500
49	Federal Tax on Fourth Income Bracket ($100,001 - $335,000) @ 39%	$ 91,650		$ 91,650
50	Federal Tax on Fifth Income Bracket ($335,001 - $10,000,000) @ 34%	$ 966,424		$ 996,290
51	Federal Tax on Sixth Income Bracket ($10,000,001 - $15,000,000) @ 35%	$ -		$ -
52	Federal Tax on Seventh Income Bracket ($15,000,001 - $18,333,333) @ 38%	$ -		$ -
53	Federal Tax on Eighth Income Bracket ($18,333,334 - $100,000,000,000) @ 35%	$ -		$ -
54	Total Federal Income Tax	$ 1,080,324		$ 1,110,190
55	Combined Federal and State Income Tax (L44 + L54)	$ 1,244,039		$ 1,278,431
56	Applicable Federal Income Tax Rate (Col. [C], L54 - Col. [A], L54] / [Col. [C], L45 - Col. [A], L45)			34.00%

LINE NO.	**Synchronized Interest Calculation:**	
57	Original Cost Rate Base	$ 41,684,214
58	x Weighted Average Cost of Debt	1.7400%
59	Synchronized Interest Expense	$ 725,305

SUMMARY OF ORIGINAL COST RATE BASE WITH RUCO ADJUSTMENTS

Line No.	Description		(A) Company As Filed OCRB/FVRB		(B) RUCO Adjustments		(C) RUCO As Adjusted OCRB/FVRB
1	Gross Utility Plant In Service	$	117,248,482	$	(378,976)	$	116,869,506
2	Accumulated Depreciation		(23,887,947)		240,748		(23,647,198)
3	Net Utility Plant In Service (L1 + L2)	$	93,360,535	$	(138,228)	$	93,222,307
	Less:						
4	Advances In Aid Of Construction ("AIAC")	$	(3,055,263)	$	-	$	(3,055,263)
5	Gross Contributions In Aid Of Construction ("CIAC")		(48,406,544)		-		(48,406,544)
6	Accumulated Amortization Of CIAC		8,131,812		1,603		8,133,414
7	NET CIAC (L5 + L6)	$	(40,274,732)	$	1,603	$	(40,273,130)
8	Customer Meter Deposits	$	-	$	-	$	-
9	Customer Security Deposits		-		-		-
10	Accumulated Deferred Income Taxes ("ADIT")		(5,423,534)		(98,605)		(5,522,140)
	Plus:						
11	Unamortized Finance Charges	$	-	$	-	$	-
12	Regulatory Liability for AES/NWS Lost Revenues & Exp.		-		(4,244,427)		(4,244,427)
13	1-Year of Amortization Expense		-		1,414,809		1,414,809
14	Net Regulatory Liability	$	-	$	(2,829,618)	$	(2,829,618)
15	Prepayments	$	89,756	$	-	$	89,756
16	Materials and Supplies		-		-		-
17	Cash Working Capital		157,375		(105,075)		52,300
18	TOTAL RATE BASE (Sum L's 3, 4, 7, 8 Thru 15)	**$**	**44,854,137**	**$**	**(3,169,924)**	**$**	**41,684,214**

References:
Column [A]: Company Schedule B-1;
Column [B]: TJC-3, Column [H];
Column [C]: Column [A] + Column [B]

ORIGINAL COST RATE BASE ("OCRB") ADJUSTMENTS

Line No.	Description	[A] Company Adjusted TY OCRB/FVRB As Filed	[B] Adjust No. 1 TJC-4 p1 & p2 UPIS & A/D Adjustments	[C] Adjust No. 2 AES Regulatory Liability Adjustment	[D] Adjust No. 3 Intentionally Left Blank	[E] Adjust No. 4 CIAC Adjustment	[F] Adjust No. 5 Accum. Deferred Income Taxes Adjustment	[G] Adjust No. 6 Working Capital Adjustment	[H] RUCO Recommended Adjustments	[I] Test Year Adjusted OCRB/FVRB
1	Gross Utility Plant In Service	$ 117,248,482	$ (378,976)	$ -	$ -	$ -	$ -	$ -	$ (378,976)	$ 116,869,506
2	Accumulated Depreciation	(23,887,947)	240,748	-	-	-	-	-	240,748	(23,647,198)
3	Net Utility Plant In Service (L1 + L2)	$ 93,360,535	$ (138,228)	$ -	$ -	$ -	$ -	$ -	$ (138,228)	$ 93,222,307
	Less:									
4	Advances In Aid Of Construction ("AIAC")	$ (3,055,263)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (3,055,263)
5	Gross Contributions In Aid Of Construction ("CIAC")	(48,406,544)	-	-	-	-	-	-	-	(48,406,544)
6	Accumulated Amortization Of CIAC	8,131,812	-	-	-	1,603	-	-	1,603	8,133,414
7	NET CIAC (L5 + L6)	$ (40,274,732)	$ -	$ -	$ -	$ 1,603	$ -	$ -	$ 1,603	$ (40,273,130)
8	Customer Meter Deposits	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
9	Customer Security Deposits	-	-	-	-	-	-	-	-	-
10	Accumulated Deferred Income Taxes ("ADIT")	(5,423,534)	-	-	-	-	(98,605)	-	(98,605)	(5,522,140)
	Plus:									
11	Unamortized Finance Charges	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
12	Regulatory Liability for AES/NWS Lost Revenues & Exp.	-	-	(4,244,427)	-	-	-	-	(4,244,427)	(4,244,427)
13	1-Year of Amortization Expense	-	-	1,414,809	-	-	-	-	1,414,809	1,414,809
14	Net Regulatory Liability	$ -	$ -	$ (2,829,618)	$ -	$ -	$ -	$ -	$ (2,829,618)	$ (2,829,618)
15	Prepayments	$ 89,756	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 89,756
16	Materials and Supplies	-	-	-	-	-	-	-	-	-
17	Cash Working Capital	157,375	-	-	-	-	-	(105,075)	(105,075)	52,300
18	TOTAL RATE BASE (Sum L's 3, 4, 7, 8 Thru 15)	**$ 44,854,137**	**$ (138,228)**	**$ (2,829,618)**	**$ -**	**$ 1,603**	**$ (98,605)**	**$ (105,075)**	**$ (3,169,924)**	**$ 41,684,214**

References:

Column [A]: Company Schedule B-1;
Column [B]: RUCO Adjustment No. 1 - RUCO Summary of UPIS & A/D Adjustments on Schedules TJC-4 at p1 & p2;
Column [C]: RUCO Adjustment No. 2 - Not Used for the Water Division;
Column [D]: RUCO Adjustment No. 3 - Intentionally Left Blank for both Water and Sewer Divisions;
Column [E]: RUCO Adjustment No. 4 - Contributions-in-Aid-of-Construction ("CIAC") and Accumulated Amortization Schedules TJC-7 pages 1-4;
Column [F]: RUCO Adjustment No. 5 - Accumulated Deferred Income Taxes ("ADIT") Scdehules TJC-9 pages 1-2;
Column [G]: Allowance for Working Capital Schedules TJC-10 pages 1-2;
Column [H]: Sum of RUCO Adjustments No. 1 thru 6 in Columns [B] thru [G];
Column [I]: Column [A] + [H].

RATE BASE ADJUSTMENT NO. 1
SUMMARY OF UTILITY PLANT IN SERVICE (UPIS) ADJUSTMENTS
TEST YEAR ENDED DECEMBER 31, 2016

Line No.	Acct No		[A] Company Plant in Service As Filed	[B] RUCO Adjustment A UPIS Reconstruction	[C] RUCO Adjustment B Stranded A/D Only	[D] RUCO Adjustment C PTY Plant Adjustments	[E] RUCO Adjustment D PTY Plant Retirements	[F] RUCO Adjustment E Intentionally Left Blank	[G] RUCO Total Plant in Service Adjustments	[H] RUCO Total Plant in Service Recommended
	Direct UPIS:									
1	351	Organization Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	352	Franchise Cost	27,447	-	-	-	-	-	-	27,447
3	353	Land and Land Rights	5,923,556	-	-	-	-	-	-	5,923,556
4	354	Structures & Improvements	22,725,509	-	-	10,011,863	(35,896)	-	9,975,967	32,701,476
5	355	Power Generation	605,351	-	-	-	-	-	-	605,351
6	360	Collection Sewer Forced	1,709,659	-	-	7,500	-	-	7,500	1,717,159
7	361	Collection Sewers Gravity	33,449,079	(0)	-	(311,628)	(20,205)	-	(331,834)	33,117,245
8	362	Special Collecting Structures	-	-	-	-	-	-	-	-
9	363	Customer Services	320,829	-	-	(8,341)	-	-	(8,341)	312,488
10	364	Flow Measuring Devices	146,313	-	-	4,617	(2,996)	-	1,621	147,934
11	365	Flow Measuring Installations	-	-	-	-	-	-	-	-
12	366	Reuse Services	4,078,137	-	-	-	-	-	-	4,078,137
13	367	Reuse Meters And Installation	43,275	-	-	-	-	-	-	43,275
14	370	Receiving Wells	860,393	-	-	-	-	-	-	860,393
15	371	Pumping Equipment	2,043,115	-	-	2,080,541	(40,997)	-	2,039,544	4,082,659
16	374	Reuse Distribution Reservoirs	62,286	-	-	-	-	-	-	62,286
17	375	Reuse Trans. and Dist. System	427,459	-	-	-	-	-	-	427,459
18	380	Treatment & Disposal Equipment	31,673,440	-	-	(11,420,546)	(33,158)	-	(11,453,704)	20,219,736
19	381	Plant Sewers	7,443,034	-	-	(680,374)	(318)	-	(680,692)	6,762,343
20	382	Outfall Sewer Lines	343,681	-	-	-	-	-	-	343,681
21	389	Other Sewer Plant & Equipment	858,594	0	-	11,690	-	-	11,690	870,283
22	390	Office Furniture & Equipment	299,827	-	-	28,996	(33,502)	-	(4,506)	295,321
23	390.1	Computers and Software	74,672	-	-	2,859	-	-	2,859	77,531
24	391	Transportation Equipment	330,472	-	-	598	-	-	598	331,070
25	392	Stores Equipment	8,968	-	-	-	-	-	-	8,968
26	393	Tools, Shop And Garage Equip	471,180	(0)	-	(59,831)	(187)	-	(60,018)	411,162
27	394	Laboratory Equip	204,127	-	-	(8,880)	(5,745)	-	(14,624)	189,502
28	395	Power Operated Equip	233,416	-	-	(2,736)	-	-	(2,736)	230,680
29	396	Communication Equip	1,140,642	-	-	168,406	(30,707)	-	137,700	1,278,342
30	397	Miscellaneous Equip.	157,139	-	-	-	-	-	-	157,139
31	398	Other Tangible Plant	-	-	-	-	-	-	-	-
32		**Total Direct UPIS**	$ 115,661,598	$ (0)	$ -	$ (175,266)	$ (203,710)	$ -	$ (378,976)	$ 115,282,622
	Allocated Corporate UPIS:									
33	903	Land and Land Rights	$ 40,298	$ -	$ -	$ -	$ -	$ -	$ -	$ 40,298
34	904	Structures & Improvments	537,536	-	-	-	-	-	-	537,536
35	940	Office Furniture & Equipment	68,673	-	-	-	-	-	-	68,673
36	940.1	Computers and Software	935,947	-	-	-	-	-	-	935,947
37	947	Miscellaneous Equip.	4,429	-	-	-	-	-	-	4,429
38		**Total Allocated Corporate UPIS**	$ 1,586,884	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,586,884
39		**Total Direct & Allocated Corp. UPIS**	$ 117,248,482	$ (0)	$ -	$ (175,266)	$ (203,710)	$ -	$ (378,976)	$ 116,869,506

References:

Column [A]: Company Schedule B-2 Page 3 as Filed;
Column [B]: RUCO UPIS Adjustment A - Reconstruction of Utility Plant in Service (UPIS) Schedules TJC-4(a) Pages 1-5;
Column [C]: RUCO UPIS Adjustment B - Stranded Accumulated Depreciation ("A/D") Balances Used Only for A/D Schedules TJC-4(b) Page 2;
Column [D]: RUCO UPIS Adjustment C - 2017 Post Test Year ("PTY") Plant Disallowances Schedules TJC-4(c) Page 1;
Column [E]: RUCO UPIS Adjustment D - 2017 PTY Plant Retirements Schedules TJC-4(d) Page 1;
Column [F]: RUCO UPIS Adjustment E - Intentionally Left Blank for Future Use;
Column [G]: Sum of RUCO Adjustments A thru E in Columns [B] thru [F];
Column [H]: Column [A] + [G].

RATE BASE ADJUSTMENT NO. 1
SUMMARY OF UPIS ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENTS
TEST YEAR ENDED DECEMBER 31, 2016

Line No.	Acct No		[A] Company Plant in Service As Filed	[B] RUCO Adjustment A Accum. Depre. Reconstruction	[C] RUCO Adjustment B Stranded A/D Balances	[D] RUCO Adjustment C PTY Plant A/D Adjustments	[E] RUCO Adjustment D PTY Plant Retirements	[F] RUCO Adjustment E Intentionally Left Blank	[G] RUCO Total Plant in Service Adjustments	[H] RUCO Total Plant in Service Recommended
		Direct Accumulated Depreciation:								
1	351	Organization Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	352	Franchise Cost	-	-	-	-	-	-	-	-
3	353	Land and Land Rights	(3,409)	-	-	-	-	-	-	(3,409)
4	354	Structures & Improvements	(6,427,775)	35,065	-	(166,698)	35,896	-	(95,736)	(6,523,511)
5	355	Power Generation	(343,431)	1	-	-	-	-	1	(343,430)
6	360	Collection Sewer Forced	24,110	(0)	-	(75)	-	-	(75)	24,035
7	361	Collection Sewers Gravity	(7,689,619)	(0)	-	3,116	20,205	-	23,322	(7,666,298)
8	362	Special Collecting Structures	-	-	-	-	-	-	-	-
9	363	Customer Services	(10,771)	0	-	83	-	-	84	(10,687)
10	364	Flow Measuring Devices	(106,513)	(1)	-	(231)	2,996	-	2,764	(103,749)
11	365	Flow Measuring Installations	-	-	-	-	-	-	-	-
12	366	Reuse Services	(1,149,718)	1	-	-	-	-	1	(1,149,718)
13	367	Reuse Meters And Installation	(32,088)	0	-	-	-	-	0	(32,087)
14	370	Receiving Wells	(411,693)	(0)	-	-	-	-	(0)	(411,693)
15	371	Pumping Equipment	(1,122,632)	1,401	-	(130,034)	40,997	-	(87,636)	(1,210,268)
16	374	Reuse Distribution Reservoirs	(14,316)	(1)	-	-	-	-	(1)	(14,317)
17	375	Reuse Trans. and Dist. System	(91,029)	(1)	-	-	-	-	(1)	(91,031)
18	380	Treatment & Disposal Equipment	(4,224,839)	0	-	285,514	33,158	-	318,672	(3,906,167)
19	381	Plant Sewers	(260,526)	(1)	-	17,009	318	-	17,326	(243,201)
20	382	Outfall Sewer Lines	(164,672)	2	-	-	-	-	2	(164,670)
21	389	Other Sewer Plant & Equipment	(410,544)	(1)	-	(390)	-	-	(391)	(410,935)
22	390	Office Furniture & Equipment	(154,519)	(0)	-	(967)	33,502	-	32,535	(121,984)
23	390.1	Computers and Software	(7,948)	0	-	(286)	-	-	(286)	(8,234)
24	391	Transportation Equipment	(89,639)	743	(742)	(60)	-	-	(59)	(89,698)
25	392	Stores Equipment	(5,117)	1	-	-	-	-	1	(5,116)
26	393	Tools, Shop And Garage Equip	(60,662)	1	-	1,496	187	-	1,684	(58,978)
27	394	Laboratory Equip	(177,399)	(1)	-	444	5,745	-	6,188	(171,211)
28	395	Power Operated Equip	(7,156)	(1)	-	68	-	-	68	(7,088)
29	396	Communication Equip	(428,617)	(0)	-	(8,420)	30,707	-	22,286	(406,331)
30	397	Miscellaneous Equip.	(7,857)	0	-	-	-	-	0	(7,857)
31	398	Other Tangible Plant	-	-	-	-	-	-	-	-
32		RUCO Total Direct Accumulated Depreciation	$ (23,378,382)	$ 37,209	$ (742)	$ 571	$ 203,710	$ -	$ 240,748	$ (23,137,634)
		Allocated Corporate Accumulated Depreciation:								
33	903	Land and Land Rights	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
34	904	Structures & Improvments	(49,070)	-	-	-	-	-	-	(49,070)
35	940	Office Furniture & Equipment	(15,024)	-	-	-	-	-	-	(15,024)
36	940.1	Computers and Software	(445,360)	-	-	-	-	-	-	(445,360)
37	947	Miscellaneous Equip.	(111)	-	-	-	-	-	-	(111)
38		RUCO Total Allocated Corporate Accumulated Depre.	$ (509,565)	$ -	$ -	$ -	$ -	$ -	$ -	$ (509,565)
39		Total Direct & Allocated Corporate Accumulated Depre.	$ (23,887,947)	$ 37,209	$ (742)	$ 571	$ 203,710	$ -	$ 240,748	$ (23,647,198)

References:

Column [A]: Company Schedule B-2 Page 4 as Filed;
Column [B]: RUCO UPIS Adjustment A - Reconstruction of Utility Plant in Service (UPIS) Accumulated Depreciation ("A/D") Schedules TJC-4(a) Pages 1-5;
Column [C]: RUCO UPIS Adjustment B - Stranded Accumulated Depreciation ("A/D") Balances Used Only for A/D Schedules TJC-4(b) Page 2;
Column [D]: RUCO UPIS Adjustment C - 2017 Post Test Year ("PTY") Plant Accumulated Depreciation ("A/D") Disallowances Schedules TJC-4(c) Page 2;
Column [E]: RUCO UPIS Adjustment D - 2017 PTY Plant Retirements Accumulated Depreciation ("A/D") Schedules TJC-4(d) Page 2;
Column [F]: RUCO UPIS Adjustment E - Intentionally Left Blank for Future Use;
Column [G]: Sum of RUCO Adjustments A thru E in Columns [B] thru [F];
Column [H]: Column [A] + [G].

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT A
RECONSTRUCTION OF UPIS & A/D BALANCES

LINE NO.	NARUC ACCT NO.	Account Description	Vintage Year	Depreciation Rate Thru 12/31/2016	Plant In Service Per Decision No. 74437 12/31/2012	Accum. Deprec. Per Decision No. 74437 12/31/2012	Net Plant Per Decision No. 74437 12/31/2012	2013 Plant Additions (Per Books)	2013 RC Accrual Plant Adjustments	2013 Prior PTY Plant Adjustments	2013 Profit Removal Plant Adjustments	2013 Adjusted Plant Additions	2013 Plant Retirements	2013 Salvage A/D Only	2013 Depreciation (Calculated)	2013 Plant Balance	2013 Accum. Deprec.	2013 Net Plant
1	351	Organization Cost		0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	352	Franchise Cost		0.00%	-	-	-	27,447	-	-	-	27,447	-	-	-	27,447	-	27,447
3	353	Land and Land Rights		0.00%	1,835,956	-	1,835,956	-	-	3,409	-	3,409	-	(3,409)	-	1,839,365	(3,409)	1,835,956
4	354	Structures & Improvements		3.33%	23,768,875	(3,722,884)	20,045,991	1,077,042	(4,888,525)	-	(1,065)	(3,812,548)	(2,280)	-	727,987	19,954,047	(4,448,591)	15,505,457
5	355	Power Generation Equipment		5.00%	602,932	(222,323)	380,608	-	-	400	-	400	-	(400)	30,157	603,332	(252,880)	350,452
6	360	Collection Sewer Forced		2.00%	1,162,597	109,004	1,271,601	-	-	-	-	-	-	-	23,252	1,162,597	85,752	1,248,349
7	361	Collection Sewers Gravity		2.00%	31,928,245	(5,226,172)	26,702,072	54,830	(30,300)	-	(182)	24,347	(470)	-	638,804	31,952,122	(5,864,506)	26,087,616
8	362	Special Collecting Structures		2.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	363	Customer Services		2.00%	76,190	(2,092)	74,098	32,647	-	-	-	32,647	-	-	1,850	108,836	(3,942)	104,894
10	364	Flow Measuring Devices		10.00%	82,828	(51,269)	31,558	14,847	47,578	-	-	62,425	-	-	11,404	145,253	(62,673)	82,579
11	365	Flow Measuring Installations		10.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	366	Reuse Services		2.00%	4,057,660	(825,882)	3,231,778	10,153	-	-	-	10,153	-	-	81,255	4,067,813	(907,136)	3,160,677
13	367	Reuse Meters And Installation		8.33%	44,753	(21,945)	22,808	2,861	-	-	-	2,861	(4,339)	-	3,666	43,275	(21,273)	22,002
14	370	Receiving Wells		3.33%	860,393	(297,089)	563,304	-	-	-	-	-	-	-	28,651	860,393	(325,740)	534,653
15	371	Pumping Equipment		12.50%	861,150	(283,245)	577,905	177,251	289,455	282,768	-	749,473	(70,296)	(282,768)	150,092	1,540,327	(645,809)	894,518
16	374	Reuse Distribution Reservoirs		2.50%	62,286	(8,088)	54,198	-	-	-	-	-	-	-	1,557	62,286	(9,646)	52,641
17	375	Reuse Trans. and Dist. System		2.50%	420,334	(48,908)	371,425	-	-	-	-	-	-	-	10,508	420,334	(59,417)	360,917
18	380	Treatment & Disposal Equipment		5.00%	5,362,219	(1,927,403)	3,434,815	246,167	4,236,486	-	-	4,482,653	-	-	380,177	9,844,872	(2,307,580)	7,537,291
19	381	Plant Sewers		5.00%	47,802	(16,686)	31,116	13,721	314,915	-	-	328,636	-	-	10,606	376,437	(27,292)	349,145
20	382	Outfall Sewer Lines		3.33%	343,681	(118,892)	224,789	-	-	-	-	-	-	-	11,445	343,681	(130,337)	213,344
21	389	Other Sewer Plant & Equipment		6.67%	833,823	(225,666)	608,157	41,186	-	-	(24)	41,162	(1,381)	-	56,943	873,604	(281,228)	592,376
22	390	Office Furniture & Equipment		6.67%	275,740	(122,510)	153,230	5,072	-	-	-	5,072	(2,602)	-	18,474	278,210	(138,382)	139,828
23	390.1	Computers and Software		20.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	391	Transportation Equipment		20.00%	20,194	(17,770)	2,424	3,500	-	-	-	3,500	-	-	2,774	23,694	(20,544)	3,150
25	392	Stores Equipment		4.00%	8,968	(3,681)	5,287	-	-	-	-	-	-	-	359	8,968	(4,040)	4,928
26	393	Tools, Shop and Garage Equipment		5.00%	129,950	(24,635)	105,314	37,694	-	-	-	37,694	(11,268)	-	7,158	156,376	(20,525)	135,850
27	394	Laboratory Equipment		10.00%	187,184	(135,959)	51,225	874	-	-	-	874	(5,228)	-	18,501	182,830	(149,232)	33,598
28	395	Power Operated Equipment		5.00%	6,605	(165)	6,440	-	-	-	-	-	-	-	330	6,605	(495)	6,110
29	396	Communication Equipment		10.00%	415,441	(373,059)	42,382	10,269	-	-	-	10,269	(5,290)	-	41,793	420,420	(409,563)	10,858
30	397	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	398	Other Tangible Plant		10.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32		RUCO UPIS & Accum. Depre. Balances			$ 73,395,804	$ (13,567,321)	$ 59,828,483	$ 1,755,559	$ (30,392)	$ 286,577	$ (1,271)	$ 2,010,473	$ (103,154)	$ (286,577)	$ 2,257,743	$ 75,303,123	$ (16,008,487)	$ 59,294,636
33		Company UPIS & Accum. Depre. As Filed																
34		RUCO UPIS & Accum. Depre. Adjustments																

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT A
RECONSTRUCTION OF UPIS & A/D BALANCES

LINE NO.	NARUC ACCT NO.	Account Description	Vintage Year	Depreciation Rate Thru 12/31/2016	2014 Plant Additions (Per Books)	Plant Accruals Adjustments	Profit Removal Plant Adjustments	Adjusted Plant Additions	Plant Retirements	Salvage A/D Only	Depreciation (Calculated)	Plant Balance	Accum. Deprec.	Net Plant
1	351	Organization Cost		0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	352	Franchise Cost		0.00%	-	-	-	-	-	-	-	27,447	-	27,447
3	353	Land and Land Rights		0.00%	-	-	-	-	-	-	-	1,839,365	(3,409)	1,835,956
4	354	Structures & Improvements		3.33%	109,497	-	(499)	108,998	(28,089)	-	665,817	20,034,957	(5,086,319)	14,948,638
5	355	Power Generation Equipment		5.00%	-	-	-	-	-	-	30,167	603,332	(283,047)	320,285
6	360	Collection Sewer Forced		2.00%	-	-	-	-	-	-	23,252	1,162,597	62,500	1,225,097
7	361	Collection Sewers Gravity		2.00%	132,959	-	(4)	132,954	(648)	-	640,365	32,084,428	(6,504,223)	25,580,205
8	362	Special Collecting Structures		2.00%	-	-	-	-	-	-	-	-	-	-
9	363	Customer Services		2.00%	64,892	-	-	64,892	-	-	2,826	173,729	(6,768)	166,961
10	364	Flow Measuring Devices		10.00%	1,061	-	-	1,061	-	-	14,578	146,313	(77,252)	69,062
11	365	Flow Measuring Installations		10.00%	-	-	-	-	-	-	-	-	-	-
12	366	Reuse Services		2.00%	12,327	-	-	12,327	(2,003)	-	81,459	4,078,137	(986,593)	3,091,544
13	367	Reuse Meters And Installation		8.33%	-	-	-	-	-	-	3,605	43,275	(24,878)	18,397
14	370	Receiving Wells		3.33%	-	-	-	-	-	-	28,651	860,393	(354,391)	506,002
15	371	Pumping Equipment		12.50%	63,302	-	-	63,302	(31,863)	-	194,506	1,571,766	(808,452)	763,315
16	374	Reuse Distribution Reservoirs		2.50%	-	-	-	-	-	-	1,557	62,286	(11,203)	51,084
17	375	Reuse Trans. and Dist. System		2.50%	-	-	-	-	-	-	10,508	420,334	(69,925)	350,408
18	380	Treatment & Disposal Equipment		5.00%	2,599	-	-	2,599	-	-	492,309	9,847,471	(2,799,889)	7,047,582
19	381	Plant Sewers		5.00%	1,050	-	-	1,050	-	-	18,848	377,488	(46,140)	331,348
20	382	Outfall Sewer Lines		3.33%	-	-	-	-	-	-	11,445	343,681	(141,781)	201,900
21	389	Other Sewer Plant & Equipment		6.67%	-	-	-	-	-	-	58,269	873,604	(339,497)	534,107
22	390	Office Furniture & Equipment		6.67%	4,658	-	-	4,658	(1,370)	-	18,666	281,497	(155,677)	125,820
23	390.1	Computers and Software		20.00%	-	-	-	-	-	-	-	-	-	-
24	391	Transportation Equipment		20.00%	-	-	-	-	(515)	-	695	23,179	(20,724)	2,455
25	392	Stores Equipment		4.00%	-	-	-	-	-	-	359	8,968	(4,398)	4,569
26	393	Tools, Shop and Garage Equipment		5.00%	84,376	-	-	84,376	(1,191)	-	9,898	239,561	(29,233)	210,328
27	394	Laboratory Equipment		10.00%	3,194	-	-	3,194	-	-	18,443	186,023	(167,674)	18,349
28	395	Power Operated Equipment		5.00%	-	-	-	-	-	-	330	6,605	(826)	5,780
29	396	Communication Equipment		10.00%	-	-	-	-	-	-	2,129	420,420	(411,692)	8,728
30	397	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	-	-	-	-
31	398	Other Tangible Plant		10.00%	-	-	-	-	-	-	-	-	-	-
32		RUCO UPIS & Accum. Depre. Balances			$ 479,914	$ -	$ (503)	$ 479,411	$ (65,679)	$ -	$ 2,328,683	$ 75,716,855	$ (18,271,491)	$ 57,445,365
33		Company UPIS & Accum. Depre. As Filed												
34		RUCO UPIS & Accum. Depre. Adjustments												

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT A
RECONSTRUCTION OF UPIS & A/D BALANCES

				Depreciation	2015									
LINE NO.	NARUC ACCT NO.	Account Description	Vintage Year	Rate Thru 12/31/2016	Plant Additions (Per Books)	Reversal Plant Accruals Adjustments	Plant Adjustments	Adjusted Plant Additions	Plant Retirements	Salvage A/D Only	Depreciation (Calculated)	Plant Balance	Accum. Deprec.	Net Plant
1	351	Organization Cost		0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	352	Franchise Cost		0.00%	-	-	-	-	-	-	-	27,447	-	27,447
3	353	Land and Land Rights		0.00%	58,511	-	-	58,511	-	-	-	1,897,876	(3,409)	1,894,467
4	354	Structures & Improvements		3.33%	20,614	-	-	20,614	(38,451)	-	666,867	20,017,121	(5,714,736)	14,302,385
5	355	Power Generation Equipment		5.00%	-	-	-	-	-	-	30,167	603,332	(313,213)	290,119
6	360	Collection Sewer Forced		2.00%	-	-	-	-	-	-	23,252	1,162,597	39,248	1,201,845
7	361	Collection Sewers Gravity		2.00%	989,835	-	-	989,835	(41,706)	-	651,170	33,032,557	(7,113,687)	25,918,870
8	362	Special Collecting Structures		2.00%	-	-	-	-	-	-	-	-	-	-
9	363	Customer Services		2.00%	66,116	-	-	66,116	-	-	4,136	239,844	(10,904)	228,941
10	364	Flow Measuring Devices		10.00%	-	-	-	-	-	-	14,631	146,313	(91,883)	54,430
11	365	Flow Measuring Installations		10.00%	-	-	-	-	-	-	-	-	-	-
12	366	Reuse Services		2.00%	-	-	-	-	-	-	81,563	4,078,137	(1,068,155)	3,009,981
13	367	Reuse Meters And Installation		8.33%	-	-	-	-	-	-	3,605	43,275	(28,483)	14,792
14	370	Receiving Wells		3.33%	-	-	-	-	-	-	28,651	860,393	(383,042)	477,351
15	371	Pumping Equipment		12.50%	66,074	-	-	66,074	(18,225)	-	199,461	1,619,615	(989,688)	629,927
16	374	Reuse Distribution Reservoirs		2.50%	-	-	-	-	-	-	1,557	62,286	(12,760)	49,526
17	375	Reuse Trans. and Dist. System		2.50%	-	-	-	-	-	-	10,508	420,334	(80,433)	339,900
18	380	Treatment & Disposal Equipment		5.00%	465,353	-	-	465,353	(2,734)	-	503,939	10,310,089	(3,301,094)	7,008,996
19	381	Plant Sewers		5.00%	-	-	-	-	-	-	18,874	377,488	(65,015)	312,473
20	382	Outfall Sewer Lines		3.33%	-	-	-	-	-	-	11,445	343,681	(153,226)	190,455
21	389	Other Sewer Plant & Equipment		6.67%	32,122	-	-	32,122	-	-	59,341	905,726	(398,838)	506,889
22	390	Office Furniture & Equipment		6.67%	-	-	-	-	-	-	18,776	281,497	(174,453)	107,044
23	390.1	Computers and Software		20.00%	2,403	-	-	2,403	-	-	240	2,403	(240)	2,162
24	391	Transportation Equipment		20.00%	272,453	-	-	272,453	(12,260)	-	26,724	283,372	(35,188)	248,184
25	392	Stores Equipment		4.00%	-	-	-	-	-	-	359	8,968	(4,757)	4,211
26	393	Tools, Shop and Garage Equipment		5.00%	40,491	-	-	40,491	(327)	-	12,982	279,725	(41,888)	237,837
27	394	Laboratory Equipment		10.00%	-	-	-	-	-	-	14,979	186,023	(182,653)	3,370
28	395	Power Operated Equipment		5.00%	-	-	-	-	-	-	330	6,605	(1,156)	5,449
29	396	Communication Equipment		10.00%	-	-	-	-	-	-	1,027	420,420	(412,719)	7,701
30	397	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	-	-	-	-
31	398	Other Tangible Plant		10.00%	-	-	-	-	-	-	-	-	-	-
32		RUCO UPIS & Accum. Depre. Balances			$ 2,013,972	$ -	$ -	$ 2,013,972	$ (113,703)	$ -	$ 2,384,584	$ 77,617,125	$ (20,542,372)	$ 57,074,753
33		Company UPIS & Accum. Depre. As Filed												
34		RUCO UPIS & Accum. Depre. Adjustments												

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT A
RECONSTRUCTION OF UPIS & A/D BALANCES

LINE NO.	NARUC ACCT NO.	Account Description	Vintage Year	Depreciation Rate Thru 12/31/2016	2016 Plant Additions (Per Books)	Plant Adjustments	Reclass 106 Plant Adjustments	Accruals Plant Adjustments	Adjusted Plant Additions	Plant Retirements (Per Books)	Retirement Adjustments	Adjusted Plant Retirements	Salvage A/D Only	Depreciation (Calculated)	Plant Balance	Accum. Deprec.	Net Plant
1	351	Organization Cost		0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	352	Franchise Cost		0.00%	-	-	-	-	-	-	-	-	-	-	27,447	-	27,447
3	353	Land and Land Rights		0.00%	-	-	608,938	3,416,742	4,025,680	-	-	-	-	-	5,923,556	(3,409)	5,920,147
4	354	Structures & Improvements		3.33%	69,635	-	31,748	5,988	107,370	(18,448)	(15,243)	(33,691)	-	667,797	20,090,800	(6,348,842)	13,741,958
5	355	Power Generation Equipment		5.00%	2,019	-	-	-	2,019	-	-	-	-	30,217	605,351	(343,430)	261,921
6	360	Collection Sewer Forced		2.00%	560,646	-	-	-	560,646	(13,584)	-	(13,584)	-	28,723	1,709,659	24,110	1,733,768
7	361	Collection Sewers Gravity		2.00%	18,002	-	174,078	-	192,080	(68,679)	(20,205)	(88,884)	-	661,683	33,135,753	(7,686,486)	25,449,267
8	362	Special Collecting Structures		2.00%	-	-	-	-	-	-	-	-	-	-	-	-	-
9	363	Customer Services		2.00%	37,664	-	23,690	-	61,353	(5,739)	-	(5,739)	-	5,353	295,458	(10,517)	284,941
10	364	Flow Measuring Devices		10.00%	-	-	-	-	-	-	-	-	-	14,631	146,313	(106,514)	39,799
11	365	Flow Measuring Installations		10.00%	-	-	-	-	-	-	-	-	-	-	-	-	-
12	366	Reuse Services		2.00%	-	-	-	-	-	-	-	-	-	81,563	4,078,137	(1,149,718)	2,928,419
13	367	Reuse Meters And Installation		8.33%	-	-	-	-	-	-	-	-	-	3,605	43,275	(32,087)	11,188
14	370	Receiving Wells		3.33%	-	-	-	-	-	-	-	-	-	28,651	860,393	(411,693)	448,700
15	371	Pumping Equipment		12.50%	209,391	-	45,096	-	254,487	(67,729)	(29,648)	(97,377)	-	212,271	1,776,725	(1,104,582)	672,143
16	374	Reuse Distribution Reservoirs		2.50%	-	-	-	-	-	-	-	-	-	1,557	62,286	(14,317)	47,969
17	375	Reuse Trans. and Dist. System		2.50%	7,125	-	-	-	7,125	-	-	-	-	10,597	427,459	(91,031)	336,428
18	380	Treatment & Disposal Equipment		5.00%	405,604	-	22,329	-	427,933	(114,826)	(11,017)	(125,843)	-	523,057	10,612,179	(3,698,307)	6,913,872
19	381	Plant Sewers		5.00%	11,168	-	4,500,285	1,429,845	5,941,299	-	-	-	-	167,407	6,318,787	(232,421)	6,086,365
20	382	Outfall Sewer Lines		3.33%	-	-	-	-	-	-	-	-	-	11,445	343,681	(164,670)	179,011
21	389	Other Sewer Plant & Equipment		6.67%	-	-	-	-	-	(47,133)	-	(47,133)	-	58,840	858,594	(410,545)	448,049
22	390	Office Furniture & Equipment		6.67%	9,574	-	42,898	104	52,577	(7,898)	(31,424)	(39,322)	-	19,218	294,753	(154,350)	140,403
23	390.1	Computers and Software		20.00%	-	-	46,833	7,556	54,389	-	-	-	-	5,919	56,792	(6,160)	50,632
24	391	Transportation Equipment		20.00%	54,519	-	-	-	54,519	(7,419)	-	(7,419)	-	61,127	330,472	(88,896)	241,576
25	392	Stores Equipment		4.00%	-	-	-	-	-	-	-	-	-	359	8,968	(5,116)	3,852
26	393	Tools, Shop and Garage Equipment		5.00%	11,096	-	114,645	2,288	128,028	-	-	-	-	17,187	407,754	(59,075)	348,678
27	394	Laboratory Equipment		10.00%	6,229	-	9,906	-	16,135	(1,166)	(5,745)	(6,911)	-	1,213	195,247	(176,956)	18,291
28	395	Power Operated Equipment		5.00%	168,751	-	-	-	168,751	-	-	-	-	4,549	175,356	(5,705)	169,651
29	396	Communication Equipment		10.00%	3,669	-	38,371	-	42,040	-	(22,252)	(22,252)	-	3,129	440,208	(393,596)	46,613
30	397	Miscellaneous Equipment		10.00%	157,139	-	-	-	157,139	-	-	-	-	7,857	157,139	(7,857)	149,282
31	398	Other Tangible Plant		10.00%	-	-	-	-	-	-	-	-	-	-	-	-	-
32		RUCO UPIS & Accum. Depre. Balances			$ 1,732,232	$ -	$ 5,658,816	$ 4,862,523	$ 12,253,570	$ (352,622)	$ (135,534)	$ (488,156)	$ -	$ 2,627,955	$ 89,382,539	$ (22,682,171)	66,700,368
33		Company UPIS & Accum. Depre. As Filed															
34		RUCO UPIS & Accum. Depre. Adjustments															

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT A
RECONSTRUCTION OF UPIS & A/D BALANCES

				Depreciation	2017 HALF-YEAR CONVENTION OF DEPRECIATION ON POST TEST YEAR PLANT ONLY								
LINE NO.	NARUC ACCT NO.	Account Description	Vintage Year	Rate Thru 12/31/2016	Plant Additions (Per Books)	Plant Adjustments	Adjusted Plant Additions	Plant Retirements	Salvage A/D Only	Depreciation (Calculated)	Plant Balance	Accum. Deprec.	Net Plant
1	351	Organization Cost		0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	352	Franchise Cost		0.00%	-	-	-	-	-	-	27,447	-	27,447
3	353	Land and Land Rights		0.00%	-	-	-	-	-	-	5,923,556	(3,409)	5,920,147
4	354	Structures & Improvements		3.33%	2,634,709	-	2,634,709	-	-	43,868	22,725,509	(6,392,710)	16,332,799
5	355	Power Generation Equipment		5.00%	-	-	-	-	-	-	605,351	(343,430)	261,921
6	360	Collection Sewer Forced		2.00%	-	-	-	-	-	-	1,709,659	24,110	1,733,768
7	361	Collection Sewers Gravity		2.00%	313,326	-	313,326	-	-	3,133	33,449,079	(7,689,619)	25,759,459
8	362	Special Collecting Structures		2.00%	-	-	-	-	-	-	-	-	-
9	363	Customer Services		2.00%	25,371	-	25,371	-	-	254	320,829	(10,771)	310,058
10	364	Flow Measuring Devices		10.00%	-	-	-	-	-	-	146,313	(106,514)	39,799
11	365	Flow Measuring Installations		10.00%	-	-	-	-	-	-	-	-	-
12	366	Reuse Services		2.00%	-	-	-	-	-	-	4,078,137	(1,149,718)	2,928,419
13	367	Reuse Meters And Installation		8.33%	-	-	-	-	-	-	43,275	(32,087)	11,188
14	370	Receiving Wells		3.33%	-	-	-	-	-	-	860,393	(411,693)	448,700
15	371	Pumping Equipment		12.50%	266,391	-	266,391	-	-	16,649	2,043,115	(1,121,231)	921,884
16	374	Reuse Distribution Reservoirs		2.50%	-	-	-	-	-	-	62,286	(14,317)	47,969
17	375	Reuse Trans. and Dist. System		2.50%	-	-	-	-	-	-	427,459	(91,031)	336,428
18	380	Treatment & Disposal Equipment		5.00%	21,061,261	-	21,061,261	-	-	526,532	31,673,440	(4,224,839)	27,448,602
19	381	Plant Sewers		5.00%	1,124,248	-	1,124,248	-	-	28,106	7,443,034	(260,528)	7,182,507
20	382	Outfall Sewer Lines		3.33%	-	-	-	-	-	-	343,681	(164,670)	179,011
21	389	Other Sewer Plant & Equipment		6.67%	-	-	-	-	-	-	858,594	(410,545)	448,049
22	390	Office Furniture & Equipment		6.67%	5,074	-	5,074	-	-	169	299,827	(154,519)	145,308
23	390.1	Computers and Software		20.00%	17,881	-	17,881	-	-	1,788	74,672	(7,948)	66,724
24	391	Transportation Equipment		20.00%	-	-	-	-	-	-	330,472	(88,896)	241,576
25	392	Stores Equipment		4.00%	-	-	-	-	-	-	8,968	(5,116)	3,852
26	393	Tools, Shop and Garage Equipment		5.00%	63,426	-	63,426	-	-	1,586	471,180	(60,661)	410,519
27	394	Laboratory Equipment		10.00%	8,880	-	8,880	-	-	444	204,127	(177,400)	26,727
28	395	Power Operated Equipment		5.00%	58,059	-	58,059	-	-	1,451	233,416	(7,156)	226,259
29	396	Communication Equipment		10.00%	700,434	-	700,434	-	-	35,022	1,140,642	(428,617)	712,025
30	397	Miscellaneous Equipment		10.00%	-	-	-	-	-	-	157,139	(7,857)	149,282
31	398	Other Tangible Plant		10.00%	-	-	-	-	-	-	-	-	-
32		RUCO UPIS & Accum. Depre. Balances			26,279,059	-	26,279,059	$ -	$ -	$ 659,002	$ 115,661,598	$ (23,341,173)	$ 92,320,425
33		Company UPIS & Accum. Depre. As Filed									$ 115,661,598	$ (23,378,382)	
34		RUCO UPIS & Accum. Depre. Adjustments									$ -	$ 37,209	

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT B
STRANDED A/D BALANCES ADJUSTMENT

Line No.	Acct No	Account Description	Vintage Year	[A] Per Company As Filed	[B] Accumulated Depreciation Debit Balance	[C] RUCO Stranded Accum. Depre. Adjustments
	Direct PTY UPIS Accumulated Depreciation:					
1	391	Transportation Equipment	2012	$ -	$ (742)	$ (742)
2		**RUCO Totals**		$ -	$ (742)	$ (742)
3		RUCO Adjustments				$ (742)

References:
Column [A]: Company Schedule B-2 on Page 4;
Column [B]: RUCO Removal of Stranded Accumulated Depreciation Balances Schedules TJC-4(a) Page 5;
Column [C]: Column [B] Minus Column [A]

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT C
POST TEST YEAR UPIS DISALLOWANCE ADJUSTMENT

Line No.	Acct No	Account Description	[A] Company As Filed	[B] Actual Costs June 30, 2017	[C] Actual Costs Less Requested Thru June 30, 2017	[D] Requested In Application or In Service on 6/30/2017	[E] RUCO Backbone Plant In Service PTY Plant Allowance & Disallowance Adjm'ts
	Direct UPIS:						
1	351	Organization Cost	$ -	$ -	$ -	No	$ -
2	352	Franchise Cost	-	-	-	No	-
3	353	Land and Land Rights	-	-	-	No	-
4	354	Structures & Improvements	2,634,709	12,646,572	10,011,863	Yes	10,011,863
5	355	Power Generation Equipment	-	-	-	No	-
6	360	Collection Sewer Forced	-	7,500	7,500	Yes	7,500
7	361	Collection Sewers Gravity	313,326	1,698	(311,628)	Yes	(311,628)
8	362	Special Collecting Structures	-	-	-	No	-
9	363	Customer Services	25,371	17,030	(8,341)	Yes	(8,341)
10	364	Flow Measuring Devices	-	4,617	4,617	Yes	4,617
11	365	Flow Measuring Installations	-	-	-	No	-
12	366	Reuse Services	-	-	-	No	-
13	367	Reuse Meters And Installation	-	-	-	No	-
14	370	Receiving Wells	-	-	-	No	-
15	371	Pumping Equipment	266,391	2,346,931	2,080,541	Yes	2,080,541
16	374	Reuse Distribution Reservoirs	-	-	-	No	-
17	375	Reuse Trans. and Dist. System	-	-	-	No	-
18	380	Treatment & Disposal Equipment	21,061,261	9,640,715	(11,420,546)	Yes	(11,420,546)
19	381	Plant Sewers	1,124,248	443,874	(680,374)	Yes	(680,374)
20	382	Outfall Sewer Lines	-	-	-	No	-
21	389	Other Sewer Plant & Equipment	-	11,690	11,690	Yes	11,690
22	390	Office Furniture & Equipment	5,074	34,071	28,996	Yes	28,996
23	390.1	Computers and Software	17,881	30,063	12,182	Partially	2,859
24	391	Transportation Equipment	-	598	598	Yes	598
25	392	Stores Equipment	-	-	-	No	-
26	393	Tools, Shop and Garage Equipment	63,426	3,595	(59,831)	Yes	(59,831)
27	394	Laboratory Equipment	8,880	-	(8,880)	Yes	(8,880)
28	395	Power Operated Equipment	58,059	55,323	(2,736)	Yes	(2,736)
29	396	Communication Equipment	700,434	868,840	168,406	Yes	168,406
30	397	Miscellaneous Equipment	-	-	-	No	-
31	398	Other Tangible Plant	-	-	-	No	-
32		**Total Direct UPIS**	$ 26,279,059	$ 26,113,116	$ (165,943)		$ (175,266)
	Allocated Corporate UPIS:						
33	903	Land and Land Rights	$ -	$ -	$ -	N/A	$ -
34	904	Structures and Improvments	-	-	-	N/A	-
35	940	Office Furniture and Fixtures	-	-	-	N/A	-
36	940.1	Computers and Software	-	-	-	N/A	-
37	947	Miscellaneous Equipment	-	-	-	N/A	-
38		**Total Allocated Corporate UPIS**	$ -	$ -	$ -		$ -
39		**Total Direct & Allocated Corp. UPIS**	$ 26,279,059	$ 26,113,116	$ (165,943)		$ (175,266)

Note: = Completed Work Order Projects Placed in Service
= Partially Completed Work Order Projects Placed in Service

References:
Column [A]: Company Schedule B-2 on Page 3 Column D;
Column [B]: Company Response to RUCO DR 6.04 - "Summary PTY Plant By NARUC" Worksheet Tab
Column [C]: RUCO UPIS Adjustment No. 3 - Column [B] Minus Column [A]
Column [D]: Company Response to RUCO DR 6.04 - "Cost Water PTY Plant" Worksheet Tab
Column [E]: Company Response to RUCO DR 6.04 - "Cost Water PTY Plant" Worksheet Tab

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT C
POST TEST YEAR UPIS A/D DISALLOWANCE ADJUSTMENT

Line No.	Acct No	Account Description	Depreciation Rates	[A] Company As Filed	[B] RUCO As Recommended	[C] RUCO Recommended Adjustments
		Direct PTY UPIS Accumulated Depreciation:				
1	351	Organization Cost	0.00%	$ -	$ -	$ -
2	352	Franchise Cost	0.00%	-	-	-
3	353	Land and Land Rights	0.00%	-	-	-
4	354	Structures & Improvements	3.33%	(43,868)	(210,565)	(166,698)
5	355	Power Generation Equipment	5.00%	-	-	-
6	360	Collection Sewer Forced	2.00%	-	(75)	(75)
7	361	Collection Sewers Gravity	2.00%	(3,133)	(17)	3,116
8	362	Special Collecting Structures	2.00%	-	-	-
9	363	Customer Services	2.00%	(254)	(170)	83
10	364	Flow Measuring Devices	10.00%	-	(231)	(231)
11	365	Flow Measuring Installations	12.50%	-	-	-
12	366	Reuse Services	2.00%	-	-	-
13	367	Reuse Meters And Installation	8.33%	-	-	-
14	370	Receiving Wells	3.33%	-	-	-
15	371	Pumping Equipment	12.50%	(16,649)	(146,683)	(130,034)
16	374	Reuse Distribution Reservoirs	2.50%	-	-	-
17	375	Reuse Trans. and Dist. System	2.50%	-	-	-
18	380	Treatment & Disposal Equipment	5.00%	(526,532)	(241,018)	285,514
19	381	Plant Sewers	5.00%	(28,106)	(11,097)	17,009
20	382	Outfall Sewer Lines	3.33%	-	-	-
21	389	Other Sewer Plant & Equipment	6.67%	-	(390)	(390)
22	390	Office Furniture & Equipment	6.67%	(169)	(1,136)	(967)
23	390.1	Computers and Software	20.00%	(1,788)	(2,074)	(286)
24	391	Transportation Equipment	20.00%	-	(60)	(60)
25	392	Stores Equipment	4.00%	-	-	-
26	393	Tools, Shop and Garage Equipment	5.00%	(1,586)	(90)	1,496
27	394	Laboratory Equipment	10.00%	(444)	-	444
28	395	Power Operated Equipment	5.00%	(1,451)	(1,383)	68
29	396	Communication Equipment	10.00%	(35,022)	(43,442)	(8,420)
30	397	Miscellaneous Equipment	10.00%	-	-	-
31	398	Other Tangible Plant	10.00%	-	-	-
34		**Total Direct UPIS**		$ (659,002)	$ (658,431)	$ 571
		Allocated PTY Corporate UPIS A/D:				
35	903	Land and Land Rights	0.00%	$ -	$ -	$ -
36	904	Structures and Improvments	2.00%	-	-	-
37	940	Office Furniture and Fixtures	6.67%	-	-	-
38	940.1	Computers and Software	20.00%	-	-	-
39	947	Miscellaneous Equipment	10.00%	-	-	-
40		**Total Allocated Corporate UPIS**		$ -	$ -	$ -
41		**Total Direct & Allocated Corp. UPIS**		$ (659,002)	$ (658,431)	$ 571

Note: = Completed Work Order Projects Placed in Service
= Partially Completed Work Order Projects Placed in Service

References:
Column [A]: Company Schedule B-2 on Page 4;
Column [B]: RUCO Recommended Depreciable PTY Plant Balance from RUCO Schedule TJC-4(b) in Column [A] less Column [E];
Column [C]: Column [B] Minus Column [A]

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT D
POST TEST YEAR UPIS RETIREMENTS ADJUSTMENT

Line No.	Acct No	Account Description	[A] Company PTY Plant Retirements As Filed	[B] PTY Plant Retirements Per RUCO DR 5.08
1	351	Organization Cost	$ -	$ -
2	352	Franchise Cost	-	-
3	353	Land and Land Rights	-	-
4	354	Structures & Improvements	-	(35,896)
5	355	Power Generation Equipment	-	-
6	360	Collection Sewer Forced	-	-
7	361	Collection Sewers Gravity	-	(20,205)
8	362	Special Collecting Structures	-	-
9	363	Customer Services	-	-
10	364	Flow Measuring Devices	-	(2,996)
11	365	Flow Measuring Installations	-	-
12	366	Reuse Services	-	-
13	367	Reuse Meters And Installation	-	-
14	370	Receiving Wells	-	-
15	371	Pumping Equipment	-	(40,997)
16	374	Reuse Distribution Reservoirs	-	-
17	375	Reuse Trans. and Dist. System	-	-
18	380	Treatment & Disposal Equipment	-	(33,158)
19	381	Plant Sewers	-	(318)
20	382	Outfall Sewer Lines	-	-
21	389	Other Sewer Plant & Equipment	-	-
22	390	Office Furniture & Equipment	-	(33,502)
23	390.1	Computers and Software	-	-
24	391	Transportation Equipment	-	-
25	392	Stores Equipment	-	-
26	393	Tools, Shop and Garage Equipment	-	(187)
27	394	Laboratory Equipment	-	(5,745)
28	395	Power Operated Equipment	-	-
29	396	Communication Equipment	-	(30,707)
30	397	Miscellaneous Equipment	-	-
31	398	Other Tangible Plant	-	-
32		**Total Direct UPIS**	$ -	$ (203,710)

References:

Column [A]: Company B-2 Schedules;
Column [B]: Company Supplemental Response to Staff TBH 2.2 Delivered on 12/5/2017

UTILITY PLANT IN SERVICE ("UPIS") & ACCUMULATED DEPRECIATION ("A/D") ADJUSTMENT D
POST TEST YEAR UPIS A/D RETIREMENTS ADJUSTMENT

Line No.	Acct No	Account Description	[A] Company PTY Plant Retirements As Filed	[B] PTY Plant Retirements Per RUCO DR 5.08	[C] RUCO Accum. Depre. Adjustments
1	351	Organization Cost	$ -	$ -	$ -
2	352	Franchise Cost	-	-	-
3	353	Land and Land Rights	-	-	-
4	354	Structures & Improvements	-	35,896	35,896
5	355	Power Generation Equipment	-	-	-
6	360	Collection Sewer Forced	-	-	-
7	361	Collection Sewers Gravity	-	20,205	20,205
8	362	Special Collecting Structures	-	-	-
9	363	Customer Services	-	-	-
10	364	Flow Measuring Devices	-	2,996	2,996
11	365	Flow Measuring Installations	-	-	-
12	366	Reuse Services	-	-	-
13	367	Reuse Meters And Installation	-	-	-
14	370	Receiving Wells	-	-	-
15	371	Pumping Equipment	-	40,997	40,997
16	374	Reuse Distribution Reservoirs	-	-	-
17	375	Reuse Trans. and Dist. System	-	-	-
18	380	Treatment & Disposal Equipment	-	33,158	33,158
19	381	Plant Sewers	-	318	318
20	382	Outfall Sewer Lines	-	-	-
21	389	Other Sewer Plant & Equipment	-	-	-
22	390	Office Furniture & Equipment	-	33,502	33,502
23	390.1	Computers and Software	-	-	-
24	391	Transportation Equipment	-	-	-
25	392	Stores Equipment	-	-	-
26	393	Tools, Shop and Garage Equipment	-	187	187
27	394	Laboratory Equipment	-	5,745	5,745
28	395	Power Operated Equipment	-	-	-
29	396	Communication Equipment	-	30,707	30,707
30	397	Miscellaneous Equipment	-	-	-
31	398	Other Tangible Plant	-	-	-
32		**Total Direct UPIS**	$ -	$ 203,710	$ 203,710

References:
Column [A]: Company B-2 Schedules;
Column [B]: Company Supplemental Response to Staff TBH 2.2 Delivered on 12/5/2017;
Column [C]: RUCO UPIS Adjustment No. 4 - Column [A] + Column [B].

RATE BASE ADJUSTMENT NO. 2
REGULATORY LIABILITY FOR AES/NWS UNRECORDED & UNDISCLOSED REVENUES & CIAC

Line No.	Description		Amount
1	Unrecorded Arroyo HOA Revenues	$	(841,393)
2	Unrecorded Savannah HOA Revenues		(718,169)
3	Arroyo & Savannah CIAC Carrying Charges		(2,684,865)
4	**Total Regulatory Liability**	**$**	**(4,244,427)**

References:
Per Company Response to Staff DR 5.5, 8.1, and RUCO DR 7.1;
RUCO Workpapers

RATE BASE ADJUSTMENT NO. 3
ADVANCES-IN-AID-OF-CONSTRUCTION ("AIAC") ADJUSTMENT

Line No.	Description	Amount
1	RUCO Recommended AIAC Balance[1]	$ 3,055,263
2	Company AIAC Balance as Filed	3,055,263
3	RUCO Recommended Adjustment	$ -

References:
1 See RUCO Schedule TJC-6 on Page 3 of 3 at Line 4;
Per Company Schedule B-2 on Page 6 and 6.1 AIAC Activity.

RATE BASE ADJUSTMENT NO. 3
ADVANCES-IN-AID-OF-CONSTRUCTION ("AIAC")

Line No.	Description	AIAC Balance Per Decision No. 74437 12/31/2012	Rate Case Adjustrment 12/31/2012	2013 AIAC Additions (Per Books)	2013 AIAC Adjustments	2013 Adjusted AIAC Additions	2013 AIAC Refunds	2013 AIAC Converted to CIAC	2013 AIAC Balance 12/31/2013	2014 AIAC Additions (Per Books)	2014 AIAC Adjustments	2014 Adjusted AIAC Additions	2014 AIAC Refunds	2014 AIAC Converted to CIAC	2014 AIAC Balance 12/31/2014
1	Advances-In-Aid-of-Construction (AIAC)	$ 11,645,290	$ -	$ -	$ -	$ -	$ (99,645)	$ (37,050)	$ 11,508,594	$ -	$ -	$ -	$ (91,276)	$ (526,650)	$ 10,890,668
2	Transfer Westcor CIAC Portion	-	(4,134,375)	-	-	-	-	-	(4,134,375)	-	-	-	-	-	(4,134,375)
3	Error in Westcor Amount	-	(50,409)	-	-	-	-	-	(50,409)	-	-	-	-	-	(50,409)
4	RUCO AIAC Balance as Calculated	$ 11,645,290	$ (4,184,784)	$ -	$ -	$ -	$ (99,645)	$ (37,050)	$ 7,323,810	$ -	$ -	$ -	$ (91,276)	$ (526,650)	$ 6,705,884
5	Per Company As Filed	11,645,290	(4,184,784)	-	-	-	(99,645)	(37,050)	7,323,810	-	-	-	(91,276)	(526,650)	6,705,884
6	RUCO Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

References:
Per Company Schedule B-2 on Page 6.1

RATE BASE ADJUSTMENT NO. 3
ADVANCES-IN-AID-OF-CONSTRUCTION ("AIAC")

2015						2016					
AIAC Additions (Per Books)	AIAC Adjustments	Adjusted AIAC Additions	AIAC Refunds	AIAC Converted to CIAC	AIAC Balance 12/31/2015	AIAC Additions (Per Books)	AIAC Adjustments	Adjusted AIAC Additions	AIAC Refunds	AIAC Converted to CIAC	AIAC Balance 12/30/2016
$ -	$ -	$ -	$ (92,878)	$ -	$ 10,797,789	$ -	$ -	$ -	$ (515,196)	$ (3,042,547)	$ 7,240,047
-	-	-	-	-	(4,134,375)	-	-	-	-	-	(4,134,375)
-	-	-	-	-	(50,409)	-	-	-	-	-	(50,409)
$ -	$ -	$ -	$ (92,878)	$ -	$ 6,613,005	$ -	$ -	$ -	$ (515,196)	$ (3,042,547)	$ 3,055,263
-	-	-	(92,878)	-	6,613,005	-	-	-	(515,196)	(3,042,547)	3,055,263
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

RATE BASE ADJUSTMENT NO. 4
CONTRIBUTIONS-IN-AID-OF-CONSTRUCTION ("CIAC") ADJUSTMENT

Line No.	Description	Gross CIAC	CIAC Accumulated Amortization	Net CIAC Balance
1	RUCO Recommended CIAC & Accumulated Amortization Balances[1]	$ (48,406,544)	$ 8,133,414	$ (40,273,130)
2	Company CIAC & Accumulated Amortization Balances as Filed	(48,406,544)	8,131,812	(40,274,732)
3	RUCO Recommended Adjustment	$ -	$ 1,603	$ 1,603

References:
1 See RUCO Schedule TJC-7 on Page 3 of 3 at Line 9;
Per Company Schedule B-2 on Page 5, 5.1 thru 5.3 CIAC Amort.

RATE BASE ADJUSTMENT NO. 4
CONTRIBUTIONS-IN-AID-OF-CONSTRUCTION ("CIAC")

LINE NO.	NARUC ACCT NO.	DESCRIPTION	Amortization Rate Thru 12/31/2016	Amortization Rate After 12/31/2016	CIAC Per Decision No. 74437 12/31/2012	Accum. Amort. Per Decision No. 74437 12/31/2012	Net CIAC Per Decision No 74437 12/31/2012
1	353	Land Contributed	0.00%	0.00%	$ -	$ -	$ -
2	361	Collection Sewers Contributed	2.00%	2.00%	25,745,608	(3,464,799)	22,280,809
3	363	Services Contributed	2.00%	2.00%	2,631,307	(688,501)	1,942,806
4	352	Franchise Contributed	0.00%	0.00%	-	-	-
5	354	Structures and Improvements Contributed	3.33% 3.33% 3.33%	3.33% 3.33% 3.33%	-	-	-
6	360	Force Main Contributed	2.00% 2.00%	2.00% 2.00%	-	-	-
7	364	Flow Measuring Devices Contributed	10.00% 10.00%	10.00% 10.00%	-	-	-
8	371	Pumping Equipment Contributed	12.50% 12.50%	12.50% 12.50%	-	-	-
9	380	Treatment & Disposal Equipment Contributed	5.00% 5.00%	5.00% 5.00%	-	-	-
10	381	Plant Sewers Contributed	5.00% 5.00%	5.00% 5.00%	-	-	-
11	398	Other Tangible Plant Contributed	10.00%	10.00%	-	-	-
12		**RUCO CIAC & Accumulated Amortization (AA)**			**$ 28,376,915**	**$ (4,153,301)**	**$ 24,223,615**
13		Per Company As Filed			28,376,915	(4,153,301)	24,223,615
14		RUCO Adjustments			$ -	$ -	$ -

LINE NO.	2013 CIAC Additions (Per Books)	CIAC Adjustments	Adjusted CIAC Additions	CIAC Retirements	Salvage A/A Only	Amortization (Calculated)	CIAC Balance	Accum. Amortization	Net CIAC
1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	-	-	-	-	-	514,912	25,745,608	(3,979,711)	21,765,897
3	-	(231,801)	(231,801)	-	-	50,308	2,399,506	(738,810)	1,660,697
4	12,782	-	12,782	-	-	-	12,782	-	12,782
5	-	-	-	-	-	-	-	-	-
6	37,050	-	37,050	-	-	370	37,050	(370)	36,679
7	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-
11	13,750	-	13,750	-	-	688	13,750	(688)	13,063
12	**$ 63,582**	**$ (231,801)**	**$ (168,219)**	**$ -**	**$ -**	**$ 566,278**	**$ 28,208,696**	**$ (4,719,579)**	**$ 23,489,117**
13	63,582	(231,801)	(168,219)	-	-	566,049	28,208,696	(4,719,350)	23,489,346
14	$ -	$ -	$ -	$ -	$ -	$ 229	$ -	$ (229)	$ (229)

LINE NO.	2014 CIAC Additions (Per Books)	CIAC Adjustments	Adjusted CIAC Additions	CIAC Retirements	Salvage A/A Only	Amortization (Calculated)	CIAC Balance	Accum. Amortization	Net CIAC
1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	635,571	-	635,571	-	-	521,268	26,381,179	(4,500,979)	21,880,199
3	231,050	-	231,050	-	-	50,301	2,630,556	(789,110)	1,841,446
4	-	-	-	-	-	-	12,782	-	12,782
5	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	741	37,050	(1,111)	35,938
7	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	1,375	13,750	(2,063)	11,688
12	**$ 866,621**	**$ -**	**$ 866,621**	**$ -**	**$ -**	**$ 573,684**	**$ 29,075,317**	**$ (5,293,263)**	**$ 23,782,053**
13	866,621	-	866,621	-	-	573,227	29,075,317	(5,292,576)	23,782,740
14	$ -	$ -	$ -	$ -	$ -	$ 458	$ -	$ (687)	$ (687)

RUCO CIAC & Accum. Amort. Balances

References:
1 Per Company Schedule B-2 on Page 5.1 thru 5.3

RATE BASE ADJUSTMENT NO. 4
CONTRIBUTIONS-IN-AID-OF-CONSTRUCTION ("CIAC")

2015										2016								
CIAC Additions (Per Books)	CIAC Adjustments	Adjusted CIAC Additions	CIAC Retirements	Salvage A/A Only	Amortization (Calculated)	CIAC Balance	Accum. Amortization	Net CIAC		CIAC Additions (Per Books)	CIAC Adjustments	Adjusted CIAC Additions	CIAC Retirements	Salvage A/A Only	Amortization (Calculated)	CIAC Balance	Accum. Amortization	Net CIAC
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ 3,416,742	$ -	$ 3,416,742	$ -	$ -	$ -	$ 3,416,742	$ -	$ 3,416,742
-	-	-	-	-	527,624	26,381,179	(5,028,603)	21,352,576		-	-	-	-	-	527,624	26,381,179	(5,556,226)	20,824,952
30,627	-	30,627	-	-	52,916	2,661,083	(842,027)	1,819,057		-	-	-	-	-	53,222	2,661,083	(895,248)	1,765,835
-	-	-	-	-	-	12,782	-	12,782		-	-	-	-	-	-	12,782	-	12,782
-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
									2004 Corrections		305,616	305,616	-	-	117,036	305,616	(117,036)	188,580
									2010 Corrections		139,185	139,185	-	-	25,492	139,185	(25,492)	113,694
-	-	-	-	-	741	37,050	(1,852)	35,197		2,736,931	-	2,736,931	-	-	28,110	2,773,981	(29,963)	2,744,018
									2006 Corrections		444,309	444,309		-	93,305	444,309	(93,305)	351,004
-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
									2010 Corrections		39,668	39,668		-	21,828	39,668	(21,828)	17,840
-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
									2010 Corrections		230,721	230,721		-	158,621	230,721	(158,621)	72,100
-	-	-	-	-	-	-	-	-		1,645,000	-	1,645,000	-	-	41,125	1,645,000	(41,125)	1,603,875
									2010 Corrections		3,476,061	3,476,061		-	955,917	3,476,061	(955,917)	2,520,144
-	-	-	-	-	-	-	-	-		2,696,452	-	2,696,452	-	-	67,411	2,696,452	(67,411)	2,629,041
									2010 Corrections		248,720	248,720		-	68,398	248,720	(68,398)	180,322
-	-	-	-	-	1,375	13,750	(3,438)	10,313		-	-	-	-	-	1,375	13,750	(4,813)	8,938
$ 30,627	**$ -**	**$ 30,627**	**$ -**	**$ -**	**$ 582,656**	**$ 29,105,844**	**$ (5,875,919)**	**$ 23,229,924**		**$ 10,495,125**	**$ 4,884,300**	**$ 15,379,425**	**$ -**	**$ -**	**$ 2,159,463**	**$ 44,485,268**	**$ (8,035,382)**	**$ 36,449,886**
30,627	-	30,627	-	-	582,198	29,105,844	(5,874,775)	23,231,069		10,495,125	4,884,300	15,379,425	-	-	2,159,005	44,485,268	(8,033,780)	36,451,489
$ -	$ -	$ -	$ -	$ -	$ 458	$ -	$ (1,145)	$ (1,145)		$ -	$ -	$ -	$ -	$ -	$ 458	$ -	$ (1,603)	$ (1,603)

RATE BASE ADJUSTMENT NO. 4
CONTRIBUTIONS-IN-AID-OF-CONSTRUCTION ("CIAC")

	POST TEST YEAR 2017								
	CIAC Additions (Per Books)	CIAC Adjustments	Adjusted CIAC Additions	CIAC Retirements	Salvage A/A Only	Amortization (Calculated)	CIAC Balance	Accum. Amortization	Net CIAC
	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,416,742	$ -	$ 3,416,742
	-	-	-	-	-	-	26,381,179	(5,556,226)	20,824,952
	-	-	-	-	-	-	2,661,083	(895,248)	1,765,835
	-	-	-	-	-	-	12,782	-	12,782
	-	-	-	-	-	-	-	-	-
2004 Corrections		-	-	-	-	-	305,616	(117,036)	188,580
2010 Corrections		-	-	-	-	-	139,186	(25,492)	113,694
	-	-	-	-	-	-	2,773,981	(29,963)	2,744,018
2008 Corrections		-	-		-	-	444,309	(93,305)	351,004
	-	-	-	-	-	-	-	-	-
2010 Corrections		-	-		-	-	39,688	(21,828)	17,860
	-	-	-	-	-	-	-	-	-
2010 Corrections		-	-		-	-	230,721	(158,621)	72,100
	3,921,275	-	3,921,275	-	-	98,032	5,566,275	(139,157)	5,427,118
2010 Corrections		-	-		-	-	3,476,061	(955,917)	2,520,144
	-	-	-	-	-	-	2,696,452	(67,411)	2,629,041
2010 Corrections		-	-		-	-	248,720	(68,398)	180,322
	-	-	-	-	-	-	13,750	(4,813)	8,938
	$ 3,921,275	**$ -**	**$ 3,921,275**	**$ -**	**$ -**	**$ 98,032**	**$ 48,406,544**	**$ (8,133,414)**	**$ 40,273,130**
	3,921,275	-	3,921,275	-	-	98,032	48,406,544	(8,131,812)	40,274,732
	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,603)	$ (1,603)

RATE BASE ADJUSTMENT NO. X - NOT USED IN DIRECT TESTIMONY FILING
CUSTOMER METER DEPOSITS

Line No.		Description	Amount
		Water Division:	
1	**1**	Customer Meter Deposits As Filed by Company	$ -
2		RUCO Recommended 13-Month Average - Meter Deposits	-
3		RUCO's Recommended Adjustment to Company's Test Year End Meter Deposits as Proposed	$ -
		Wastewater Division:	
4	**1**	Customer Meter Deposits As Filed by Company	$ -
5		RUCO Recommended 13-Month Average - Meter Deposits	-
6		RUCO's Recommended Adjustment to Company's Test Year End Meter Deposits as Proposed	$ -

References:

RATE BASE ADJUSTMENT NO. X - NOT USED IN DIRECT TESTIMONY FILING
CUSTOMER SECURITY DEPOSITS

Line No.		Description	Amount
		Water Division:	
1	**1**	Customer Security Deposits As Filed by Company	$ -
2		RUCO Recommended 13-Month Average - Customer Security Deposits	-
3		RUCO's Recommended Adjustment to Company's Test Year End Customer Security Deposits as Proposed	$ -
		Wastewater Division:	
4	**1**	Customer Security Deposits As Filed by Company	$ -
5		RUCO Recommended 13-Month Average - Customer Security Deposits	-
6		RUCO's Recommended Adjustment to Company's Test Year End Customer Security Deposits as Proposed	$ -

References:

RATE BASE ADJUSTMENT NO. 5
ACCUMULATED DEFERRED INCOME TAXES ("ADIT") ADJUSTMENT

Deferred Income Tax as of December 31, 2016

Line No.			Water & Sewer Adjusted Book Value	Water & Sewer Tax Value	Probability of Realization of Future Tax Benefit	Deductible TD (Taxable TD) Expected to be Realized	Effective Tax Rate	Future Tax Asset Current	Future Tax Asset Non Current	Future Tax Liability Current	Future Tax Liability Non Current
1		Plant-in-Service	$ 209,562,644 [1]								
2		Accum. Deprec.	(48,980,211) [1]								
3		CIAC	(67,492,172) [3]								
4	Fed.	Fixed Assets	$ 93,090,261	$ 53,003,701 [2]	100.0%	$ (40,086,560)	32.33%		-		(12,961,588)
5	State	Fixed Assets	$ 93,090,261	$ 98,898,757 [2]	100.0%	$ 5,808,496	4.900%		284,616		-
6	Fed &State	AIAC		6,240,231 [4]	100.0%	$ 6,240,231 [4]	37.23%		$ 2,323,488		
								$ -	$ 2,608,104	$ -	$ (12,961,588)

Line No.		
7	Net Asset (Liability)	$ (10,353,484)
8	Allocation Factor - Sewer Division (based on rate base before ADIT)	0.5216
9	Net Asset (Liability) Water Division	$ (5,400,539)
10	Allocated Corporate ADIT[5]	$ (121,601)
11	Total Asset (Liability) Water Division	$ (5,522,140)
12	DIT Asset (Liability) per Books	$ (2,475,762)
13	Adjustment to DIT	$ 3,046,378
14	RUCO Adjusted TY ADIT Balance Recommended	$ (5,522,140)
15	Company Adjusted TY ADIT Balance as Filed	$ (5,423,534)
16	RUCO Recommended ADIT Adjustment	$ (98,605)

Footnotes - See page 7.1

[1] **Per adjusted book balances, land not included**

	2 Computation of Net Tax Value December 31, 2016	FEDERAL		STATE	
	Based on 2015 Tax Depreciation report:				
1	Unadjusted Cost at December 31, 2015 per federal and state tax depr. report	$110,332,607		$ 110,332,607	
	Reconciling Items not on tax report:				
2	Land on Tax and not on included in adjusted plant balance	(1,055,392)		(1,055,392)	
3	PTY Plant - not on tax report	27,013,782		27,013,782	
4	2016 Plant Adds - not on tax report (excluding Land)	3,941,159		3,941,159	
5	2016 Retirements	(2,426,189)		(2,426,189)	
				-	
		-		-	
				-	
6	Net Unadjusted Cost tax Basis at December 31, 2016		$ 137,805,967		$ 137,805,967
	Reductions:				
7	Basis Reduction 2015 and Prior Years per federal and state tax depr. report	$ (41,514,253)		$ (529,629)	
8	Accumulated Depreciation 2015 and prior per federal and state tax depr. report	(26,361,327)		(35,938,243)	
9	2016 Depreciation on 2015 and Prior Plant	(2,425,285)		(4,246,428)	
10	2014 Solar Federal Tax Credits	(512,359)		-	
11	Depreciation Estimate on PTY Plant	(810,413)		(540,276)	
12	Basis Reduction on PTY Plant	(13,506,891)		-	
13	2016 Depreciation Estimate on 2016 Plant	(127,347)		(78,823)	
14	Basis Reduction on 2016 Plant Adds	(1,970,579)			
15	2016 Retirements	2,426,189		2,426,189	
16	Net Reductions through December 31, 2016		(84,802,266)		(38,907,210)
17	Net tax value of plant-in-service at December 31, 2016		$ 53,003,701		$ 98,898,757

	[3] **CIAC (including impact of change to probability of realization):**			
18	Gross CIAC per adjusted book balances (excluding land)		$ 64,363,623	
	CIAC reductions/addtions:			
19	A/A per adjusted book balances	$ (10,424,407)		
		-	(10,424,407)	
20	Net CIAC before unrealized AIAC			$ 53,939,216
	Unrealized AIAC Component:			
21	AIAC per adjusted book balances		$ 19,361,366	
22	Adjusted Net AIAC (see footnote 5 below)		70.0%	
23	Unrealized AIAC Component % (1-Realized AIAC Component)			$ 13,552,956
24	Total realizable CIAC			$ 67,492,172
	[4] **AIAC (including impact of change in probability of realization):**			
25	AIAC per adjusted book balances			$ 19,361,366
26	Less: Unrealized AIAC (from Note 3, above)			$ (13,552,956)
27	Subtotal			$ 5,808,410
28	Meter and Service Line Installation Charges per adjusted book balances			431,822
29	Total realizable AIAC			$ 6,240,231

[5] **See work papers**

RATE BASE ADJUSTMENT NO. 6
ALLOWANCE FOR WORKING CAPITAL

Line No.	Description	Per Company As Filed	RUCO Recommended Adjustments	RUCO Recommended Amount
1	Prepayments	$ 89,756	$ -	$ 89,756
2	Materials and Supplies	-	-	-
3	Allowance for Cash Working Capital	157,375	(105,075)	52,300
4	Totals	$ 247,131	$ (105,075)	$ 142,056
5	RUCO Recommended Adjustment		$ (105,075)	

References:
Company Schedule B-1;
RUCO Schedule TJC-10 Page 2.

RATE BASE ADJUSTMENT NO. 6
LEAD / LAG STUDY FOR CASH WORKING CAPITAL ADJUSTMENT

Line No.	Description	[A] Company Adjusted Test Year As Filed	[B] RUCO Expense Adjustments	[C] RUCO Recommended Expense	[D] Revenue Lag Days	[E] Expense (Lead)/Lag Days	[F] Net (Lead)/Lag Days Col. [D] - Col. [E]	[G] (Lead)/Lag Factor Col. [F] / 365	[H] Cash Working Capital Requirement Col. [C] x Col. [G]
1	Salaries and Wages	$ -	$ -	$ -	43.55	-	43.55	0.11931	$ -
2	Purchased Wastewater Treatment	22,433	-	22,433	43.55	30.92	12.63	0.03460	776
3	Sludge Removal	267,582	-	267,582	43.55	31.23	12.32	0.03375	9,031
4	Purchased Power	736,334	-	736,334	43.55	30.27	13.28	0.03638	26,789
5	Fuel for Power Production	261	-	261	43.55	27.40	16.15	0.04424	12
6	Chemicals	400,143	-	400,143	43.55	(28.79)	72.34	0.19819	79,304
7	Materials and Supplies	187,784	-	187,784	43.55	(21.57)	65.12	0.17841	33,502
8	Contractual Services - Professional	2,185,064	(192,140)	1,992,924	43.55	20.00	23.55	0.06452	128,580
9	Contractual Services - Testing	42,616	-	42,616	43.55	34.46	9.09	0.02490	1,061
10	Contractual Services - Other	1,428,922	(26,160)	1,402,761	43.55	23.06	20.49	0.05613	78,743
11	Office Supplies and Expense	40,942	-	40,942	43.55	35.52	8.03	0.02200	901
12	Rents	4,683	-	4,683	43.55	(35.48)	79.03	0.21652	1,014
13	Transportation	26,197	-	26,197	43.55	(26.87)	70.42	0.19293	5,054
14	Insurance	52,838	-	52,838	43.55	(182.50)	226.05	0.61931	32,723
15	Miscellaneous1	159,265	(2,735)	156,530	43.55	75.29	(31.74)	(0.08696)	(13,612)
16	Property Taxes1	590,928	(57,383)	533,545	43.55	213.96	(170.41)	(0.46687)	(249,099)
17	Income Taxes1	1,992,966	(714,534)	1,278,431	43.55	37.00	6.55	0.01794	22,939
17	**Total Operating Expenses**	$ 8,138,957	$ (992,953)	$ 7,146,004					
18	Interest Expense on Proposed Long-Term Debt2	$ -	$ 823,917	$ 823,917	43.55	90.25	(46.70)	(0.12795)	(105,418)
19	Revenue Taxes and Assessments	-	-	-	43.55	-	43.55	0.11931	-
20	Regulatory Commission Expense	-	-	-	43.55	-	-	-	-
21	Total Cash Working Capital Expenses	$ 8,138,957	$ (169,035)	$ 7,969,922					
22	Total RUCO Recommended Cash Working Capital								$ 52,300
23	Total Company Proposed Cash Working Capital as Filed								157,375
24	RUCO Cash Working Capital Adjustment								$ (105,075)

1 At Proposed Rates
2 Company Schedule D-2

OPERATING INCOME SUMMARY

Line No.	Description	[A] Company Adjusted Test Year As Filed	[B] RUCO Recommended Adjustments	[C] RUCO Recommended Adjusted Test Year Amounts	[D] RUCO Recommended Changes	[E] RUCO Recommended Amounts
	Revenues:					
1	Metered Water Revenues	$ 11,163,434	$ -	$ 11,163,434	$ 93,889	$ 11,257,323
2	Unmetered Water Revenues	61,212	-	61,212	-	61,212
3	Other Water Revenues	409,308	-	409,308	-	409,308
4	**Total Revenues**	$ 11,633,954	$ -	$ 11,633,954	$ 93,889	$ 11,727,843
	Operating Expenses:					
5	Salaries and Wages	$ -	$ -	$ -	$ -	$ -
6	Purchased Wastewater Treatment	22,433	-	22,433	-	22,433
7	Sludge Removal	267,582	-	267,582	-	267,582
8	Purchased Power	736,334	-	736,334	-	736,334
9	Fuel for Power Production	261	-	261	-	261
10	Chemicals	400,143	-	400,143	-	400,143
11	Materials and Supplies	187,784	-	187,784	-	187,784
12	Contractual Services - Professional	2,185,064	(192,140)	1,992,924	-	1,992,924
13	Contractual Services - Testing	42,616	-	42,616	-	42,616
14	Contractual Services - Other	1,428,922	(26,160)	1,402,761	-	1,402,761
15	Office Supplies and Expense	40,942	-	40,942	-	40,942
16	Rents	4,683	-	4,683	-	4,683
17	Transportation	26,197	-	26,197	-	26,197
18	Insurance	52,838	-	52,838	-	52,838
19	Regulatory Commission Expense	74,865	-	74,865	-	74,865
20	Miscellaneous	156,454	-	156,454	76	156,530
21	Depreciation & Amortization Expense	3,028,078	(1,401,484)	1,626,594	-	1,626,594
22	Taxes Other Than Income	-	-	-	-	-
23	Property Taxes	537,059	(4,960)	532,099	1,446	533,545
24	Income Tax	712,071	531,969	1,244,039	34,392	1,278,431
25	**Total Operating Expenses**	$ 9,904,325	$ (1,092,775)	$ 8,811,550	$ 35,914	$ 8,847,464
26	**Operating Income**	**$ 1,729,629**	**$ 1,092,775**	**$ 2,822,404**	**$ 57,975**	**$ 2,880,379**

References:

Column [A]: Company Schedule C-1;
Column [B]: RUCO Recommended Total Adjustments Per Schedule TJC-13 on page 1 in Column [O] at line 26;
Column [C]: Column [A] + [B] - RUCO Recommended Adjusted Test Year Amounts Per Schedule TJC-12 on page 1 in Column [P];
Column [D]: RUCO Recommended Increase/(Decrease) to Revenue Requirement;
Column [E]: Column [C] + [D] - RUCO Recommended Increase/(Decrease) Amounts for Revenue Requirement.

Liberty Utilities (Litchfield Park Water & Sewer) Corp. - Sewer Division
Docket No. SW-01427A-17-0058 et al.
Test Year Ended December 31, 2016

Sewer Division
Direct Schedule TJC-13
Page 1 of 1

OPERATING INCOME ADJUSTMENTS

Line No.	Description	[A] Company Adjusted Test Year As Filed	[B] Adj. No. 1 Depreciation	[C] Adj. No. 2 Property Taxes	[D] Adj. No. 3 Water Testing	[E] Adj. No. 4 Reverse Not Used For Sewer	[F] Adj. No. 5 Remove APUC Bonuses	[G] Adj. No. 6 Remove LUCC Bonuses	[H] Adj. No. 7 Remove LABS Bonuses	[I] Adj. No. 8 Normalize LU 8020 Bonuses	[J] Adj. No. 9 Bad Debt Expense Adjustment	[K] Adj. No. 10 Customer Growth Normalization	[L] Adj. No. 11 Corporate Misc. Expense	[M] Adj. No. 12 Not Used For Sewer	[N] Adj. No. 13 Income Taxes	[O] RUCO Total Recommended Adjustments	[P] RUCO As Recommended
	Revenues:																
1	Metered Water Revenues	$ 11,163,434	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,163,434
2	Unmetered Water Revenues	61,212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61,212
3	Other Water Revenues	409,308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	409,308
4	**Total Revenues**	$ 11,633,954	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,633,954
	Operating Expenses:																
5	Salaries and Wages	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6	Purchased Wastewater Treatment	22,433	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22,433
7	Sludge Removal	267,582	-	-	-	-	-	-	-	-	-	-	-	-	-	-	267,582
8	Purchased Power	736,334	-	-	-	-	-	-	-	-	-	-	-	-	-	-	736,334
9	Fuel for Power Production	261	-	-	-	-	-	-	-	-	-	-	-	-	-	-	261
10	Chemicals	400,143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400,143
11	Materials and Supplies	187,784	-	-	-	-	-	-	-	-	-	-	-	-	-	-	187,784
12	Contractual Services - Professional	2,185,064	-	-	-	-	(66,673)	(21,677)	(51,327)	(52,463)	-	-	-	-	-	(192,140)	1,992,924
13	Contractual Services - Testing	42,616	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42,616
14	Contractual Services - Other	1,428,922	-	-	-	-	-	-	-	-	-	-	(26,160)	-	-	(26,160)	1,402,761
15	Office Supplies and Expense	40,942	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40,942
16	Rents	4,683	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,683
17	Transportation	26,197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,197
18	Insurance	52,838	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52,838
19	Regulatory Commission Expense	74,865	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74,865
20	Miscellaneous	156,454	-	-	-	-	-	-	-	-	-	-	-	-	-	-	156,454
21	Depreciation & Amortization Expense	3,028,078	(1,401,484)	-	-	-	-	-	-	-	-	-	-	-	-	(1,401,484)	1,626,594
22	Taxes Other Than Income	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	Property Taxes	537,059	-	(4,960)	-	-	-	-	-	-	-	-	-	-	-	(4,960)	532,099
24	Income Tax	712,071	-	-	-	-	-	-	-	-	-	-	-	-	531,969	531,969	1,244,039
25	**Total Operating Expenses**	$ 9,904,325	$ (1,401,484)	$ (4,960)	$ -	$ -	$ (66,673)	$ (21,677)	$ (51,327)	$ (52,463)	$ -	$ -	$ (26,160)	$ -	$ 531,969	$ (1,092,775)	$ 8,811,550
26	**Operating Income**	**$ 1,729,629**	**$ 1,401,484**	**$ 4,960**	**$ -**	**$ -**	**$ 66,673**	**$ 21,677**	**$ 51,327**	**$ 52,463**	**$ -**	**$ -**	**$ 26,160**	**$ -**	**$ (531,969)**	**$ 1,092,775**	**$ 2,822,404**

References:
Column [A]: Company Schedule C-1;
Column [B]: Depreciation Expense Schedule TJC-14;
Column [C]: Property Tax Expense Schedule TJC-15;
Column [D]: Water Testing Expense;
Column [E]: Reverse Company's Usage Normalization Adjustment;
Column [F]: APUC Cost Allocation Removals Schedule TJC-16;
Column [G]: LUCC Cost Allocation Removals Schedule TJC-17;
Column [H]: LABS Cost Allocation Removals Schedule TJC-18;
Column [I]: LU8020 Cost Allocation Normalizations Schedule TJC-19;
Column [J]: Bad Debt Expense Schedule TJC-21;
Column [K]: Customer Growth Normalization Schedule TJC-22 Not Used;
Column [L]: Corporate Miscellaneous Expense Schedule TJC-23;
Column [M]: Chemical Expense Media Double Count Schedule TJC-24;
Column [N]: Income Tax Expense Schedule TJC-25
Column [O]: Sum of Columns [B] thru [N];
Column [P]: Column [A] + [B].

OPERATING INCOME ADJUSTMENT NO. 1
DEPRECIATION EXPENSE

Line No.	NARUC Account	Description	[A] Company As Filed	[B] RUCO UPIS Adjustments	[C] RUCO Adjusted UPIS Balances	[D] RUCO Non-Depre. Fully Depre.	[E] RUCO Depreciable UPIS Recommended	[F] Authorized Depreciation Rate	[G] RUCO Depreciation Expense Recommended
		Direct UPIS:							
1	351	Organization Cost	$ -	$ -	$ -	$ -	$ -	0.00%	$ -
2	352	Franchise Cost	27,447	-	27,447	(27,447) *	-	0.00%	-
3	353	Land and Land Rights	5,923,556	-	5,923,556	(5,923,556) *	-	0.00%	-
4	354	Structures & Improvements	22,725,509	9,975,967	32,701,476	-	32,701,476	3.33%	1,088,959
5	355	Power Generation	605,351	-	605,351	-	605,351	5.00%	30,268
6	360	Collection Sewer Forced	1,709,659	7,500	1,717,159	-	1,717,159	2.00%	34,343
7	361	Collection Sewers Gravity	33,449,079	(331,834)	33,117,245	-	33,117,245	2.00%	662,345
8	362	Special Collecting Structures	-	-	-	-	-	2.00%	-
9	363	Customer Services	320,829	(8,341)	312,488	-	312,488	2.00%	6,250
10	364	Flow Measuring Devices	146,313	1,621	147,934	-	147,934	10.00%	14,793
11	365	Flow Measuring Installations	-	-	-	-	-	10.00%	-
12	366	Reuse Services	4,078,137	-	4,078,137	-	4,078,137	2.00%	81,563
13	367	Reuse Meters And Installation	43,275	-	43,275	-	43,275	8.33%	3,605
14	370	Receiving Wells	860,393	-	860,393	-	860,393	3.33%	28,651
15	371	Pumping Equipment	2,043,115	2,039,544	4,082,659	-	4,082,659	12.50%	510,332
16	374	Reuse Distribution Reservoirs	62,286	-	62,286	-	62,286	2.50%	1,557
17	375	Reuse Trans. and Dist. System	427,459	-	427,459	-	427,459	2.50%	10,686
18	380	Treatment & Disposal Equipment	31,673,440	(11,453,704)	20,219,736	-	20,219,736	5.00%	1,010,987
19	381	Plant Sewers	7,443,034	(680,692)	6,762,343	-	6,762,343	5.00%	338,117
20	382	Outfall Sewer Lines	343,681	-	343,681	-	343,681	3.33%	11,445
21	389	Other Sewer Plant & Equipment	858,594	11,690	870,283	-	870,283	6.67%	58,048
22	390	Office Furniture & Equipment	299,827	(4,506)	295,321	-	295,321	6.67%	19,698
23	390.1	Computers and Software	74,672	2,859	77,531	-	77,531	20.00%	15,506
24	391	Transportation Equipment	330,472	598	331,070	-	331,070	20.00%	66,214
25	392	Stores Equipment	8,968	-	8,968	-	8,968	4.00%	359
26	393	Tools, Shop And Garage Equip	471,180	(60,018)	411,162	-	411,162	5.00%	20,558
27	394	Laboratory Equip	204,127	(14,624)	189,502	(175,045) *	14,457	10.00%	1,446
28	395	Power Operated Equip	233,416	(2,736)	230,680	-	230,680	5.00%	11,534
29	396	Communication Equip	1,140,642	137,700	1,278,342	(387,900) *	890,442	10.00%	89,044
30	397	Miscellaneous Equip.	157,139	-	157,139	-	157,139	10.00%	15,714
31	398	Other Tangible Plant	-	-	-	-	-	10.00%	-
32		**Total Direct UPIS**	$ 115,661,598	$ (378,976)	$ 115,282,622	$ (6,513,947)	$ 108,768,675		$ 4,132,022
		Allocated Corporate UPIS:							
33	903	Land and Land Rights	$ 40,298	$ -	$ 40,298	$ (40,298) *	$ -	0.00%	$ -
34	904	Structures & Improvments	537,536	-	537,536	-	537,536	2.00%	10,751
35	940	Office Furniture & Equipment	68,673	-	68,673	-	68,673	6.67%	4,581
36	940.1	Computers and Software	935,947	-	935,947	-	935,947	20.00%	187,189
37	947	Miscellaneous Equip.	4,429	-	4,429	-	4,429	10.00%	443
38		**Total Allocated Corporate UPIS**	$ 1,586,884	$ -	$ 1,586,884	$ (40,298)	$ 1,546,585		$ 202,964
39		**Total Direct & Allocated Corp. UPIS**	$ 117,248,482	$ (378,976)	$ 116,869,506	$ (6,554,245)	$ 110,315,260		$ 4,334,985
		Less: Contributions-in-Aid-of-Construction (CIAC) & Amortizations:	Gross CIAC	RUCO Adjustments	RUCO CIAC Balance	Non-Amortizable Fully Amortized	Amortizable CIAC CIAC		
39	352	Franchise Contributed	$ 12,782	$ -	$ 12,782	$ (12,782) *	$ -	0.00%	$ -
40	353	Land Contributed	3,416,742	-	3,416,742	(3,416,742) *	-	0.00%	-
41	354	Structures and Improvements Contributed	444,801	-	444,801	-	444,801	3.33%	(14,812)
42	360	Force Main Contributed	3,218,290	-	3,218,290	-	3,218,290	2.00%	(64,366)
43	361	Collection Sewers Contributed	26,381,179	-	26,381,179	-	26,381,179	2.00%	(527,624)
44	363	Services Contributed	2,661,083	-	2,661,083	-	2,661,083	2.00%	(53,222)
45	364	Flow Measuring Devices Contributed	39,688	-	39,688	-	39,688	10.00%	(3,969)
46	371	Pumping Equipment Contributed	230,721	-	230,721	-	230,721	12.50%	(28,840)
47	380	Treatment & Disposal Equipment Contributed	9,042,336	-	9,042,336	-	9,042,336	5.00%	(452,117)
48	381	Plant Sewers Contributed	2,945,172	-	2,945,172	-	2,945,172	5.00%	(147,259)
49	398	Other Tangible Plant Contributed	13,750	-	13,750	-	13,750	10.00%	(1,375)
50		Total CIAC	$ 48,406,544	$ -	$ 48,406,544	$ (3,429,524)	$ 44,977,020		$ (1,293,582)
51		AES/NWS Regulatory Liability Amortization Expense	$ -	$ (4,244,427)	$ (4,244,427)	$ -	$ (4,244,427)	33.33%	$ (1,414,809)
52		RUCO Total Depreciation Expense							1,626,594
53		Company Adjusted Depreciation Expense As Filed							3,028,078
54		RUCO Increase/(Decrease) Expense Adjustment							$ (1,401,484)

References:
Company B-2 and C-1 Schedules, and RUCO Schedule TJC-4, page 1
* = Non or Fully Depreciated Plant & CIAC Balances

OPERATING INCOME ADJUSTMENT NO. 2
PROPERTY TAXES

Line No.	Property Tax Calculation		[A] RUCO AS ADJUSTED		[B] RUCO RECOMMENDED
1	RUCO Adjusted Test Year Gross Revenues	$	11,633,954	$	11,633,954
2	Multiplied by 2		2		2
3	Subtotal (Line 1 * Line 2)	$	23,267,908	$	23,267,908
4a	RUCO Adjusted Test Year Gross Revenues		11,633,954		
4b	RUCO Recommended Revenue				11,727,843
5	Subtotal (Line 3 + Line 4a)	$	34,901,861	$	34,995,750
6	Number of Years		3		3
7	Three Year Average (Line 5 / Line 6)	$	11,633,954	$	11,665,250
8	Department of Revenue Mutilplier		2		2
9	Revenue Base Value (Line 7 * Line 8)	$	23,267,908	$	23,330,500
10	Plus: 10% of CWIP Per Company Schedule E-1 As Filed (Intentionally Excluded)		-		-
11	Less: Net Book Value of Licensed Vehicles		241,372		241,372
12	Full Cash Value (Line 9 + Line 10 - Line 11)	$	23,026,535	$	23,089,128
13	Assessment Ratio		18.0%		18.0%
14	Assessed Value (Line 12 * Line 13)	$	4,144,776	$	4,156,043
15	Composite Property Tax Rate (Per RUCO Effective Property Tax Calculation)		12.8378%		12.8378%
16	RUCO Adjusted Test Year Property Tax Expense (Line 14 * Line 15)	$	532,099		
17	Company Adjusted Test Year Property Tax Expense (Per Company Schedule C-1)		537,059		
18	RUCO Test Year Adjustment (Line 16-Line 17)	$	(4,960)		
19	Property Tax - RUCO Recommended Revenue (Line 14 * Line 15)			$	533,545
20	RUCO Test Year Adjusted Property Tax Expense (Line 16)				532,099
21	Increase/(Decrease) to Property Tax Expense			$	1,446
22	Increase/(Decrease) to Property Tax Expense			$	1,446
23	Increase in Revenue Requirement				93,889
24	Increase /(Decrease) to Property Tax per Dollar Increase in Revenue (Line 22 / Line 23)				1.5405%

References:

RUCO Schedule TJC-12;
RUCO Schedule TJC-4(a) Pages 1-5.

OPERATING INCOME ADJUSTMENT NO. 5
REMOVE APUC BONUSES

Line No.	Description		Amount
1	Total APUC Bonus Charged to LU 8020	$	265,208
2	Remove APUC Bonuses Charged to LU 8020		100.00%
3	RUCO LU 8020 Adjustment	$	(265,208)
4	LPSCO Water Division Allocator		22.88%
5	**LPSCO Sewer Division Allocator**		**25.14%**
6	LPSCO Sewer Division Adjustment (Line 3 x Line 4)	$	(66,673)

References:
RUCO Bonus Adjustments Workpaper;
RUCO Supporting Doc WP for Bonus Adjustments TBH 2.8 APUC Admin Costs 2016.

OPERATING INCOME ADJUSTMENT NO. 6
REMOVE LUCC BONUSES

Line No.	Description		Amount
1	Total LUCC Bonus Charged to LU 8020	$	86,225
2	Remove LUCC Bonuses Charged to LU 8020		100.00%
3	RUCO LU 8020 Adjustment	$	(86,225)
4	LPSCO Water Division Allocator		22.88%
5	**LPSCO Sewer Division Allocator**		**25.14%**
6	LPSCO Sewer Division Adjustment (Line 3 x Line 4)	$	(21,677)

References:
RUCO Bonus Adjustments Workpaper;
RUCO Supporting Doc WP for Bonus Adjustments TBH 2.8 LUCC Admin Costs 2016.

OPERATING INCOME ADJUSTMENT NO. 7
REMOVE LABS BONUSES

Line No.	Description		Amount
1	Total LUCC Bonus Charged to LU 8020	$	204,164
2	Remove LABS Bonuses Charged to LU 8020		100.00%
3	RUCO LU 8020 Adjustment	$	(204,164)
4	LPSCO Water Division Allocator		22.88%
5	**LPSCO Sewer Division Allocator**		**25.14%**
6	LPSCO Sewer Division Adjustment (Line 3 x Line 4)	$	(51,327)

References:
RUCO Bonus Adjustments Workpaper;
RUCO Supporting Doc WP for Bonus Adjustments TBH 2.8 LABS Admin Costs 2016.

OPERATING INCOME ADJUSTMENT NO. 8
NORMALIZE LU 8020 BONUSES

Line No.	Description		Amount
1	Total LU8020 Bonuses	$	479,379
2	RUCO Normalized to October-December Levels of 2016 Bonuses		270,696
3	RUCO LU 8020 Adjustment	$	(208,682)
4	LPSCO Water Division Allocator		22.88%
5	**LPSCO Sewer Division Allocator**		**25.14%**
6	LPSCO Sewer Division Adjustment (Line 3 x Line 4)	$	(52,463)

References:
RUCO Bonus Adjustments Workpaper;
RUCO Supporting Doc WP for Bonus Adjustments TBH 2.22(e) Admin Costs 2016.

OPERATING INCOME ADJUSTMENT NO. 9
ADJUSTED TEST YEAR AND RECOMMENDED BAD DEBT EXPENSE

Line No.	Description		Amount
1	2014 Bad Debt Expense	$	12,356
2	2015 Bad Debt Expense		22,955
3	2016 Bad Debt Expense		(7,257)
4	Total 3-Years Bad Debt Expense (Sum of Lines 1-3)	$	28,054
5	3-Year Average Bad Debt Expense (Line 4 / 3-Years)	$	9,351
6	Test Year Bad Debt Expense (Line 3)		(7,257)
7	Company Adjustment to Miscellaneous Expense for Bad Debt Expense (Line 5 Minus 6)	**$**	**16,608**
8	Company Test Year Adjusted Revenues Per Company Schedule C-1	$	11,633,954
9	RUCO Test Year Adjusted Revenues Per RUCO Schedule TJC-12		11,633,954
10	RUCO Difference In Adjusted Test Year Revenues (Line 9 Minus 8)	$	-
11	RUCO Adjustment to Bad Debt Expense for RUCO Adjusted Test Year Revenues (L10 x L12)	$	-
12	RUCO Bad Debt percent of Revenues (L5 / L9)		0.0804%
13	RUCO Recommended Revenues Per RUCO Schedule TJC-12	$	11,727,843
14	RUCO Bad Debt at Proposed Revenues (L12 * L13)	$	9,427
15	RUCO Change in Bad Debt Expense Adjustment (L14 - L5)	$	76

References:
Company Schedule C-1;
RUCO Income Statement Schedule TJC-12.

OPERATING INCOME ADJUSTMENT NO. 10
HISTORICAL CUSTOMER GROWTH ADJUSTMENT - NOT USED IN DIRECT FILING

Line
No.

OPERATING INCOME ADJUSTMENT NO. 11
DISALLOWED EXPENSES PER COMPANY RESPONSE TO STAFF DR #2.23

Line No.	Description	Amount
1	Membership & Industry Associations Fees	$ (1,493)
2	Charitable Contributions	(101)
3	Lobbying Expenses	(13,827)
4	Meals for Luncheons and Dinners	(10,338)
5	* Christmas Party	(390)
6	Massage Therapy Treatments	(12)
7	RUCO Total Adjustment	$ (26,160)

References:
Line 1 @ 50% Sharing Between Ratepayers & Shareholders
Line 2 @ 100% Disallowance
Line 3 @ 100% Disallowance
Line 4 @ 50% Sharing Between Ratepayers & Shareholders
* Line 5 @ 100% Disallowance not included in Company's response to Staff DR TBH 2.23 - Single Invoice shown to Becker

OPERATING INCOME ADJUSTMENT NO. 12
NOT USED FOR SEWER DIVISION

Line No.	Description	Amount

OPERATING INCOME ADJUSTMENT NO. 13
INCOME TAX EXPENSE

Line No.	Description	[A] Adjusted Test Year	[B] Proposed and Recommended
1	Company Income Tax Expense	$ 712,071	$ 1,992,966
2	RUCO Recommended Income Tax Expense	1,244,039	1,278,431
3	RUCO Recommended Adjustments	$ 531,969	$ (714,534)

References:
Line 1: Company Schedule C-1;
Line 2: RUCO Schedule TJC-12.

GROSS REVENUE CONVERSION FACTOR ("GRCF")

Line No.	Description		Amount
1	Combined Federal & State Effective Income Tax Rate		37.2340%
2	Property Tax Effective Rate		0.9669%
3	Uncollectible Revenue Effective Rate		0.0505%
4	Total Cobined Federal, State, Property, and Uncollectible Effective Rates (Sum of L1 + L2 + L3)		38.2514%
5	Operating Income % = 100% Minus Combined Federal, State, Property, Uncollectible Effective Rates (100% Minus Line 4)		61.7486%
6	$\frac{1}{\text{Operating Income \% on Line 5}}$	=	1.6195

References:
RUCO Schedule TJC-1, Page 1 of 2 and Page 2 of 2;
RUCO Schedule TJC-12.

COST OF CAPITAL

Line No.	Description	[A] DOLLAR AMOUNT	[B] CAPITAL RATIO	[C] COST RATE	[D] WEIGHTED COST RATE
1	Long-Term Debt	$ 36,175,010	46.00%	3.78%	1.74%
2	Short-Term Debt	-	0.00%	0.00%	0.00%
3	Common Equity	42,466,317	54.00%	9.57%	5.17%
4	Total Capitalization	$ 78,641,327	100.00%		6.91%
5	WEIGHTED AVERAGE COST OF CAPITAL ("WACC")				6.91%

References:
Columns [A] Thru [D]: JAC Schedules & Testimony

RUCO EXHIBIT 1

Final Report on
A Management and Operations Audit of
The Customer Service and Accounting
Functions of Liberty Utilities

Public Version
Confidential Materials are Redacted

Presented to:	**Presented by:**
New Hampshire Public Commission Service Commission	***The Liberty Consulting Group***

August 12, 2016

279 North Zinns Mill Rd, Suite H
Lebanon, Pennsylvania 17042

admin@libertyconsultinggroup.com

LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.

DOCKET NOS. SW-01428A-17-0058 and W-01427A-17-0059

DIRECT TESTIMONY

OF

TIMOTHY COLEY

ON

RATE DESIGN

ON BEHALF OF THE

RESIDENTIAL UTILITY CONSUMER OFFICE

DECEMBER 21, 2017

TABLE OF CONTENTS

SCHEDULES

EXECUTIVE SUMMARY
LIBERTY UTILITIES CORP
DOCKET NO. W-02465A-15-0367 et al.

Liberty Utilities (Litchfield Park Water & Sewer) Corp ("LU-LPSCO" or "Company") filed four separate dockets, two Rate Applications and two Financing Applications, on February 28, 2017 and March 17, 2017 for two of its Arizona operating systems. LU-LPSCO's two operating systems as filed included Litchfield Park Water and Litchfield Park Sewer. The four separate dockets were consolidated under the single Docket No. SW-01428A-17-0058 et al. for administrative efficiency purposes. LU-LPSCO is a for profit and certificated Arizona public service corporation that provides water and sewer utility service to various communities in the southwestern portion of the Phoenix metropolitan area. It serves areas in and around the City of Goodyear north of Interstate 10, two commercial sites in Avondale and an unincorporated area of Maricopa County. The two divisions' corporate business office is located at 12725 West Indian School Road, Suite D-101, Avondale, Arizona 85392.

RUCO recommends approval of its rate design for both the Litchfield Park Water & Sewer Divisions as follows:

Litchfield Park Water Division:

There are more ¾-Inch water residential customers than any other meter size. Therefore, RUCO will use the Residential ¾-Inch meter size customer classification to express its recommended rate design's impact on that customer classification. The Company-proposed rates would increase the monthly bill for a typical ¾-Inch meter residential customer, with an average usage of 8,357 gallons, by $3.28 or 12.63 percent, from $25.96 to $29.24.

Under the RUCO-recommended rate design for permanent rates, the monthly bill for a typical residential customer would decrease by $(1.97), or (7.57) percent, from $25.96 to $23.99.

Litchfield Park Sewer Division:

The Company-proposed rates would increase the monthly bill for a typical ¾-Inch water meter residential customer, with an average water usage of 8,357 gallons, by $12.65 or 31.351 percent, from $40.35 to $53.00.

Under the RUCO-recommended rate design for permanent rates, the monthly bill for a typical residential customer would increase by 35¢, or 0.87 percent, from $40.35 to $40.70.

I. INTRODUCTION

Q. Please state your name, title, and business address.

A. My name is Timothy J. Coley. I am a Public Utilities Analyst V employed by the Arizona Residential Utility Consumer Office ("RUCO"). My business address is 1110 West Washington Street, Suite 220, Phoenix, Arizona 85007.

Q. Are you the same Timothy J. Coley who has filed direct testimony pertaining to rate base, operating income, and revenue requirement on behalf of RUCO on December 21, 2017 in this docket for Liberty Utilities' permanent rate application?

A. Yes.

II. BACKGROUND

Q. Please describe the Company and background of the current rate case.

A. Liberty Utilities Corp or Litchfield Park Water & Sewer Corp's ("LU-LPSCO" or "Company") two operating divisions as filed are classified as an Arizona "C" Corporation. The Company is a for profit and certificated Arizona public service corporation that provides water and sewer utility service to various communities throughout the southwestern portion of the Phoenix metropolitan area in and around the City of Goodyear north of Interstate 10, two commercial sites in Avondale and an unincorporated area of Maricopa County. On February 28, 2017 and March 17, 2017, the Company filed four separate Applications two of which were Rate Applications for permanent rate increases for its Litchfield Park Water and Sewer Divisions. The other two Applications were for financing matters related to the two water and sewer divisions. All four Applications were consolidated under Docket No. SW-01427A-17-0058 et al. for administrative efficiency purposes. LU-LPSCO's corporate business office is located at 12725 West Indian School Road, Suite D-101, Avondale, Arizona 85392.

Q. Please briefly describe the present rate design structure for the two divisions?

A. For the water division, the present rate design is based on monthly minimum charges that increase by meter size and tiered commodity rate charges per one-thousand gallons consumed. There are currently several customer classifications; residential, multi-tenant housing, commercial, irrigation hydrants, fire sprinklers, and other public authority users such as schools districts and the City of Goodyear. The water division has a four-tier commodity rate design for the ¾-Inch metered residential customers with break-over points of 3,000, 10,000, 20,000, until infinity for total gallons usage. The four-tier commodity rates are currently set at 75¢, $1.95, $2.95, and $3.46 respectively for the four-tier break-over price points.

For the sewer division, ¾-Inch residential customers have a flat monthly minimum rate design with <u>no</u> commodity charges based on water usage. The other sewer system customer classifications (i.e. commercial, industrial, and schools) have flat monthly minimums based on water meter sizes in addition to a commodity charge per 1,000 gallons water usage. The present commodity charge for these customer classifications varies depending on the classification of customer (i.e., commercial and restaurants) for each 1,000 gallons of water usage per month.

Q. Has the Company proposed any significant changes to the present rate design structure?

A. No. All customer classifications proportionately shared in the Company's proposed increase in rates across the board. Therefore, the customers will not experience any significant shifts or changes other than the increase/decrease in the revenue requirements as proposed by the Company. RUCO believes the Company's commodity charge in its first tier as proposed should be set at $1.00 per thousand gallons through the first break-over point for the water division.

Q. Did RUCO recommend a first tier commodity rate of $1.00 per thousand gallons in its rate design for the water division?

A. No. RUCO is just suggesting that the Company's present and proposed first tier commodity charge is set to far below its true cost of providing the commodity at both the Company's proposed adjusted TY expenses and RUCO's recommended adjusted TY level of expenses. RUCO would support a first tier commodity charge that is more reflective of the Company's true cost of providing that commodity.

RUCO has recommended a slightly higher first-tier commodity charge in the recent Bella Vista and Rio Rico rate cases. RUCO would support a first tier commodity rate that comes closer to the Company's cost of providing that commodity in the future. RUCO's recommendation is aimed to create greater revenue stability for the Company moving forward since all customer classifications and meter sizes that uses any water does so in the first tier. Practically all metered revenues are generated from customers consuming or using water in this first tier. Therefore, any shift in revenues toward the first tier will be shared by all customers and customer classifications.

Q. Is RUCO recommending any changes to the present rate design structure?

A. No. RUCO utilized the same Company rate design with the only exception being the revenue percentage increase/decrease as recommended by RUCO.

III. RATE DESIGN

Q. Have you prepared schedules summarizing the Company's present and proposed rates compared to RUCO's recommended rates and charges?

A. Yes. RUCO has presented its recommended rates in the attached Rate Design Schedules TJC-1. A brief summary of the Company-present, Company-proposed, and RUCO-recommended rates for the ¾-Inch residential customer for each of the two divisions is presented on the following page.

...

Litchfield Park Water:

Q. Please summarize the present rate design for the ¾-Inch residential customer?

A. The present monthly minimum charge for the ¾-Inch residential customer is $13.26. No gallons are included in the monthly minimum charge. The present four-tier commodity rates for the ¾-Inch residential water customer are set at 75¢, $1.95, $2.95, and $3.46 per thousand gallons respectively for the four-tier break-over price points. The four-tier break-over points are 1 to 3,000 gallons in the first-tier at 75¢ per thousand gallons, for the next 7,000 gallons in the second-tier of water usage between 3,001 to 10,000 gallons the commodity rate is set at $1.95 per thousand gallons, for the next 10,000 gallons in the third-tier of water usage between 10,001 to 20,000 gallons the commodity rate is set at $2.95 per thousand gallons, and fourth-tier for any water usage over 20,000 gallons is set at $3.456 per thousand gallons.

RUCO's earlier recommendation to shift more revenues into the first-tier through a higher first-tier commodity charge would provide the Company greater revenue stability. Moreover, the revenues are known and measurable. Whereas, the Company's ill-founded usage normalization adjustment is not known and measurable and therefore should be rejected.

Q. Please summarize the Company's proposed rate design for the ¾-Inch residential customer?

A. The Company-proposed monthly minimum charge for a ¾-Inch residential customer is \$14.93. No gallons are included in the monthly minimum charge. The residential water commodity rate for the ¾-Inch residential customer is 84.5¢ per thousand gallons for 1 to 3,000 gallons, \$2.197 per thousand gallons for 3,001 to 10,000 gallons, \$3.197 per thousand gallons for 10,001 to 20,000 gallons, and \$3.8938 per thousand gallons for any usage over 20,000 gallons.

Q. Please summarize RUCO's recommended rate design for the water division's ¾-Inch residential customer?

A. RUCO recommends a monthly minimum charge for a ¾-Inch residential customer of \$12.26. No gallons are included in the monthly minimum charge. RUCO recommends the same four-tier residential water commodity rate for the ¾-Inch residential customer of 69.32¢ per thousand gallons for 1 to 3,000 gallons, \$1.8023 per thousand gallons for 3,001 to 10,000 gallons, \$2.7266 per thousand gallons for 10,001 to 20,000 gallons, and \$3.1943 per thousand gallons for any usage over 10,000 gallons.

Litchfield Park Sewer:

Q. Please summarize the Company's present rate design for the ¾-Inch residential customer?

A. The present monthly minimum charge for a ¾-Inch residential customer is $40.35. There are no gallons included in the monthly minimum charge. There is also no commodity charge for the residential customers.

Q. Please summarize the Company's proposed rate design for the ¾-Inch residential customer?

A. The Company-proposed monthly minimum charge for a ¾-Inch residential customer is $53.00. There are no gallons included in the monthly minimum charge. Again, there is no commodity charge for the residential customers.

Q. Please summarize RUCO's recommended rate design for the ¾-Inch residential customer?

A. RUCO recommends a monthly minimum charge for a ¾-Inch residential customer of $40.70 due to its recommended revenue requirements. RUCO does not recommend any commodity charge for the residential customers either.

IV. TYPICAL BILL ANALYSIS

Q. Have you prepared a residential typical bill analysis that shows the impact of both the Company's and RUCO's recommended rates for each of the Company's two divisions?

A. Yes. RUCO has presented its typical bill analysis in Schedules TJC-2 and has summarized the results for each of the two divisions as discussed below.

<u>Litchfield Park Water:</u> The Company-proposed rates would increase the monthly bill for a typical ¾-Inch meter residential customer, with an average usage of 8,357 gallons, by $3.28 or 12.63 percent, from $25.96 to $29.24. Under the RUCO-recommended rate design for permanent rates, the monthly bill for a typical residential customer would decrease by ($1.97), or (7.57%) percent, from $25.96 to $23.99.

<u>Litchfield Park Sewer:</u> The Company-proposed rates would increase the monthly bill for a typical ¾-Inch meter residential customer, with an average usage of 8,357 gallons, by $12.65 or 31.351 percent, from $40.35 to $53.00. Under the RUCO-recommended rate design for permanent rates, the monthly bill for a typical residential customer would increase by 35¢, or 0.87 percent, from $40.35 to $40.70.

Q. Does this conclude your rate design direct testimony?

A. Yes, it does.

WATER RATE DESIGN SCHEDULES

Monthly Usage Charge	Company Present	Company Proposed Rates	RUCO Recommended Rates
Meter Size (All Classes Except M-F, Commercial & Irrigation 1-Inch):			
5/8 Inch	$ 13.26	$ 14.93	$ 12.26
3/4 Inch	13.2600	14.9300	12.2560
1 Inch	29.8350	33.5925	27.5759
1 1/2 Inch	66.3000	74.6500	61.2799
2 Inch	106.0800	119.4400	98.0478
3 Inch	212.1600	238.8800	196.0955
4 Inch	331.5000	373.2500	306.3993
6 Inch	663.0000	746.5000	612.7986
8 Inch	1,060.8000	1,194.4000	980.4777
10 Inch	1,524.9000	1,716.9500	1,409.4367
12 Inch	2,850.9000	3,209.9500	2,635.0339
Multi-Family, Commercial, & Irrigation Customer Class:			
1 Inch	$ 33.1500	$ 37.3250	$ 30.6399
Fire Hydrant Bulk Sales (Construction) and Sweeper	$ -	By Meter Size	By Meter Size
4 Inch - Bulk Water Resale Only	**NT**	$ 201.5550	$ 165.4556
6 Inch - Bulk Water Resale Only	**NT**	403.1100	330.9112
8 Inch - Bulk Water Resale Only	575.00	647.4500	647.4500
10 Inch - Bulk Water Resale Only	**NT**	927.1530	761.0958
12 Inch - Bulk Water Resale Only	**NT**	1,733.3730	1,422.9183
Fire	By Meter Size	By Meter Size	By Meter Size

Commodity Charge - Per 1,000 Gallons			
5/8 Inch (Residential):			
First 3,000 gallons	$ 0.7500	$ 0.845000	$ 0.6932
3,001 to 10,000 gallons	1.9500	2.197000	1.8023
10,001 to 20,000 gallons	2.9500	3.197000	2.7266
Over 20,000 gallons	3.4560	3.893760	3.1943
5/8 Inch (Non-Residential):			
First 9,000 gallons	1.9500	2.197000	1.8023
Over 9,000 gallons	3.4560	3.893760	3.1943
3/4 Inch (Residential):			
First 3,000 gallons	0.7500	0.845000	0.6932
3,001 to 10,000 gallons	1.9500	2.197000	1.8023
10,001 to 20,000 gallons	2.9500	3.197000	2.7266
Over 20,000 gallons	3.4560	3.893760	3.1943
3/4 Inch (Non-Residential):			
First 9,000 gallons	1.9500	2.197000	1.8023
Over 9,000 gallons	3.4560	3.893760	3.1943
1 Inch (Residential):			
First 5,000 gallons	0.7500	0.845000	0.6932
5,001 to 19,000 gallons	1.9500	2.197000	1.8023
19,001 to 30,000 gallons	2.9500	3.197000	2.7266
Over 30,000 gallons	3.4560	3.893760	3.1943
1 Inch (Non-Residential):			
First 20,000 gallons	1.9500	2.197000	1.8023
Over 20,000 gallons	3.4560	3.893760	3.1943
1 1/2 Inch (All Customer Classifcations):			
First 40,000 gallons	1.9500	2.197000	1.8023
Over 40,000 gallons	3.4560	3.893760	3.1943

2 Inch (All Customer Classifications):			
First 60,000 gallons	1.9500	2.197000	1.8023
Over 60,000 gallons	3.4560	3.893760	3.1943
3 Inch (All Customer Classifications):			
First 120,000 gallons	1.9500	2.197000	1.8023
Over 120,000 gallons	3.4560	3.893760	3.1943
4 Inch (All Customer Classifications):			
First 180,000 gallons	1.9500	2.197000	1.8023
Over 180,000 gallons	3.4560	3.893760	3.1943
6 Inch (All Customer Classifications):			
First 360,000 gallons	1.9500	2.197000	1.8023
Over 360,000 gallons	3.4560	3.893760	3.1943
8 Inch (All Customer Classifications):			
First 650,000 gallons	1.9500	2.197000	1.8023
Over 650,000 gallons	3.4560	3.893760	3.1943
10 Inch (All Customer Classifications):			
First 940,000 gallons	1.9500	2.197000	1.8023
Over 940,000 gallons	3.4560	3.893760	3.1943
12 Inch (All Customer Classifications):			
First 1,248,000 gallons	1.9500	2.197000	1.8023
Over 1,248,000 gallons	3.4560	3.893760	3.1943
Bulk Water Resale Only - Including City of Goodyear:			
Commodity Charges	1.6500	1.8580	1.8580
Standpipe (Fire Hydrant / Construction and Sweeper):			
All Usage	3.4560	3.893760	3.1943

Typical Bill Analysis
General Service 3/4-Inch Meter

Company Proposed	Gallons	Present Rates	Proposed Rates	Dollar Increase	Percent Increase
Average Usage	8,357	$ 25.96	$ 29.24	$ 3.28	12.63%
Median Usage	7,000	23.31	26.25	$ 2.94	12.63%
RUCO Recommended					
Average Usage	8,357	$ 25.96	$ 23.99	$ (1.97)	-7.57%
Median Usage	7,000	23.31	21.54	$ (1.77)	-7.57%

Present & Proposed Rates (Without Taxes)
General Service 3/4-Inch Meter

Gallons Consumption	Present Rates	Company Proposed Rates	% Increase	RUCO Recommended Rates	% Increase
-	$ 13.26	$ 14.93	12.59%	$ 12.26	-7.57%
1,000	$ 14.01	$ 15.78	12.60%	$ 12.95	-7.57%
2,000	$ 14.76	$ 16.62	12.60%	$ 13.64	-7.57%
3,000	$ 15.51	$ 17.47	12.60%	$ 14.34	-7.57%
4,000	$ 17.46	$ 19.66	12.61%	$ 16.14	-7.57%
5,000	$ 19.41	$ 21.86	12.62%	$ 17.94	-7.57%
6,000	$ 21.36	$ 24.06	12.62%	$ 19.74	-7.57%
7,000	$ 23.31	$ 26.25	12.63%	$ 21.54	-7.57%
8,000	$ 25.26	$ 28.45	12.63%	$ 23.35	-7.57%
9,000	$ 27.21	$ 30.65	12.63%	$ 25.15	-7.57%
10,000	$ 29.16	$ 32.84	12.63%	$ 26.95	-7.57%
11,000	$ 32.11	$ 36.04	12.24%	$ 29.68	-7.57%
12,000	$ 35.06	$ 39.24	11.92%	$ 32.41	-7.57%
13,000	$ 38.01	$ 42.44	11.64%	$ 35.13	-7.57%
14,000	$ 40.96	$ 45.63	11.41%	$ 37.86	-7.57%
15,000	$ 43.91	$ 48.83	11.20%	$ 40.59	-7.57%
16,000	$ 46.86	$ 52.03	11.02%	$ 43.31	-7.57%
17,000	$ 49.81	$ 55.22	10.87%	$ 46.04	-7.57%
18,000	$ 52.76	$ 58.42	10.73%	$ 48.77	-7.57%
19,000	$ 55.71	$ 61.62	10.60%	$ 51.49	-7.57%
20,000	$ 58.66	$ 64.81	10.49%	$ 54.22	-7.57%
25,000	$ 75.94	$ 84.28	10.99%	$ 70.19	-7.57%
30,000	$ 93.22	$ 103.75	11.30%	$ 86.16	-7.57%
35,000	$ 110.50	$ 123.22	11.51%	$ 102.13	-7.57%
40,000	$ 127.78	$ 142.69	11.67%	$ 118.10	-7.57%
45,000	$ 145.06	$ 162.16	11.79%	$ 134.08	-7.57%
50,000	$ 162.34	$ 181.63	11.88%	$ 150.05	-7.57%
75,000	$ 248.74	$ 278.97	12.15%	$ 229.91	-7.57%
100,000	$ 335.14	$ 376.31	12.29%	$ 309.76	-7.57%

SEWER RATE DESIGN SCHEDULES

Rate Design

Monthly Usage Charge	Present	Company Proposed Rates	RUCO Recommended Rates
Customer Classification:			
Monthly Residential Service	$ 40.3500	$ 53.0000	$ 40.7000
Multi-Unit Housing - Monthly per Unit	37.4600	49.2000	37.7819
Commercial:			
Small Commercial - Monthly Service	68.2400	89.6300	68.8291
Measured Service:			
Regular Domestic:			
Monthly Service Charge	38.2000	50.1800	38.5345
Commodity Charge per 1,000 gallons water usage	3.3327	4.3775	3.3612
Commodity Charge per 1,000 gallons measured influent3	NT	5.4100	4.1500
Restaurant, Motels, Grocery Stores & Dry Cleaning Estab:			
Monthly Service Charge	38.2000	50.1800	38.5345
Commodity Charge per 1,000 gallons water usage	4.4505	5.84573175	4.48855260
Commodity Charge per 1,000 gallons measured influent3	NT	7.2200	5.5400
Wigwam Resort:			
Monthly Rate - Per Room	37.4600	49.2000	37.7819
Main Hotel Facilities - Per Month	1,483.4700	1,948.5400	$ 1,496.1500
Schools - Monthly Service Rates:			
Elementary Schools	1,008.7500	1,324.9900	1,017.3800
Middile Schools	1,186.7700	1,558.8200	1,196.9200
High Schools	1,186.7700	1,558.8200	1,196.9200
Community College	1,839.5000	2,416.1800	1,855.2300
Effluent4	Market	Market	Market

1 Motels without restuarants charged multi-unit monthly rate.
2 Motels without restuarants included (elinimate multi-unit monthly rate provision)
3 For customers that are not receiving water service from Liberty Utilities, a meter to measure influent will be installed at cost and paid by customer subject to refunding.
4 Market Rate - Maximum effluent rate shall not exceed $430 per acre foot based on a potable water rate of $1.32 per thousand gallons.
NT = No Tariff

Liberty Utilities (Litchfield Park Water & Sewer) Corp. - Sewer Division **Schedule TJC-2**
Docket No. SW-01428A-17-0058 et al.
Test Year Ended December 31, 2016

Typical Bill Analysis
General Residential Service (Water Meter Size Not Applicable)

Company Proposed	Gallons		Present Rates		Proposed Rates		Dollar Increase	Percent Increase
Average Usage	-	$	40.35	$	53.00	$	12.65	31.35%
Median Usage	-		40.35		53.00	$	12.65	31.35%
RUCO Recommended								
Average Usage	-	$	40.35	$	40.70	$	0.35	0.87%
Median Usage	-		40.35		40.70	$	0.35	0.87%

Present & Proposed Rates (Without Taxes)
General Residential Service (Water Meter Size Not Applicable)

Gallons Consumption		Present Rates		Company Proposed Rates	% Increase		RUCO Recommended Rates	% Increase
-	$	40.35	$	53.00	31.35%	$	40.70	0.87%
1,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
2,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
3,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
4,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
5,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
6,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
7,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
8,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
9,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
10,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
11,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
12,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
13,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
14,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
15,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
16,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
17,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
18,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
19,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
20,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
25,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
30,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
35,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
40,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
45,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
50,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
75,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%
100,000	$	40.35	$	53.00	31.35%	$	40.70	0.87%

LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.

DOCKET NOS. SW-01428A-17-0058 and W-01427A-17-0059

DIRECT TESTIMONY

OF

JOHN CASSIDY, CRRA

ON BEHALF OF THE

RESIDENTIAL UTILITY CONSUMER OFFICE

DECEMBER 21, 2017

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EXECUTIVE SUMMARY

RUCO recommends that the Commission adopt a 6.91 percent overall rate of return for Liberty Utilities (Litchfield Park Water & Sewer) Corp. ("LU-LPSCO," or "Company"), based upon (i) a pro forma capital structure consisting of 46.00 percent long-term debt and 54.00 percent common equity, (ii) a provisional 3.78 percent cost of long-term debt, and (iii) RUCO's recommended 9.57 percent cost of common equity, as shown below:

	Weight	Cost	Weighted Cost
Long-Term Debt	46.00 %	3.78 %	1.74 %
Common Equity	54.00 %	9.57 %	5.17 %
Overall Rate of Return			6.91 %

RUCO's 9.57 percent cost of equity is derived from estimates obtained from three cost of equity estimation models: the Constant Growth Discounted Cash Flow Model ("DCF"), the Capital Asset Pricing Model ("CAPM"), and the Comparable Earnings Model ("CE"). RUCO's recommended 9.57 percent estimated cost of equity represents the arithmetic mean of the results obtained from RUCO's DCF (9.63 percent), CAPM (7.68 percent), and CE (11.40 percent) models, as follows:

Cost of Equity Estimation Model	Cost Estimate
Constant Growth Discounted Cash Flow	9.63 %
Capital Asset Pricing Model	7.68 %
Comparable Earnings	11.40 %
Average Cost of Equity	9.57 %

I will also demonstrate that the 10.70 percent cost of equity recommendation put forth by Company witness, Mr. Thomas J. Bourassa, significantly overstates LU-LPSCO's actual cost of equity.

I will further demonstrate that LU-LPSCO's proposed 30.0 percent debt / 70.0 percent common equity capital structure overstates the Company's overall rate of return.

I. INTRODUCTION

Q. Please state your name, occupation, and business address.

A. My name is John A. Cassidy. I am a Public Utilities Analyst V with the Residential Utility Consumers Office ("RUCO"). My business address is 1110 W. Washington Street, Suite 220, Phoenix, AZ.

Q. Please describe your educational background and professional experience.

A. I hold a Bachelor of Arts degree in History from Arizona State University, a Master of Library Science degree from the University of Arizona, and a Master of Business Administration degree with an emphasis in Finance from Arizona State University. I have been awarded the professional designation Certified Rate of Return Analyst ("CRRA") by the Society of Utility and Regulatory Financial Analysts ("SURFA") based upon experience and the successful completion of a written examination. I have nine years of professional regulatory work experience as a Public Utilities Analyst, both with RUCO and the Arizona Corporation Commission ("ACC") Staff, and have testified in numerous rate proceedings as a cost of capital witness before this Commission. Additionally, I have attended utility related seminars sponsored by both SURFA and the National Association of Regulatory Utility Commissioners (NARUC). Attachment 1 contains a summary of my prior regulatory work experience.

Q. Please state the purpose of your testimony.

A. The purpose of my testimony is to present RUCO's recommendations for the establishment of a fair value rate of return for Liberty Litchfield Park. For purposes of establishing a fair value rate of return on its invested capital in this proceeding, the

Company has elected to use its original cost rate base ("OCRB") as its fair value rate base ("FVRB").

Q. Will RUCO provide direct testimony on the rate base, operating income and rate design issues in this proceeding?

A. Yes. The Direct Testimony of RUCO witness, Mr. Tim Coley, will address the issues of rate base, operating income, and rate design.

II. SUMMARY OF TESTIMONY AND RECOMMENDATIONS

Q. Briefly summarize how your cost of capital testimony is organized.

A. My cost of capital testimony is organized into twelve (12) different sections as identified in my "Table of Contents." In summary, I have derived cost of equity estimates obtained from both the Constant Growth Discounted Cash Flow ("DCF") model and the Capital Asset Pricing Model ("CAPM"). The DCF and CAPM are market-based cost of equity estimation models, and both have consistently been employed by RUCO and ACC Staff in prior rate proceedings. Additionally, the DCF and CAPM are methodologies which the ACC has traditionally given the most weight when establishing authorized rates of return for utilities operating within its Arizona jurisdiction. In addition to cost of equity estimates obtained from the DCF and CAPM models, I have also prepared a Comparable Earnings ("CE") analysis, which gives consideration to actual realized returns on equity achieved by RUCO's proxy group of publicly traded sample water companies. RUCO's recommended cost of equity in this proceeding represents the arithmetic mean (i.e., simple average) of the cost of equity results obtained from the DCF, CAPM and CE models. The Company's witness, Mr. Thomas J. Bourassa, obtains cost of equity estimates from (i) the Constant Growth DCF model; (ii) the Risk Premium Model ("RPM"); and (iii) three versions of the CAPM; namely: the Traditional CAPM, the Empirical CAPM ("ECAPM"), and a Modified CAPM. My testimony will conclude with a discussion of Mr. Bourassa's cost of equity estimation methodology, and I will demonstrate that his analyses significantly overstates the Company's actual cost of equity.

Q. Please summarize the cost of capital recommendations to be addressed in your testimony.

A. Based upon the results of my analysis, RUCO makes the following recommendations: RUCO recommends that the Commission adopt a 6.91 percent overall rate of return for the Company, based upon (i) a capital structure consisting of 46.00 percent long-term debt, and 54.00 percent common equity, (ii) a 3.78 percent cost of long-term debt, and (iii) a cost of common equity of 9.57 percent. The components included in my cost of capital calculation are as follows:[1]

	Weight	Cost	Weighted Cost
Long-Term Debt	46.00 %	3.78 %	1.74 %
Common Equity	54.00 %	9.57 %	5.17 %
Overall Rate of Return			6.91 %

The cost of equity estimates included in my calculations are derived from the following three cost of equity models, with RUCO's recommended 9.57 percent cost of equity being the arithmetic mean (i.e., simple average) of the results obtained from RUCO's Constant Growth DCF, CAPM and CE models:[2]

[1] *See* Schedule JAC -1.
[2] *See* Schedule JAC-2.

	Cost Estimate
Constant Growth Discounted Cash Flow	9.63 %
Capital Asset Pricing Model	7.68 %
Comparable Earnings	11.40 %
Average Cost of Equity	9.57 %

III. ECONOMIC PRINCIPLES APPLICABLE TO ARIZONA

Q. What are the basic economic principles which apply in the determination of a fair rate of return for regulated public utilities in Arizona?

A. For regulated public utilities in Arizona, rates are established in a manner designed to allow for recovery of the utility's costs, including capital costs. This is traditionally referred to as "cost of service" ratemaking. Rates are established using the "rate base – rate of return" concept, wherein utilities are allowed to recover specific operating expenses, taxes and depreciation, and granted an opportunity to earn a fair value rate of return on the assets utilized (i.e., fair value rate base) in providing service to ratepayers. Rate base is derived from the asset side of the utility's balance sheet, while rate of return is developed from the liability/stockholders' equity side of the balance sheet. The revenue impact of the cost of capital in rates is determined by multiplying rate base by rate of return. In the instant docket, RUCO is recommending an overall rate of return for Liberty Litchfield Park of 6.91 percent.

Q. Is the Company proposing that its original cost rate base also be used as its fair value rate base?

A. Yes.

Q. What is the meaning of a "fair rate of return" when analyzing a rate case application?

A. From an economic standpoint, a "fair rate of return" is one which allows an efficient and economically well managed utility the ability to maintain its financial integrity, attract capital, and establish comparable returns for similar risk investments. These concepts are derived from economic and financial theory and are generally implemented using financial models and economic concepts. From a technical perspective, a "fair rate of return" is an ex post (after the fact) earned return on an asset base. Conversely, the cost of capital is an ex ante (before the fact) expected, or required, return on a capital base. In regulatory proceedings, the two terms are often used interchangeably.

Q. As regulated entities granted natural monopoly status, are public utilities guaranteed to earn their authorized rate of return?

A. No. Public utilities are afforded an opportunity to earn their authorized rate of return, they are not guaranteed to earn the rate of return authorized in a rate case. Many factors are involved in determining a rate of return. However, investments in new plant assets made subsequent to a rate case and/or increases to operating expenses between rate cases can have a negative impact on a utility's realized rate of return. Conversely, an increase in revenues and/or a decrease in operating expenses can have a positive impact on the earned rate of return. In the former scenario, a public utility will generally file for a rate increase. In the latter scenario, should a public utility earn a rate of return in excess of that approved by a utility commission, then the commission may instruct the utility to file a rate application in order that new rates be established to provide rate relief to ratepayers.

IV. GENERAL ECONOMIC CONDITIONS

Q. Why are economic and financial conditions important in the determination of the cost of capital for a regulated public utility such as EWAZ?

A. Economic and financial conditions are important because the cost of capital, both fixed-cost debt as well as common equity, is largely determined by current and future economic and financial conditions. At any given time, the cost of capital is influenced by each of the following: (i) the level of economic activity (i.e., economic growth); (ii) the stage of the business cycle; (iii) the rate of inflation; and (iv) expected future economic conditions. That current and future economic and financial conditions largely determine the cost of equity is consistent with the Court's ruling in the *Bluefield* decision, which held that

> "[a] rate of return may be reasonable at one time, and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions generally." Bluefield, 262 U.S. at 679.[3]

Measures of general economic indicators influencing the cost of capital are presented in Schedule JAC-6 (Pages 1-7).

Q. Briefly describe the recent trends in economic conditions and their impact on capital costs over the past thirty years?

A. From the early 1980's through the end of 2007, the United States economy experienced a period of relative stability. This period was characterized by longer economic expansions, small contractions, low and/or declining inflation, and declining interest rates and other capital costs. However, in 2008 and 2009 the economy experienced a steep

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[3] *Bluefield Water Works and Improvement Company v. Public Service Commission of the State of West Virginia* (262 U.S. 679), as cited in Parcell, David C., *The Cost of Capital: A Practitioner's Guide*, prepared for the Society of Utility and Regulatory Financial Analysts (SURFA): 2010 Edition (p.26).

decline as a result of the sub-prime mortgage lending crisis and had a negative impact on the financial markets both here in the U.S. and internationally. This economic decline is generally considered to be the worst financial crisis since the Great Depression, and is often referred to as, the 'Great Recession.' Since 2008, central banks in the U.S. (i.e., the Federal Reserve Bank) and other foreign countries have initiated accommodative monetary policies designed to stimulate economic growth and reduce unemployment in an effort to recover from this worldwide recession.

The recession bottomed out in June 2009, and while the economy has since expanded it has done so at the slowest pace of any recovery since World War II.[4] This is evidenced by the national unemployment rate having fallen from a high of 9.6 percent in 2010 to 4.9 percent in 2016; as of October 2017, the current national unemployment rate is 4.1 percent.[5] At the State level, Arizona's unemployment rate continues to lag that of the nation, and currently stands at 4.5 percent as of October 2017.[6]

Q. Please describe how the economic and financial indicators were examined and how they relate generally to the cost of capital.

A. Schedules JAC-6 (Pages 1 and 2) present relevant economic data such as Real Gross Domestic Product ("GDP") Growth, Industrial Production Growth, Unemployment,

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[4] Long, Heather, and Luhby, Tami, "Yes, This is the Slowest U.S. Recovery since WWII," CNNMoney.com (October 5, 2016). http://money.cnn.com/2016/10/05/news/economy/us-recovery-slowest-since-wwii/

[5] Council of Economic Advisors, United States Department of Labor, Bureau of Labor Statistics, *Economic Indicators* (October 2017), p. 11. https://www.gpo.gov/fdsys/pkg/ECONI-2017-10/pdf/ECONI-2017-10-Pg11.pdf

[6] United States Department of Labor, Bureau of Labor Statistics, Arizona Unemployment Rate. http://www.bls.gov/eag/eag.az.htm

Consumer Price Index ("CPI") and Producer Price Index. As can be seen, 2007 marked the sixth year of economic expansion, but beginning in 2008 the economy entered into a significant decline, as indicated by negative real GDP and industrial production growth as well as an increase in the unemployment rate. Since 2010 the economy has begun to rebound; however, overall economic growth has continued at a slower pace than that in prior expansions following an economic downturn.

Inflation, as measured by the CPI, has generally been declining over the past several business cycles. Since 2008, annual inflation has been 3.0 percent or lower, with average inflation being 1.57 percent over the 9-year period, 2008-2016,[7] and 1.36 percent over the most recent 5-year period, 2012-2016.[8] Thus, inflation continues to remain at the lowest levels experienced in the past 40+ years, and is indicative of lower capital costs.

Q. Is inflation expected to remain low over the next 10 years?

A. Yes. The 10-year breakeven inflation rate is a market-based measure of investor expectations of inflation over the next 10-years, computed as the difference between the current nominal yield on the 10-year Treasury Note (2.36 percent) and the current real (i.e., inflation adjusted) rate on the 10-Year Treasury Inflation-Indexed Constant Maturity Securities, or TIPS, (0.50 percent). Measured as of the close of market trading on

[7] Utilizing the CPI figures as presented in Schedule JAC-6 (Page 1), average annual inflation over the 9-year period, 2008-2016, was 1.57%: ((0.1% + 2.7% + 1.5% + 3.0% + 1.7% + 1.5% + 0.8% + 0.7% + 2.1%) / 9 = 1.57%).

[8] Over the 5-year period, 2012-2016, average annual inflation was 1.36%: ((1.7% + 1.5% + 0.8% + 0.7% + 2.1%) / 5 = 1.36%).

December 5, 2017, the current spot 10-year breakeven inflation rate is 1.86 percent (2.36% - 0.50% = 1.86%).[9]

Q. How does the current 1.86 percent 10-year breakeven inflation rate compare to average 10-year historical inflation over the past forty years (i.e., 1977-2016)?

A. Based on the annual rates of inflation as presented in Schedule JAC-6 (Page 1), average inflation measured over a 10-year historical period going back to 1977 is as follows:

Historical 10-year inflation (1977-1986)	6.68 %
Historical 10-year inflation (1987-1996)	3.67 %
Historical 10-year inflation (1997-2006)	2.45 %
Historical 10-year inflation (2007-2016)	1.82 %
Projected 10-year inflation (2017-2026)	1.86 %

As can be seen, inflation has fallen in each of the last four 10-year historical periods, with average inflation over the most recent 10-year period (i.e., 2007-2016) being 1.82 percent. The current 1.86 percent breakeven inflation rate over the 10-year period, 2017-2026, suggests that the historically low inflation of the past ten years is expected to continue.

Q. Holding all other factors constant, does a 1.86 percent 10-year breakeven inflation rate provide further evidence that the current low interest rate environment will continue into the future?

A. Yes, it does.

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[9] The 10-year nominal rate and the 10-year TIPS rate are available from the U.S. Department of the Treasury. https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yieldYear&year=2017

Q. What has been the trend in interest rates over the forty-year period, 1975-2015?

A. As shown in Schedule JAC-6 (Pages 3 – 4), interest rates rose sharply to record levels during the period, 1975-1981, when inflation was high and generally rising. Interest rates declined substantially, as did inflation, during the remainder of the 1980s and throughout the 1990s. Interest rates declined further during the period, 2000-2005, and after trending slightly upward in years 2006-2008, continued on a downward path reaching levels in years 2009-2016 not previously seen since the early 1960s. In 2008, the Federal Reserve (the "Fed") initiated an accommodative monetary policy by lowering the federal funds ("Fed Funds") rate (the rate the Fed charges banks for overnight transfers of funds), and in an effort to promote increased lending and liquidity, eventually initiated a policy of quantitative easing, an unconventional monetary policy used when short-term interest rates are at or approaching zero. As a consequence, in years 2012-2016, both U.S. and corporate bond yields declined to their lowest levels in more than 40 years, with the yield on the benchmark 10-year Treasury Note falling to an all-time low in July 2016.[10]

Q. Is the decline in long-term interest rates since the mid-1980s something which the financial markets and professional forecasters saw coming and accurately predicted?

A. No, it is not. As reported in a recent study prepared by the Council of Economic Advisors,[11] "forecasters largely missed the <u>secular decline</u> of the last three decades" because "past forecasts of long-term nominal interest rates have tended to err on the side

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[10] On July 8, 2016, the 10-year Treasury Note traded at an all-time low of 1.361 percent. http://www.wsj.com/articles/government-bond-yields-in-u-s-europe-hit-historic-lows-1467731411

[11] Executive Office of the President, Council of Economic Advisors, "Long-Term Interest Rates: A Survey," (July 2015). https://obamawhitehouse.archives.gov/sites/default/files/docs/interest_rate_report_final.pdf

of <u>mean reversion</u>."[12] (emphasis added) As evidence of such mean reversion, the authors of the study prepared a graphic presentation (10-Year Treasury Rates and Historical Economist Forecasts) showing that forecasts made by a group of more than 50 private-sector economists of the benchmark 10-year Treasury rate, as reported by *Blue Chip Economic Indicators* ("*Blue Chip*"), had systematically been overstated. This graphic presentation is provided as RUCO Exhibit JAC-A. As shown, *Blue Chip* forecasts have consistently exceeded the actual path (shown in blue) of nominal 10-year Treasury rates since 1995, and supports a conclusion that forecasters mistakenly believed the yield on the 10-year Treasury Note would—during the period(s) under study—revert back to a perceived historical mean. In the study, the authors further note the following:

> "Although economists' forecasts steadily declined after 1995, their pace of decline has lagged well behind the realized drop-off in interest rates. Indeed, since 1996, long-range private sector forecasts have exhibited a root mean square error of 2.7 percentage points relative to the nominal Treasury rate realized 10 years later."[13]

Q. What conclusions do the authors of the study to which you cite above draw regarding the decline in long-term interest rates?

A. As noted in the Executive Summary of the report, the authors state the following:

> This report surveys the recent thinking on the many drivers of long-term interest rates in recent decades and going forward. It concludes:
>
> - **The decline in long-term interest rates over the past thirty years was real, global, and unexpected.** While lower inflation explains some of the decline in nominal interest rates, the downtrend is evident even when adjusting nominal interest rates for the rate of inflation. The decline has also been evident across a

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[12] <u>*Ibid*</u>., p. 12.

[13] <u>*Ibid*</u>., p. 10. In a footnote, the authors describe the "root mean square error" as follows: "The root mean square error is a commonly used measure of the deviation between predicted and actual values. The difference between the two values is squared and then summed over time. The square root of that number is typically reported as a summary statistic, with large values indicating large prediction errors."

wide range of countries, reflecting the increasing integration of the global economy. Financial markets and professional forecasters alike consistently failed to predict the secular shift, focusing too much on cyclical factors and missing the long-term trend.

- **The decline is consistent with several theoretical frameworks economists have used to analyze interest rates.** The interest rate settles at the level that equates the supply of saving with the demand for investment, and innumerable factors affect both sides of the equation. Many frameworks suggest that long-term interest rates are closely related to productivity growth. Other factors such as the rate of population growth and technological advance, as well as aggregate demand and the stance of fiscal and monetary policy, also play a role.

- **A number of factors, both transitory and longer-lived, have contributed to the decline—with many of these factors suggesting that long-run equilibrium interest rates have fallen.** Transitory factors include global fiscal and monetary policies, shifts in the term premium and inflation risk, and post-crisis private-sector deleveraging. More persistent factors include lower potential output and productivity growth, shifting demographics, and the global "saving glut."

Ultimately, interest rates reflect underlying macroeconomic conditions; there is no "optimal" long-term rate of interest. Rather, policy should support long-run growth, maintain price stability, and support a stable financial system.[14] (emphasis added)

Q. Has the secular decline in long-term interest rates which has taken place over the last 30 years proven beneficial to equity investors in the United States?

A. Yes. In a recent report published by McKinsey & Company,[15] the 30-year period, 1985-2014, was characterized as the "golden era for investment returns," as real (i.e., inflation adjusted) total returns on equities averaged 7.9 percent in the United States over this period, a figure 140 basis points higher than the 6.5 percent 100 year average, and 220 basis points higher than the 5.7 percent 50 year average (emphasis added).[16] As noted

[14] *Ibid*., Executive Summary, p. 4.

[15] McKinsey Global Institute, "Diminishing Returns: Why Investors May Need to Lower their Expectations," May 2016. www.mckinsey.com/industries/.../why-investors-may-need-to-lower-their-sights

[16] *Ibid*., p. 2. As noted in the report, over this same 30-year period Western European investors also achieved real total returns on equity of 7.9 percent, a figure 300 basis points higher than the 4.9 percent 100 year average.

in the report, the underpinnings of these above average equity returns were made possible by the confluence of the following four exceptional factors:

(i) A sharp decline in inflation from the unusually high levels of the late 1970s and early 1980s;
(ii) The resultant decline in nominal long-term interest rates,
(iii) Strong global GDP growth, lifted by positive demographics, productivity gains, and rapid growth in China; and
(iv) Even stronger corporate profit growth, reflecting revenue growth from new markets, declining corporate taxes, and advances in automation and global supply chains that contained costs.[17]

Q. Over this same 1985-2014 time period, did bond investors also achieve higher real returns on fixed-income investments?

A. Yes. As measured by returns on 10-year U.S. Treasury Bonds, fixed income investors achieved total real returns of 5.0 percent over the 30-year period, 1985-2014, a figure 330 basis points higher than the 1.7 percent 100 year average, and 250 basis points higher than the 2.5 percent 50 year average.[18]

Q. Going forward, does the McKinsey report anticipate this 'golden era' for investment returns to continue?

A. No. In fact, the purpose of the report is to place investors on notice that on a going-forward basis they should begin to lower their expectations regarding investment returns on both equity and debt securities, as "[t]his era is coming to an end."[19] Based upon its analysis, the McKinsey report lays out two scenarios as to what investors might expect over the 20-year period, 2016-2035; Scenario 1 being a _slow growth_ scenario, and

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[17] _Ibid_., pp. 10-16.
[18] _Ibid_., pp. 2-3. As further noted in the report (p. 11), capital gains accounted for fully 1.9 percent (190 basis points) of this 5.0 percent real total return, as nominal interest rates fell from 9 percent to 2 percent.
[19] _Ibid_., p. 3.

Scenario 2 being a *growth recovery* scenario. In the report, McKinsey points out that in both its *slow growth* and *growth recovery* scenarios, "U.S. and Western European equity and bond returns fail to match those of the past 30 years and could be lower than the 50- and 100-year averages."[20] Furthermore, under Scenario 1 "slow growth could reduce total U.S. equity returns by more than 250 basis points and bond returns[21] by 400 basis points or more below the 1985-2014 period (emphasis added);"[22] under Scenario 2, "in a growth-recovery scenario, U.S. equity and bond returns would be 140-240 and 300-400 basis points, respectively, below the average of the 1985-2014 period."[23] As presented in the McKinsey report, the following is a summary of both historical real total investment returns on equities and 10-year U.S. Treasury Bonds over the 100-year period, 1915-2014, the 50-year period, 1965-2014, and the 30-year period, 1985-2014, as contrasted with the expected investment returns over the 20-year period, 2016-2035, under each of the above noted scenarios:[24]

Historical and Projected Investment Returns on U.S. Equities and 10-Year Treasury Bonds

	Historical Returns			Prospective Returns (2016-2035)	
Investment	1915-2014	1965-2014	1985-2014	Slow Growth	Growth Recovery
U.S. Equities	6.5%	5.7%	7.9%	4.0-5.0%	5.5-6.5%
10-Year Treasuries	1.7%	2.5%	5.0%	0-1.0%	1.0-2.0%

[20] *Ibid*., p. 21.
[21] For purposes of its analysis, investment returns on bonds are measured by the return on 10-year U.S. Treasury Bonds.
[22] *Ibid*.
[23] *Ibid*., p. 22.
[24] *Ibid*., p. 2, Exhibit 1.

Q. Briefly discuss the reasons cited in the McKinsey report for the expected decline in investment returns on equity and debt securities over the 20-year period, 2016-2035.

A. As noted earlier, the McKinsey report attributed the on-set of the so-called 'golden era' of investment returns to the confluence of four exceptional factors. The authors now view the fundamental economic and business conditions which contributed to above-average returns over the past 30 years to "have run out of steam, and in some cases are in the process of reversing."[25] Specifically, the report cites to the following three contributing factors as reasons for the expected decline in investment returns going forward:

- the steep decline in interest rates over the past 30 years is unlikely to be repeated
- expected slower GDP growth, due to (i) an aging population and (ii) declining productivity growth, and
- lower profit margins for businesses facing greater competition from (i) emerging markets, (ii) technology and tech-enabled firms, and (iii) small and medium-sized enterprises.[26]

Q. For purposes of its analysis of the U.S. equity market, the findings of the McKinsey report are based on aggregate returns of non-financial companies included in the Standard & Poor's 500 ("S&P 500").[27] Are regulated public utilities included in the S&P 500?

A. Yes. Among the 500 companies currently included in the S&P 500, 28 are regulated public utilities. Of this number, most are electric service providers, however, there is one

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[25] *Ibid*., p. 17.
[26] *Ibid*., pp. 17-19.
[27] *Ibid*., p. 5.

publicly-traded water utility in the S&P 500: American Water Works Company, Inc. (Ticker: AWK).[28]

Q. In light of the above, is it reasonable to assume that on a going-forward basis equity investment returns for regulated public utilities might also be expected to decline over the 20-year period, 2016-2035?

A. Yes, as a broad based decline in investment returns over the next 20 years would bring about a reduction in the opportunity cost of capital, or the expected return on alternative investment opportunities.

Q. As noted, in response to the onset of the Great Recession the Fed was forced to adopt an aggressive accommodative policy, ultimately lowering the federal funds rate ("fed funds rate") to a level of 0 to ¼ percent. However, beginning on December 16, 2015, the Federal Open Market Committee ("FOMC") raised the federal funds rate ("fed funds rate") by ¼ percent (25 basis points) from a level of 0 - ¼ percent, to ¼ - ½ percent. In doing so, did the action taken by the Fed signal a change in monetary policy by the U.S. central bank?

A. No. While the increase to the fed funds rate marked the first time the FOMC had raised the rate it charged banks for overnight transfers of funds since mid-2006,[29] in a press release issued on December 16, 2015, the Fed made the following statement: "The stance

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[28] https://en.wikipedia.org/wiki/List_of_S%26P_500_companies It should be noted that while RUCO includes American Water Works (AWK) in its proxy group of publicly-traded water utilities, the Company's cost of capital witness, Mr. Thomas Bourassa, does not.

[29] The Fed had previously last raised the fed funds rate on June 29, 2006. http://www.federalreserve.gov/monetarypolicy/openmarket.htm

of monetary policy remains accommodative after this increase, thereby supporting further improvement in labor market conditions and a return to 2 percent inflation."[30]

Q. Was the Fed expected to continue to take steps to raise the fed funds rate in 2016?

A. Yes. In keeping with its plan to "normalize" interest rates, it was generally believed that the Fed would raise the fed funds rate four more times by ¼ percent (25 basis points) in 2016, an annual increase of 1.0 percent (100 basis points).[31]

Q. But the Fed raised the fed funds rate only once in 2016, correct?

A. Yes, and that increase did not take place until December 14, 2016, when the FOMC raised the fed funds rate by an additional ¼ percent (25 basis points), to ½ - ¾ percent.[32]

Q. To date, how many times has the FOMC raised the fed funds rate in 2017?

A. To date, the FOMC has twice raised the fed funds rate in 2017; once on March 15,[33] and again on June 14.[34] In doing so, on each occasion the FOMC affirmed that monetary policy remains accommodative.

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[30] Federal Reserve Board, Federal Open Market Committee, *Press Release* (December 16, 2015). http://www.federalreserve.gov/newsevents/press/monetary/20151216a.htm
[31] Blue Chip Financial Forecasts (December 1, 2015), p.1.
[32] Federal Reserve Board, Federal Open Market Committee, *Press Release* (December 14, 2016). https://www.federalreserve.gov/newsevents/pressreleases/monetary20161214a.htm
[33] Federal Reserve Board, Federal Open Market Committee, *Press Release* (March 15, 2017). https://www.federalreserve.gov/newsevents/pressreleases/monetary20170315a.htm
[34] Federal Reserve Board, Federal Open Market Committee, *Press Release* (June 14, 2017). https://www.federalreserve.gov/monetarypolicy/files/monetary20170614a1.pdf

Q. Has the action taken by the Fed to hike the fed funds rate in 2017 caused yields on long-term Treasury debt to rise?

A. No, it has not. The fed funds rate is the interest rate charged by the Fed for overnight transfers of funds, and increases made to the fed funds rate typically affect yields on the short end of the yield curve (i.e., 30-day to 5-yr maturity), and not yields on the long end of the yield curve (i.e., 10-yr to 30-yr maturity). The yields on long-term Treasury debt are largely determined by investors in the marketplace, based upon investor expectations of inflation. Thus, while yields on short-term debt have risen significantly in response to earlier hikes made to the fed funds rate in 2017, yields on long-term 10-, 20-, and 30-year term Treasury debt have <u>fallen</u> in 2017.[35]

Q. Is the FOMC expected to raise the fed funds rate by an additional ¼ percent (25 basis points) when it meets in December 2017?

A. Yes, but there is uncertainty as to whether doing so is appropriate:[36]

> "The Federal Reserve is poised to raise its benchmark interest rate next week, at its final meeting of the year, as the economy continues to gain strength and the unemployment rate continues to fall. But it's not a straightforward decision. The problem is inflation. Prices continue to rise more slowly than the Fed regards as healthy. This year is on a pace to be the sixth straight with inflation below the Fed's 2 percent target, a sign of continuing economic weakness."[37]

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[35] As of the close of market on December 30, 2016, yields on the 10-, 20- and 30-year Treasury bonds were 2.45%, 2.79% and 3.06%, respectively; as of the close of market on December 6, 2017, the yield on these same Treasury bonds were 2.33%, 2.53%, and 2.71%, respectively. The yield on the 7-year bond has remained unchanged at 2.25%. https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield

[36] On December 13, 2017, the FOMC raised the fed funds rate by an additional ¼ percent, to a level of 1¼ to 1½ %. Federal Reserve Board, Federal Open Market Committee, *Press Release* (December 13, 2017). https://www.federalreserve.gov/newsevents/pressreleases/monetary20171213a.htm

[37] Appelbaum, Binyamin, "Fed, Perplexed by Low Inflation, Is Still Ready to Raise Rates," NYTimes.com, December 5, 2017. https://www.nytimes.com/2017/12/05/us/politics/fed-inflation-rates.html

Q. Is it possible that if the Fed were to continue raising the fed funds rate at this time, doing so might precipitate an economic recession?

A. Yes, because the yield curve between short-term and long-term debt issued by the U.S. Treasury has flattened dramatically since the start of 2017, recently approaching the "flattest levels [seen] in a decade."[38] For example, the gap in yield between the 2-year and 10-year Treasury note "has shrunk to just 0.63 percentage points, the narrowest since November 2007."[39] The yield spread represents the extra compensation demanded by investors when investing over a longer time horizon, and the flattening of the yield curve in 2017 is the result of short-term yields having risen at a time when long-term yields have fallen due to continued low inflation. Should the Fed continue to raise the fed funds rate at a time when inflation remains below 2.0 percent, the yield curve may invert; a circumstance in which long-term yields fall below their short-term counterparts. Historically, an inverted yield curve often portends of an imminent recession, and has successfully "predicted [each of] the past 7 recessions." Thus, to continue raising the fed funds rate at this time "raises the specter of a potential 'policy mistake' from the Fed."[40]

Q. Has the Fed indicated that it plans to continue hiking the fed funds rate in 2018?

A. Yes, but rate strategists with Bank of America Merrill Lynch have indicated they believe the Fed won't hike interest rates further until the following condition is met:

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[38] Chappatta, Brian, "The U.S. Yield Curve Is Flattening and Here's Why It Matters," *Bloomberg.com*, November 13, 2017. https://www.bloomberg.com/news/articles/2017-11-13/the-u-s-yield-curve-is-flattening-and-here-s-why-it-matters

[39] Da Costa, Pedro, "A Key Recession Indicator is getting Closer to the Danger Zone – and the Fed Can't Ignore It," *businessinsider.com*, (November 19, 2017). http://www.businessinsider.com/yield-curve-flattening-could-derail-fed-interest-rate-hikes-2017-11

[40] Chappatta, Brian, "The U.S. Yield Curve Is Flattening and Here's Why It Matters," *Bloomberg.com*, November 13, 2017.

> "We believe a pre-condition for the Fed to continue its hiking cycle in 2018 should be higher intermediate and long-term rates…without the latter, we would have doubts on the former."[41]

As noted earlier, the Fed previously withheld planned hikes to the fed funds rate due to concerns about low inflation, and absent an uptick in inflation expectations the above passage suggests the Fed will continue to do so on a going forward basis.

Q. As noted earlier, the report issued by the Council of Economic Advisors found that long-term interest rates are closely related to productivity growth. What is productivity growth, and why is it important?

A. Productivity growth (i.e., more output for the same volume of inputs) is economic growth which cannot be explained by changes in the other key factor inputs, capital and labor. Rising output per hour is seen as the most common definition of improving productivity, and a benchmark for how efficiently the economy is performing. Gains in productivity typically stem from innovation, new ideas and technological progress.[42] As to its importance, Warren Buffet has described productivity growth as, "the 'secret sauce' of America's remarkable gains in living standards since the nation's founding in 1776," and the link to our nation's "prosperity,"[43] while economist Paul Krugman is noted for having observed that, "productivity isn't everything, but in the long run it is almost everything."[44]

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[41] Da Costa, Pedro, "A Key Recession Indicator is getting Closer to the Danger Zone – and the Fed Can't Ignore It," *businessinsider.com*, (November 19, 2017).
[42] Lambert, John, "Prodictivity is Everything," *GAM.com* https://www.gam.com/en/insights-content/2016/macroeconomics/productivity-is-everything/
[43] Buffet, Warren, "Letter to the Shareholders of Berkshire Hathaway, Inc.," Berkshire Hathaway 2015 Annual Report, p. 21. http://www.berkshirehathaway.com/letters/2015ltr.pdf
[44] Krugman, Paul, The Age of Diminishing Expectations, 1994, as quoted in Lambert, John, "Prodictivity is Everything," GAM.com https://www.gam.com/en/insights-content/2016/macroeconomics/productivity-is-everything/

Q. As a measure of overall economic health, is productivity growth in the U.S. rising, or falling?

A. Productivity is a key ingredient in determining future growth in wages, prices and overall economic output, and at present the U.S. economy is experiencing the "longest slide in worker productivity since the late 1970s," and Fed Chair Yellen has characterized "the outlook for productivity growth as a 'key uncertainty for the U.S. economy.'"[45] Over time, it is believed that "persistently weak productivity would weigh on American living standards," and be "a force that could prompt Federal Reserve officials to keep interest rates low for years to come."[46]

Q. The expression, "new normal," has been used to describe the current state of the economy. Given the current downward trend in productivity growth, what is the estimated 'new normal' for real (i.e., inflation adjusted) GDP growth going forward?

A. In a recent *Economic Letter* published by the Federal Reserve Bank of San Francisco, the new normal pace of real GDP growth is estimated to fall in the range of 1½ to 1¾ percent.[47] As noted in the *Letter*, this estimate is based on "trends in demographics, education, and productivity," and assumes that

(i) the aging and retirement of the baby boom generation is expected to hold down employment growth relative to population growth,

(ii) educational attainment has plateaued, reducing the contribution of labor quality to productivity growth, and

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[45] Leubsdorf, Ben, "Productivity Slump Threatens Economy's Long-Term Growth," *WSJ.com*, August 9, 2016. http://www.wsj.com/articles/u-s-productivity-dropped-at-0-5-pace-in-the-second-quarter-1470746092

[46] *Ibid*.

[47] Fernald, John, "What is the New Normal for U.S. Growth?," *Economic Letter 2016-30*, Federal Reserve Bank of San Francisco (October 11, 2016), p.1. http://www.frbsf.org/economic-research/publications/economic-letter/2016/october/new-normal-for-gdp-growth/

(iii) the slower forecast for overall GDP growth reflects the pace of productivity growth as measured over the period, 1973-2015.

As presented in the *Economic Letter*,[48] productivity growth grew at an average rate of approximately 2.75 percent during the period, 1948-1973, fell to a level of approximately 1.25 percent during the period, 1973-1995, rose to a level of approximately 2.50 percent during the period, 1995-2004, and has since fallen to an average level of approximately 1.00 percent during the period, 2004-2015. However, over the 5-year period, 2010-2015, average productivity growth has fallen to a level of approximately 0.3 percent.

Q. Among the factors taken into consideration by the author when estimating the new normal for real GDP growth, which factor causes the greatest uncertainty?

A. As noted by the author, the major source of uncertainty about the future is productivity growth. While the author acknowledges that changes in trend productivity growth have historically been "unpredictable and large," and that a new wave of "IT revolution from machine learning and robots" might boost productivity growth, until such a development occurs "the most likely outcome is a continuation of slow productivity growth."[49]

Q. What conclusions does the author draw concerning real GDP growth going forward?

A. The author states that once the U.S. economy fully recovers from the Great Recession, real GDP growth "is likely to be well below historical norms, plausibly in the range of 1½ to 1¾ percent per annum." The author further notes that this slower pace of growth will

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[48] *Ibid*., Figure 2: *Variation in productivity growth by trend period* (p. 2).
[49] *Ibid*., p. 4.

lead to (i) slower growth in average wages and living standards for workers, (ii) relatively modest growth in sales for businesses, and from a monetary policy perspective (iii) a low 'speed limit' for the economy. Citing to another recent *Economic Letter* published by the Federal Reserve Bank of San Francisco,[50] the author concludes by saying that this slower pace of growth also suggests "a lower equilibrium or neutral rate of interest."[51]

Q. As discussed in the *Economic Letter* cited to above, what is the equilibrium, or neutral rate of interest?

A. In the article, the equilibrium, or neutral rate of interest is referred to as the "natural real rate of interest," "r*," or "r-star," and defined by the author as the "short-term real (inflation-adjusted) rate that balances monetary policy so that it is neither accommodative nor contractionary in terms of growth and inflation."[52]

Q. Is the natural real rate of interest (r-star) the same as the fed funds rate?

A. No. The fed funds rate is the rate the Fed charges banks for overnight transfers of funds, while the natural real rate of interest is a conceptual interest rate which cannot be observed but must instead be estimated. When making public statements regarding monetary policy and the fed funds rate, Fed Chair Janet Yellen often cites to what she refers to as the "neutral rate" (i.e., r-star), contrasting its level to that of the fed funds rate.[53]

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[50] Williams, John C., "Monetary Policy in a Low R-star World," *Economic Letter 2016-23*, Federal Reserve Bank of San Francisco (August 15, 2016). http://www.frbsf.org/economic-research/publications/economic-letter/2016/august/monetary-policy-and-low-r-star-natural-rate-of-interest/

[51] *Ibid*.

[52] *Ibid*., pp. 1-2.

[53] Coy, Peter, "The Search for the Elusive Natural Interest Rate," *Bloomberg.com*, (July 22, 2016). http://www.bloomberg.com/news/articles/2016-07-22/the-search-for-the-elusive-natural-interest-rate

Q. Has the natural real rate of interest (r-star), experienced a significant decline over the last 25 years?

A. Yes, as a variety of economic factors have "pushed natural interest rates very low."[54] As noted by the author, in 1990 the inflation-adjusted natural rate of interest (r-star) was estimated to be between 2½ to 3½ percent in the United States, Canada, the euro area, and the United Kingdom. On the eve of the global financial crisis, by 2007 these rates had declined to between 2 and 2½ percent. By 2015, they had declined even further, with the inflation-adjusted natural rate being "nearly zero for the United States, and below zero for the euro area."[55]

Q. What is the key takeaway from the trend in lower global natural real rates of interest (r-star) which has taken place over the past quarter century?

A. As noted by the author, the key takeaway from this global trend is two-fold: (i) "interest rates are going to stay lower than we've come to expect in the past," and (ii) future low interest rate levels are "not due to easy monetary policy," but instead reflect "the rate expected to prevail when the economy is at full strength and the stance of monetary policy is neutral."[56]

Q. What trends do the economic indicators suggest for common share prices?

A. As shown in Schedule JAC-6 (Pages 5 and 6), stock prices were stagnant during the high inflation/high interest rate environment of the late 1970s and early 1980s. In 1983,

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[54] Williams (2016), p. 2.
[55] *Ibid*., p.2, and as presented in Figure 1: *Estimated inflation-adjusted natural rates of interest* (p. 2).
[56] *Ibid*.

however, equity prices began to rise steadily, particularly as measured by the Dow Jones Industrial Average ("DJIA"), before peaking in 2007. With the onset of the Great Recession in 2008, equity prices declined sharply from their highs of 2007, reaching a low in the first quarter of 2009. Beginning in the third quarter of 2009, equity prices again began to rise, eventually recovering the losses sustained as a consequence of the "crash" in 2008 and, as evidenced by the performance of the DJIA, the S&P 500 Composite Index ("S&P 500"), and the NASDAQ Composite Index ("NASDAQ"), went on to reach new all-time highs in each year during the period, 2013-2016. Following the election of Donald Trump as President, the bond market experienced a sell-off, but the stock market continued to rise due to expectations of rising inflation and anticipated stronger economic growth brought about by President-elect Trump's promised infrastructure fiscal stimulus spending program. While the anticipated fiscal stimulus has not yet materialized, 2017 has seen yields on long-term Treasury bonds fall in anticipation of continued low inflation,[57] and the equity markets continue to rise in anticipation of the passage of legislation reducing the corporate income tax rate to 20 percent, with all three major stock indices have recently closed at all-time record highs.[58]

Q. What conclusions can be drawn from the above discussion of economic and financial conditions as they relate to the cost of capital?

A. Despite expectations that the Fed may continue to raise the fed funds rate in 2018, the probability that such rate hikes will materialize is diminished by inflation remaining

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[57] Zeng, Min, "U.S. 10-Year Yield Falls to New Low for 2017," WSJ.com (June 7, 2017). https://www.wsj.com/articles/u-s-10-year-yield-falls-to-new-low-for-2017-1496760298

[58] The DJIA closed at a record high of 24,920.05 on December 4, 2017, the S&P 500 closed at a record high of 2,647.58 on November 30, 2017, and the NASDAQ Composite index closed at a record high of 6,912.36 on November 28, 2017.

persistently low. As previously discussed, long-term interest rates have experienced a secular decline over the last 35 years, and inflation has fallen to levels not seen since the early 1960s. Given this back drop, there is ample evidence to suggest that on a going-forward basis both long-term interest rates and inflation will continue to remain low; a conclusion supported by the findings of the McKinsey Report which states that investment returns on equities and fixed-income debt securities are expected to decline over the course of the next 20 years. As previously discussed, the so-called 'natural real rate of interest' (i.e., r-star) which allows the economy 'to remain on an even keel' is expected to remain low going forward, and this trend is indicative of a decline in the cost of capital generally – both long-term debt and common equity – relative to levels seen in the past. Although the U.S. economy has strengthened considerably from the Great Recession, future GDP growth is expected to decline from levels experienced in the past, due largely to a decline in productivity growth. While it remains to be seen what economic stimulus will be provided by a reduction to the corporate income tax rate, at present the preponderance of evidence suggests that interest rates and the cost of equity will continue to remain low for an extended period of time.

V. CAPITAL STRUCTURE AND COST OF DEBT

Q. What is LU-LPSCO's currently authorized capital structure?

A. LU-LPSCO's currently authorized capital structure is comprised of 15.87 percent long-term debt and 84.13 percent common equity, which represents the Company's actual capital structure as of the December 31, 2012 test-year end in LU-LPSCO's prior rate filing (Docket No. SW-01428A-13-0042 et al.).[59]

Q. In the instant docket, what capital structure does the Company currently claim to have?

A. As of the December 31, 2016 test-year end, the Company claims a current capital structure comprised of 100 percent equity.[60]

Q. For purposes of clarification, is the Company claiming a current 100 percent equity capital structure because the debt from the prior rate docket (i.e., Docket No. SW-01428A-13-0042 et al.) has since matured?

A. No. It appears the Company retired this debt prior to maturity.[61]

Q. What capital structure does LU-LPSCO propose in this proceeding?

A. The Company proposes a projected (i.e., pro forma) capital structure consisting of 30 percent long-term debt and 70 percent common equity.[62]

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[59] Decision No. 74437 (dated April 18, 2014), p. 8, lines 4-9.

[60] *See* Bourassa Direct, p.1, lines 24-25, and Schedule D-1 (Page 1).

[61] A review of the Annual Reports filed by LU-LPSCO with the ACC indicate that the debt component included in the Company's capital structure in Docket No. SW-01428A-13-0042 et al. was comprised of two Industrial Development Authority (IDA) bonds, with the first IDA bond scheduled to mature on October 1, 2023, and the second IDA bond scheduled to mature on October 1, 2031 (*See* LPSCO Annual Reports, Supplemental Financial Data – Long-Term Debt, in years 2012-2015).

[62] *See* Bourassa Direct, p. 2, lines 2-3; Schedule D-1 (Page 1); and LPSCO Financing Application, p. 3, lines 16-17.

Q. Does the Company provide theoretical justification for its proposed 30 percent debt / 70 percent equity pro forma capital structure?

A. No. The only discussion of the Company's proposed 30 percent debt / 70 percent equity pro forma capital structure appears in the direct testimony filed by Mr. Gerald W. Becker (*See* Becker Direct, p.38, lines 16-24), and reads as follows:

> "The Company presently has a 100 percent equity capital structure. However, at the same time as this rate application is being filed, the Company is filing a financing application. The purpose of the requested financing approval is for the Company to infuse debt into the Company's capital structure, resulting in a more balanced 70 percent equity and 30 percent debt capital structure. This is part of an effort to modify and maintain each of the Arizona operating utilities at 70 percent equity and 30 percent debt as we have already requested similar orders for Liberty Black Mountain, Liberty Bella Vista, Liberty Rio Rico, and Liberty EDO in its pending rate and financing dockets."

In direct testimony (*See* Bourassa Cost of Capital Direct, pp. 1-2, lines 24:4), Mr. Bourassa merely states that LU-LPSCO's capital structure as of the December 31, 2016 test-year end was comprised of 100 percent equity, and that his analysis and recommendations assume a 30 percent debt / 70 percent equity capital structure in conformity with the authorization requested in the Company's financing application.

Q. How does the Company's proposed 30 percent debt / 70 percent equity pro forma capital structure compare to the sample average capital structure of RUCO's proxy group of companies?

A. As shown in Schedule JAC-6 (Page 7), the sample average capital structure of RUCO's proxy group of companies is comprised of 46 percent debt and 54 percent equity.[63] Thus,

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[63] As shown, RUCO's 46 percent debt / 54 percent equity sample average capital structure represents a combined 5-year historical (2012-2016) and 5-year projected (2017-2021) average capital structure.

the Company's proposed 30 percent debt / 70 percent equity capital structure is significantly less highly leveraged (i.e. equity rich) than the sample average capital structure obtained for RUCO's proxy group of companies.

Q. Is RUCO's sample average 46 percent debt / 54 percent equity capital structure representative of the current 'industry standard' capital structure within the regulated water/wastewater utility industry?

A. Yes, as it represents the industry average capital structure among the nine publicly-traded water utility companies followed by the *Value Line Investment Survey*.[64]

Q. In light of the above, is there theoretical justification for the Company's proposed 30 percent debt / 70 percent equity pro forma capital structure in this rate proceeding?

A. No. LU-LPSCO's ultimate parent, Algonquin Power and Utilities Corp. ("APUC"), has access to the capital markets,[65] and this circumstance alone suggests that theoretical justification is lacking as the Company's proposed 30 percent debt / 70 percent equity capital structure is not representative of the current 46 percent debt / 54 percent equity 'industry standard' capital structure. Regulated utilities are capital intensive, and access to the capital markets provides APUC the ability to manage and efficiently capitalize its regulated subsidiary operations. An efficient capital structure is one comprised of lower cost debt and higher cost equity proportionate to the industry standard, whereas an

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[64] Eight of RUCO's sample companies are followed by *Value Line's* Large-Cap edition, and one -- Artesian Resources Corp. -- is followed by *Value Line's* Small & Mid-Cap edition.
[65] APUC's common shares are listed on both the Toronto (TSX) and New York (NYSE) stock exchanges (Ticker: AQN).

inefficient capital structure is one not so comprised. The equity rich 30 percent debt / 70 percent equity pro forma capital structure proposed by the Company represents an inefficient use of capital, and one whose sole purpose appears to be the overstatement of LU-LPSCO's overall rate of return ("ROR") in this proceeding.

Q. Why is the Company's proposed 30 percent debt / 70 percent equity capital structure more advantageous to LU-LPSCO than the industry standard (i.e., 46 percent debt / 54 percent equity) capital structure?

A. It is more advantageous because it is comprised of a higher percentage (i.e. 70% vs. 54%) of high cost equity, and a lower percentage (i.e., 30% vs. 46%) of low cost debt, resulting in an overstatement to LU-LPSCO's overall ROR, or weighted average cost of capital ("WACC"). As noted above, regulated utilities are capital intensive, and for ratemaking purposes the overall ROR / WACC is computed by (i) multiplying the relative percentage of debt and common equity in a regulated utility's capital structure by the cost rate associated with each, and (ii) adding the values obtained (i.e., weighted cost of debt and weighted cost of equity) to arrive at the overall ROR / WACC. Moreover, equity generally costs more than debt which explains why an equity rich capital structure generally costs ratepayers more than a more balanced debt to equity capital structure. As proposed, a 30 percent debt / 70 percent equity capital structure serves to understate the weighted cost of debt and overstate the weighted cost of equity, leading to an overstatement of ROR and, hence, rates.

Q. Utilizing the Company-proposed cost rates for long-term debt (3.94 percent) and common equity (10.7 percent), please quantify the overstatement to ROR obtained when using the Company's proposed 30 percent debt / 70 percent equity capital structure as compared to that obtained from the 46 percent debt / 54 percent equity 'industry standard' capital structure.

A. As shown in Schedule D-1 of the Company's filing, based on the Company's proposed (i) 30 percent debt / 70 percent equity capital structure, (ii) 3.94 percent cost of debt, and (iii) 10.7 percent cost of equity, LU-LPSCO obtains an 8.67 percent ROR / WACC, computed as follows:

	Weighting	Cost Rate	Weighted Cost
Long-Term Debt	30 %	3.94 %	1.18 %
Common Equity	70 %	10.70 %	7.49 %
ROR/WACC			**8.67 %**

Utilizing the same Company-proposed cost rates for long-term debt and common equity, but substituting the 'industry standard' 46 percent debt / 54 percent equity capital structure, the ROR / WACC is 7.59 percent, computed as follows:

	Weighting	Cost Rate	Weighted Cost
Long-Term Debt	46 %	3.94 %	1.81 %
Common Equity	54 %	10.70 %	5.78 %
ROR/WACC			**7.59 %**

In absolute terms, the ROR computed using the Company's proposed 30 percent debt / 70 percent equity capital structure <u>exceeds by 1.08 percent</u> (108 basis points) the ROR computed using a 46 percent debt / 54 percent equity capital structure (8.67% - 7.59% = 1.08%); in relative terms, this equates to an <u>overstatement to ROR of 14.25 percent</u> ((8.67% - 7.59%) / 7.59% = 14.25%).

Q. Does APUC, in its most recent (i.e., 2016) annual report, discuss the management of capital structure?

A. Yes, APUC's 2016 Annual Report includes a discussion of the management of capital structure, and reads, in part, as follows:

> "APUC's objectives when managing capital are to *maintain its capital structure consistent with investment grade credit metrics appropriate to the sectors in which APUC operates*, [and] to *maintain appropriate debt and equity levels in conjunction with standard industry practices… APUC continually reviews its capital structure to ensure its individual business groups are using a capital structure which is appropriate for their respective industries.*"[66] (emphasis added)

Q. In light of the above, is the 30 percent debt / 70 percent equity capital structure proposed by the Company in this proceeding <u>inconsistent</u> with APUC's stated objectives regarding the management of capital structure?

A. Yes.

Q. In direct testimony (Garlick Direct, pp. 4-5, lines 4:9), Mr. Matthew Garlick provides a brief overview of Liberty Utilities, pointing out that it owns and operates regulated water, wastewater, natural gas and electric transmission and distribution utilities in 13 states.[67] Mr. Cassidy, to your knowledge is the pro forma 30 percent debt / 70 percent equity capital structure proposed by LU-LPSCO in this proceeding representative of capital structures proposed by regulated utilities owned and operated by Liberty Utilities in other states?

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[66] *See* Algonquin Power and Utilities Corporation, 2016 Annual Report, p.54. http://investors.algonquinpower.com/Cache/1001222416.PDF?Y=&O=PDF&D=&FID=1001222416&T=&IID=4142273

[67] These states include Arizona, Arkansas, California, Georgia, Illinois, Iowa, Kansas, Massachusetts, Missouri, Montana, New Hampshire, Oklahoma and Texas.

A. No, it is not. I conducted an on-line search of recent rate filings made by Liberty Utilities before regulatory jurisdictional authorities in other states,[68] and found only one instance in which a pro forma 30 percent debt / 70 percent equity capital structure had been proposed; in all other cases, the pro forma capital structure proposed by Liberty Utilities was comprised of 45 percent debt / 55 percent equity (i.e., docket filings in Arkansas, Missouri, and New Hampshire).

Q. You indicate that you found only one instance in which a Liberty Utilities operating subsidiary outside of Arizona had proposed a 30 percent debt / 70 percent equity pro forma capital structure. Before what state jurisdictional authority was this capital structure proposed?

A. It was proposed before the Public Utility Commission of Texas in direct testimony filed by Mr. Matthew Garlick on behalf of Liberty Utilities (Woodmark Sewer) Corp. and Liberty Utilities (Tall Timbers Sewer) Corp., in Docket No. 46256.[69]

Q. In the direct testimony filed by Mr. Garlick in the above referenced Texas docket, does he explain why a 30 percent debt / 70 percent equity capital structure was proposed?

A. Yes. Mr. Garlick's explanation for the proposed 30 percent debt / 70 percent equity capital structure reads as follows:

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[68] To facilitate my on-line search, I utilized information obtained from APUC's *Annual Information Form*, Schedules C-E, (dated March 14, 2016).
http://investors.algonquinpower.com/Cache/1500082803.PDF?Y=&O=PDF&D=&fid=1500082803&T=&iid=4142273

[69] See Direct Testimony of Matthew Garlick (p. 20), *Liberty Utilities (Woodmark Sewer) Corp. and Liberty Utilities (Tall Timbers Sewer) Corp. (CCN Nos. 20679 and 20694)*, Texas PUC Docket No. 46256, dated September 2, 2016.
http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/46256_2_909228.PDF

> "Liberty Woodmark and Liberty Tall Timbers presently have capital structures of 100 percent equity. We are seeking to *standardize* the capital structure of the Texas operating utilities at 70 percent equity and 30 percent debt *in line with our utilities in other states*."[70] (emphasis added)

Q. Mr. Cassidy, you earlier stated that the 30 percent debt / 70 percent equity capital structure proposed by LU-LPSCO in the instant docket was <u>not</u> representative of capital structures proposed by regulated utilities owned and operated by Liberty Utilities in other states, yet in the above cited passage Mr. Garlick appears to suggest otherwise. Do you have an explanation for this apparent discrepancy?

A. Yes, and it can be found in the written objection made by the Company to a data request issued by RUCO. Citing to the above passage from Mr. Garlick's direct testimony in Docket No. 46256, RUCO DR# 14.04 simply asks the Company to admit that in a recent rate filing before the Arkansas Public Utility Commission, contrary to the assertion that a 30 percent debt / 70 percent equity capital structure was being standardized in other states, a Liberty Utilities subsidiary[71] had, in fact, proposed a 45 percent debt / 55 percent equity capital structure. The Company's objection to RUCO DR# 14.04 reads, in part, as follows:

> "RUCO is assuming facts not in evidence—to wit—that Mr. Garlick's referenced testimony was referring to the standardization of the capital structures of all affiliated companies under Liberty Utilities when *Mr. Garlick was actually referring to standardization of the*

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[70] *<u>Ibid</u>*., p. 20, lines 6-9.

[71] Liberty Utilities (Pine Bluff Water) Corp., in Docket No. 14-020-U. The cost of capital witness for Liberty Pine Bluff Water who proposed this 45% debt / 55% equity capital structure was Mr. Thomas J. Bourassa. It should be noted that Mr. Bourassa's recommended COE was 10.5% (i.e., 20 basis points lower than the10.7% COE recommended for LU-LPSCO), a figure which did not include an upward adjustment for financial risk. *See* Direct Cost of Capital Testimony of Thomas J. Bourassa (p. 4, lines 18-19; and Table 2), in *Matter of the Application of Liberty Utilities (Pine Bluff Water) Corp., before the Arkansas Public Utility Commission*, Docket No. 14-020-U, dated July 2, 2014. http://www.apscservices.info/pdf/14/14-020-u_32_1.pdf

> *capital structures of the entities for which he is President, those located in Arizona and Texas.*" (emphasis added)

The Company's complete response to RUCO DR# 14.04 is presented in Exhibit JAC-B.

Q. Are the regulated entities in Arizona and Texas for which Mr. Garlick is President wholly-owned subsidiaries of Liberty Utilities (Sub) Corp.?

A. Yes.

Q. Mr. Cassidy, would you care to comment on the implications of the Company's above cited objection to RUCO 14.04?

A. Yes, I would, as the implications are both enlightening as well as troubling. First and foremost, implicit in the Company's stated objection is the notion that it is <u>perfectly acceptable</u> for rates charged for utility service by Liberty Utilities in the states of Arizona and Texas to be based on inefficient, equity rich capital structures (i.e., 30% debt / 70% equity), while rates charged for the same service by Liberty Utilities in the 11 other states in which it does business are allowed to be based on efficient, more reasonable capital structures (i.e., 45% debt / 55% equity). Second, rates established using a 30 percent debt / 70 percent equity capital structure overstate ROR, and lead to windfall profits and excessive investment returns; thus, ratepayers in Arizona and Texas effectively subsidize APUC's higher risk, non-regulated subsidiary operations, while Liberty Utilities ratepayers in other states do not. Third, for the reasons noted earlier theoretical support is lacking for the inefficient 30 percent debt / 70 percent equity capital proposed by Liberty Utilities in Arizona and Texas, while there is theoretical support for the 45 percent debt / 55 percent equity capital proposed by Liberty Utilities in other states. Fourth, the 45 percent debt /

55 percent equity capital structure proposed by Liberty Utilities in other states is consistent with APUC's stated objectives regarding the management of capital structure, while the inefficient 30 percent debt / 70 percent equity capital structures proposed in Arizona and Texas clearly are not. Finally, and perhaps most importantly, Mr. Garlick's desire to "standardize" a capital structure that is not in line with the industry average, is contrary to the Arizona Corporation Commission's objective of bringing water utilities with equity rich capital structures more in line with the industry averages. For example, the Commission in Decision No. 70624 found in relevant part:

> "We agree with RUCO's hypothetical capital structure of 40 percent debt and 60 percent equity. A capital structure comprised of 100 percent equity would be viewed as having little to no financial risk. The proposed capital structure adopted by the Commission will bring the Company's capital structure and weighted cost of capital in line with the industry average and it will result in lower rates for the customers of the system. We therefore adopt a hypothetical capital structure of 40 percent debt and 60 percent equity."

Decision No. 70624 at 14. What possible argument can the Company make here – that an equity rich, clearly unbalanced capital structure such as 70% equity and 30% debt is

in the public interest? This is nonsense especially when on the other hand the Company in other states is advocating to standardize a much more balanced 45 percent debt / 55 percent equity capital structure. This is simply nonsense and should be rejected.

Q. Is APUC considered to be a growth stock?

A. Yes, as APUC has experienced significant growth over the last five years by means of acquisition, and management is targeting continued double-digit growth in EPS going forward, and continued 10 percent growth in DPS until 2021.[72]

Q. For purposes of its filing, LU-LPSCO uses a December 31, 2016 test-year end. At the ultimate corporate level, what was APUC's capital structure as of this same date?

A. As of December 31, 2016, APUC's capital structure was comprised of long-term debt, preferred stock and common equity in the following relative percentage weightings:[73]

Long-Term Debt	61.09 %
Preferred Stock	3.35 %
Common Equity	35.56 %
Total Capital	100.00 %

Q. Thus, the 70 percent equity component in LU-LPSCO's proposed capital structure is almost twice that (i.e., 35.56 percent) of its ultimate parent, correct?

A. Yes, the 70 percent equity component in LU-LPSCO's proposed capital structure is proportionately 1.97X greater (70.00% / 35.56% = 1.97) than the equity component in APUC's capital structure. It should be noted that the equity component in APUC's capital structure as of December 31, 2012 had been 59.21 percent, while the long-term debt component had been 35.42 percent (the preferred stock component comprised 5.37%).

[72] De la Hoz, Juan, "Algonquin: Double-Digit Growth Expected for this Utility," *seekingalpha.com*, September 25, 2017. https://seekingalpha.com/article/4109309-algonquin-double-digit-growth-expected-utility?auth_param=1eesbo:1csin28:9d0e2d9a4099c0362cee66c77cb4ac82&uprof=67&dr=1

[73] *See* Algonquin Power and Utilities Corp., 2016 Annual Report. http://investors.algonquinpower.com/Cache/1001222416.PDF?Y=&O=PDF&D=&FID=1001222416&T=&IID=4142273

The reduction in common equity (i.e., from 59.21% to 35.56%) and the increase in long-term debt (i.e., from 35.42% to 61.09%) over the 4-year period, 2012-2016, is attributable to APUC having utilized its access to the capital markets to fund the bulk of its growth with newly issued, low cost long-term debt.[74]

Q. In its Application, LU-LPSCO is proposing that approximately $1.2 million of corporate cost allocations from APUC and Liberty Utilities Canada be included in rates.[75] Does the Company justify, in part, the allocation of these corporate costs from Canada on grounds that LU-LPSCO ratepayers benefit from APUC having access to the capital markets?

A. Yes. In doing so Mr. Becker characterizes APUC's access to the capital markets as a "*significant benefit*" to LU-LPSCO and her sister Arizona companies,[76] and further states "*I do not think anyone disputes that APUC's access to capital is a benefit to Liberty Litchfield Park and its customers in Arizona*."[77] (emphasis added)

Q. In light of the above, is there reason to call into question the Company's assertion that LU-LPSCO ratepayers "significantly benefit" from APUC having access to the capital markets?

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[74] APUC has experienced significant growth over the last several years through acquisition, and has utilized its access to the capital markets to obtain additional long-term debt, preferred stock, and common equity to fund that growth. However, while APUC's common equity and preferred stock have grown at a compound average annual rate of 15.7 percent and 16.4 percent, respectively, over the 4-year period, 2012-2016, APUC's long-term debt has grown at a compound average annual rate of 50.1 percent over this same 4-year period of time.
[75] See Becker Direct, p. 36, lines 19-20.
[76] *Ibid*., pp. 17-18, lines 21:10).
[77] *Ibid*., p. 19, lines 10-13).

A. Yes, as the Company's proposed 30 percent debt / 70 percent equity capital structure is *prima facie* evidence that LU-LPSCO ratepayers do not derive '*significant benefit*' from APUC having access to the capital markets. The benefit argument of the parent's resources cannot be used as both the sword and the shield depending on when it benefits/hurts the Company.

Q. Liberty Utilities recently completed the acquisition of Empire District Electric Company ("Empire"), a rate-regulated water, gas and electric utility serving 218,000 customers in Missouri, Arkansas, Oklahoma and Kansas. In acquiring Empire, what was the purchase price paid by Liberty Utilities, and did it include an acquisition premium?

A. The total purchase price paid for Empire was $2.4 billion, a figure which represented a 21.0 percent premium over and above the $34 closing price for each share of outstanding Empire common stock on February 8, 2016. It should be noted that Empire is now a wholly-owned subsidiary of Liberty Utilities (Central) Co. ("LU Central"), a holding company formed by Liberty Utilities to complete the acquisition.

Q. Does Liberty Utilities plan to seek recovery of the above referenced 21.0 percent acquisition premium in rates charged to customers serviced by Empire?

A. No. Mr. Peter Eichler, APUC Vice-President of Strategic Planning, in direct testimony filed on behalf of LU Central before both the Missouri Public Service Commission and the Arkansas Public Service Commission,[78] stated that this 21.0 percent acquisition premium

[78] *See* Direct Testimony of Peter Eichler (pp. 1-4; pp. 7-9), filed on behalf of Liberty Utilities (Central) Co., before the Missouri Public Service Commission (Docket No. EM-2016-0213)

would be accounted for as goodwill, and that LU Central will not, in any future rate proceeding, seek recovery of any premium paid for Empire common shares.

Q. In his direct testimony filed before the Missouri and Arkansas Public Service Commissions, does by Mr. Eichler indicate what capital structure LU Central plans to use for its newly acquired Empire operations?

A. Yes, Mr. Eichler states that LU Central plans to use "*a reasonable and prudent investment grade capital structure*" consisting of *45 percent debt and 55 percent equity*.[79] (emphasis added)

Q. In light of the above, if adopted is it possible that the 30 percent debt / 70 percent equity capital structure proposed by the Company could provide, in part, for the effective recovery of the Empire acquisition premium in rates charged to LU-LPSCO ratepayers?

A. Yes, it could to some degree provide for such effective recovery, especially when viewed from the perspective of APUC, LU-LPSCO's ultimate parent; this, despite the fact Empire does not operate in Arizona. APUC has claimed it will not seek recovery of any portion of the acquisition premium in the states in which Empire operates; however, it would be naïve to think that APUC would make no effort to recover these costs, if possible. Thus, should the Commission approve the Company's proposed equity rich capital structure in

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https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=EM-2016-0213&attach_id=2017004086 ; and
See Direct Testimony of Peter Eichler (pp. 2-5; pp. 9-10), filed on behalf of Liberty Utilities (Central) Co., before the Arkansas Public Service Commission (Docket No. 16-013-U)
http://www.apscservices.info/pdf/16/16-013-U_8_1.pdf.

[79] *Ibid*.

this proceeding, doing so would clearly inflate ROR and provide for over-recovery through the rates charged to LU-LPSCO ratepayers, and such over-recovery could effectively be used to offset the acquisition premium for Empire. From APUC's standpoint, the money needed to recover such premiums is fungible and this clearly could be a source to offset the premium.

Q. Mr. Cassidy, earlier you addressed the objection made by LU-LPSCO to RUCO DR# 14.04, a data request issued in discovery. For purposes of your cost of capital testimony, did RUCO issue other data requests to the Company, and if so, did you find the Company to be responsive?

A. Yes, for purposes of discovery RUCO did issue other cost of capital data requests to LU-LPSCO. These cost of capital data requests were issued in RUCO's 5th Set of Data Requests (5.01-5.04), RUCO's 12th Set of Data Requests (12.01-12.06), RUCO's 14th Set of Data Requests (14.01-14.04), and RUCO's 15th Set of Data Requests (15.01). While the Company was reasonably responsive (i.e., not fully responsive) to certain data requests issued in RUCO's 5th and 12th Sets, the Company objected to, and was non-responsive to <u>all</u> data requests issued in RUCO's 14th and 15th Sets. It should be noted that the data requests issued to the Company in Sets 14 and 15 relate to regulated utilities owned and operated by Liberty Utilities in states other than Arizona, but do have relevance in this proceeding for the reasons noted above, as they clearly demonstrate that the Company's proposed 30 percent debt / 70 percent equity capital structure is discriminatory towards Arizona ratepayers in a manner that capital structures proposed by Liberty Utilities in all other states, exclusive of Texas, are not. The Company's objection/response to the cost of capital data requests issued by RUCO in Sets 5, 12, 14, and 15 are attached as Exhibits JAC-B, JAC-C, JAC-D, and JAC-E, respectively.

Q. In closing on the discussion of LU-LPSCO's proposed capital structure, does Mr. Bourassa's cost of capital testimony provide evidence that the Company may have considered proposing a different capital structure in this proceeding?

A. Yes, for as shown in Schedule D-4.3, Mr. Bourassa reports LU-LPSCO's pro forma capital structure to be 35 percent debt / 65 percent equity. It should be noted that Schedule D-4.3 also indicates that the sample average capital structure for Mr. Bourassa's proxy group of companies is comprised of 44.9 percent long-term debt and 55.1 percent common equity. Thus, had LU-LPSCO elected to propose a 45 percent debt / 55 percent equity capital structure in line with that of capital structures proposed by Liberty Utilities in other states, support for doing so is provided in Mr. Bourassa's direct testimony.

Q. What capital structure does RUCO recommend for LU-LPSCO in this proceeding?

A. As shown in Schedule JAC-1, RUCO recommends a hypothetical capital structure comprised of 46 percent debt and 54 percent equity. RUCO's recommended hypothetical capital structure represents the sample average capital structure of RUCO's proxy group of companies,[80] and is indicative of the current 'industry standard' capital structure for the regulated water/ wastewater utility industry.

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[80] As presented in Schedule JAC-6 (Page 7).

Q. What is the Company's proposed cost of debt?

A. As shown in Schedule D-1, the Company proposes a 3.94 percent cost of long-term debt.[81]

Q. What is RUCO's proposed cost of debt in this proceeding?

A. As shown in Schedule JAC-1, RUCO proposes a 3.78 percent cost of debt. RUCO's proposed cost of debt represents the 30-day average yield on the 10-year Treasury note, measured as of October 31, 2017, plus the 145 basis point indicative 10-year spread on Liberty Utilities most recent private placement financing (2.33% + 1.45% = 3.78%).

VI. SELECTION OF PROXY GROUP

Q. Was RUCO able to directly estimate the cost of common equity for the Company?

A. No. The common stock of LU-LPSCO is not publicly-traded, and thus it is not possible to directly estimate the Company's cost of common equity. Therefore, RUCO employed a proxy group of publicly-traded water utility companies to indirectly estimate the Company's cost of equity ("COE") utilizing financial market data available for each sample company.

[81] *See* Bourassa Direct, p. 2, lines 6-9; and Schedule D-1. The Company's proposed cost of debt represents the 30-day average yield on the 10-year U.S. Treasury bond (i.e., 2.49%), plus the indicative 10-year spread on Liberty Utilities most recent private placement financing, 145 basis points (2.49% + 1.45% = 3.94%).

Q. What publicly-traded water utility companies has RUCO selected for inclusion in its proxy group?

A. RUCO's proxy group consists of the following nine publicly-traded water / wastewater utility companies: American States Water, American Water Works, Aqua America, Artesian Resources Corp., California Water, Connecticut Water, Middlesex Water, SJW Corp., and York Water. These nine water utilities comprise the entire universe[82] of publicly-traded water utility companies followed by both the Standard Large-Cap, and the Small and Mid-Cap, editions of *The Value Line Investment Survey*. Attachment 2 contains the most recent *Value Line* quarterly update for each of RUCO's nine proxy companies.

Q. For purposes of his analysis, does the Company's cost of capital witness employ the same proxy group as that of RUCO?

A. No. The company's witness, Mr. Thomas J. Bourassa, employs a proxy group consisting of only seven companies. For purposes of his analysis, Mr. Bourassa excludes both American Water Works and Artesian Resources Corp. from his proxy group of sample companies.

VII. DCF ANALYSIS

Q. What is the theory and methodological basis of the DCF model?

A. The DCF model is one of the oldest and most commonly used market-based models for estimating the COE for public utilities, and the only one which intrinsically takes into consideration the price investors are willing to pay for a given unit of return. The DCF is

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[82] *Value Line's* Small and Mid-Cap Edition recently initiated coverage of Global Water Resources, Inc.; however, data is available only for years 2015 and 2016, and thus is not meaningful for purposes of inclusion in RUCO's proxy group.

based on the "dividend discount model" of financial theory, which maintains that the value (price) of any security or commodity is the discounted present value of all future cash flows.

The most common variant of the DCF model assumes that dividends are expected to grow at a constant rate, and the COE is computed using the following formula:

$$K = \frac{D}{P} + g$$

Where: K = discount rate (cost of equity)
P_0 = current stock price
D_0 = current annualized dividend
D_1 = expected dividend
D_0 / P_0 = current dividend yield
D_1 / P_0 = expected dividend yield
g = expected constant dividend growth rate

This formula essentially recognizes that the return expected, or required, by investors is comprised of two factors: the dividend yield (current income) and expected growth in dividends (future income).

Q. Please explain how RUCO employed the DCF model.

A. For purposes of its analysis, RUCO employs the constant growth DCF model. In doing so, RUCO combines the current annualized dividend (D_0) for each sample company with several indicators of expected dividend growth, thereby obtaining for each sample company a measure of next year's expected dividend (D_1).

Q. How did RUCO derive the dividend yield component of the DCF equation?

A. Several different methods can be used to compute the dividend yield component in the constant growth DCF model. However, for purposes of its analysis RUCO utilizes the Gordon quarterly compounding method to compute the dividend yield component, as it gives recognition to the timing of dividend payments and dividend increases. The Gordon quarterly compounding method is expressed as follows:

$$Yield = \frac{D_0(1 + 0.5g)}{P_0}$$

The current (P_o) stock price represents the average stock price for each proxy company over the most recent three month period (August – October, 2017). The current (D_o) dividend is the current annualized dividend rate for each proxy company. Because the expected (D_1) dividend represents the quantity, [D_0 * (1 + .05g)], the above equation is representative of the expected dividend yield, (D_1 / P_o).

Q. How does RUCO estimate the dividend growth (g) component of the DCF equation?

A. In estimating the dividend growth (g) rate in its DCF analysis, RUCO gives consideration to the following five indicators of growth:

1. Five-year average (Years 2012-2016) historical earnings retention (i.e., fundamental) growth, as reported by *Value Line*;
2. Five-year compound average annual historical growth (Years 2012-2016) in earnings per share (EPS), dividends per share (DPS), and book value per share (BVPS), as reported by *Value Line*;
3. Five-year average (Years 2017-2021) projected earnings retention growth, as reported by *Value Line*;

4. Five-year compound average annual projected growth (Years 2017-2021) in EPS, DPS, and BVPS, as reported by *Value Line*; and,

5. Five - year projections of EPS growth, as reported by Yahoo Finance.

RUCO believes this combination of growth indicators to be a representative and appropriate set with which to estimate investor expectations of dividend growth for its proxy group of sample companies, as each is a determinant of dividend growth. Additionally, these growth indicators are reflective of the types of information that investors normally take into consideration when making an investment decision.

Q. Please describe RUCO's DCF calculations.

A. RUCO's DCF analysis is presented in Schedule JAC-3, Pages 1 through 4. Page 1 presents RUCO's overall DCF cost of equity estimation results for its proxy group of sample companies. As can be seen, "raw" DCF calculations are presented on several bases: mean, median, composite-mean, and composite-median. Page 2 presents the calculation of the dividend yield for each proxy company prior to adjustment for growth. Pages 3 and 4 present RUCO's historical and projected growth rate calculations for its proxy group of companies.

Q. What does RUCO conclude from its DCF cost of equity estimation analyses?

A. The DCF cost of equity rates obtained for RUCO's proxy group fall into a range between 7.58 percent and 9.63 percent. The highest DCF estimate is 9.63 percent. RUCO concludes that 9.63 percent represents the current DCF-derived cost of equity for the proxy group. Accordingly, RUCO adopts a DCF-derived cost of equity of 9.63 percent for the Company, which is based on the high end of the DCF range.

VIII. CAPM ANALYSIS

Q. Please describe the theory and methodological basis of the CAPM.

A. Developed in the 1960s and 1970s as an extension of modern portfolio theory ("MPT"), which studies the relationships among risk, diversification, and expected returns, the CAPM describes the relationship between a security's investment risk and its market rate of return.[83] The CAPM employs beta as a measure of relative risk (i.e., volatility) between a given equity security and the market as a whole.

Q. How is the CAPM derived?

A. The general form of the CAPM is:

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

Where: K = *cost of equity*

R_f = *risk free rate*

R_m = *return on market*

β = *beta*

$R_m - R_f$ = *market risk premium*

The CAPM is a variant of the Risk Premium ("RP") method. However, the CAPM is generally superior to the simple RP method because it provides for company-specific recognition of risk (i.e., beta), whereas the simple RP method assumes the same COE for all companies exhibiting similar bond ratings or other characteristics.

[83] The CAPM makes the following assumptions: 1) single holding period; 2) perfect and competitive securities market; 3) no transaction costs; 4) no restrictions on short selling or borrowing; 5) the existence of a risk-free rate; and 6) homogeneous expectations.

Q. Please identify the strengths of the CAPM.

A. The CAPM is cited as having the following strengths (1) it is market-based; (2) it is based on the concept of risk and return; (3) it is company specific; (4) it has widespread use as it recognizes that investors can and do diversify; (5) it is highly structured and easy to apply when using the assumptions of the model; (6) the model is formulistic and the data used in the computations is readily available; (7) it is a forward looking concept; and (8) it is a method for converting changes in interest rates to the COE.

Q. What risk-free (R_f) rate does RUCO use in its CAPM analysis?

A. For purposes of its CAPM analysis, RUCO employs a risk-free rate of 2.58 percent. RUCO's risk-free rate represents the 3-month average yield on the 20-year long-term U.S. Treasury Bond, measured over the 3-month period, August - October 2016. The calculation of RUCO's risk-free rate is presented in Schedule JAC-4 (Page 1).

Q. Is it customary to use the yield on U.S. Treasury securities as the risk-free (R_f) rate in the CAPM?

A. Yes, because debt securities issued by the United States Department of the Treasury are considered to be free of default risk. Two general types of U.S. Treasury securities are most often used as the risk-free *(R_f)* rate component, short-term U.S. Treasury bills and long-term U.S. Treasury bonds. For purposes of its analysis, RUCO employs the yield on 20-year U.S. Treasury bonds as a proxy for the risk-free rate in conformity with its use of the yield on 20-year Treasury bonds to compute the market risk premium component of RUCO's CAPM model.

Q. Did RUCO consider use of a forecasted long-term Treasury bond rate as the risk-free rate to be used in its CAPM analysis?

A. No. The appropriate interest rate to be used in the CAPM is the current rate borne by investors in the market place. Use of a forecasted risk-free rate overstates cost of equity estimates derived from the CAPM. Use of a current, or recent average, long-term Treasury rate is reflective of investor's expectations, and as such is the appropriate risk-free rate to be used in the CAPM.

Q. What is beta, and what beta coefficients does RUCO employ in its CAPM analysis?

A. Beta is a measure of risk (i.e., volatility) of a particular stock relative to the market as a whole. The overall market is assumed to have a beta of 1.0; thus, companies having betas less than 1.0 are considered less risky than the market, whereas companies with betas greater than 1.0 are considered more risky than the market. As regulated entities which have been granted natural monopoly status, regulated public utilities are considered less risky than the market and typically have betas less than 1.0. For purposes of its analysis, RUCO utilizes the most recent beta reported by *Value Line* for each of its sample companies.

Q. How does RUCO estimate the market risk premium (R_m-R_f) component?

A. The market risk premium component (R_m-R_f) represents the investor-expected premium of common stocks above that of the risk-free rate, or government bonds. For purposes of its analysis, RUCO estimated the market risk premium by comparing annual realized returns on equity for the S&P 500 group with annual yields on 20-year long-term Treasury bonds over the period, 1978-2016. As shown in Schedule JAC-4 (Page 2), the market risk premium component used in RUCO's CAPM represents the average of differential returns on equity for the S&P 500 group and the annual yields on 20-year U.S. Treasury bonds over this 1978-2016 period of time. RUCO determined the average ROE on the S&P 500 to be 13.67 percent, and the average 20-year U.S. Treasury bond yield to be 6.71 percent. Thus, based upon these returns RUCO concludes the market risk premium (R_m-R_f) component in its CAPM to be 6.95 percent.

Q. What did RUCO conclude the overall CAPM COE to be?

A. As shown in Schedule JAC-4 (Page 1), RUCO determined the CAPM derived cost of equity to be 7.68 percent for its proxy group of sample companies.

IX. CE ANALYSIS

Q. Please describe the basis of the Comparable Earnings (CE) methodology.

A. The CE method is designed to measure returns expected to be earned on the original cost book value of similar risk business enterprises, in this case RUCO's proxy group of companies. Thus, it provides a direct measure of the fair return, since it translates into practice the competitive principle upon which regulation rests, and provides additional support that the Company will be allowed the opportunity to earn a fair rate of return.

Q. How did RUCO apply the CE methodology?

A. RUCO applied the CE methodology by examining realized returns on equity for its proxy group of sample companies over both the 10-year period, 2007-2016, and the 5-year period, 2012-2016, as well as projected returns on equity for 2017 and 2018, and 2020-2022.

Q. What cost of equity results were obtained from RUCO's CE analysis?

A. As shown in Schedule JAC-5, RUCO computed historical returns on equity for its sample companies over both a 5- and 10-year period, and projected returns on equity over the 5-year period, 2017-2021. Based upon its analysis, RUCO generated mean, median, and average of mean and median CE cost of equity estimates ranging from a low of 8.90 percent to a high of 11.40 percent. The results of RUCO's CE cost of equity analysis for it proxy group of companies can be summarized as follows:

	Historic ROE's	Projected ROE's
Mean	9.20 % - 9.90 %	11.40 %
Median	8.90 % - 9.30 %	11.40 %
Average of Mean and Median	9.05 % - 9.60 %	11.40 %

For purposes of its analysis, RUCO adopts the 11.40 percent projected average of mean and median cost of equity estimate as its CE-derived cost of equity estimate for the Company.

X. RUCO RESPONSE TO COMPANY'S COST OF CAPITAL WITNESS MR. THOMAS J. BOURASSA

Q. Please summarize Mr. Bourassa's cost of capital analyses and recommendations.

A. Mr. Bourassa recommends a 10.7 percent COE for LU-LPSCO based on estimates derived from two constant growth DCF models,[84] one risk premium model (RPM),[85] and three CAPM models,[86] using a sample group of seven publicly-traded water companies.[87] Based upon his analyses, Mr. Bourassa determined the cost of equity for his sample group fell in the range of 9.3 percent to 11.7 percent, with the mid-point indicated cost of equity being 10.5 percent. For purposes of his COE recommendation for LU-LPSCO, however, Mr. Bourassa makes an upward 40 basis point adjustment for small size and business risk, resulting in a range of estimates from 9.7 percent to 12.1 percent, with the upwardly-adjusted mid-point indicated COE being 10.9 percent. To this 10.9 percent midpoint value Mr. Bourassa then makes a 20 basis point downward Hamada adjustment for financial risk, resulting in an adjusted COE estimate of 10.7 percent, which he employs as his recommended COE in this proceeding. The summary results of Mr. Bourassa's cost of capital analyses are presented in Schedule D-4.1. As shown in Schedule D-1 (Page 1), Mr. Bourassa recommends an 8.67 percent overall rate of return for LU-LPSCO based upon a proposed pro forma capital structure comprised of 30.0 percent long-term debt and 70.0 percent common equity, and a 3.94 percent cost of long-term debt.

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[84] One DCF model employs exclusive use of analysts' forecasts of growth to estimate the dividend growth rate, while the other DCF model employs both analysts' forecasts of growth and historical growth estimates to estimate dividend growth (*See* Bourassa Direct, p.2, lines 22-23, and Schedule D-4.7 (Pages 1-2)).

[85] *See* Bourassa Direct, pp. 36-39 for discussion, and Schedule D-4.9.

[86] Mr. Bourassa employs estimates derived from (i) the traditional CAPM, (ii) the empirical CAPM, and (iii) a modified CAPM methodology (*See* Bourassa Direct, p.3, lines 1-2, and Schedule D-4.11).

[87] The seven publicly-traded companies in Mr. Bourassa's sample include American States Water, Aqua America, California Water, Connecticut Water, Middlesex Water, SJW Corp., and York Water.

In his constant growth DCF analyses, Mr. Bourassa estimates the dividend growth (g) component based upon (i) an average of both historical and forecasted growth and (ii) forecasted growth. The 5- and 10-year historical growth metrics employed by Mr. Bourassa include stock price growth, book value per share (BVPS), earnings per share (EPS), and dividends per share (DPS). Mr. Bourassa justifies use of stock price as a growth metric on grounds that in equilibrium, stock prices should grow at the same rate as BVPS, EPS and DPS (Bourassa Direct, pp. 34-35, lines 21:1). The historical stock price growth rates in Mr. Bourassa's DCF analysis are computed using historical stock prices obtained from the Yahoo Finance website, while the BVPS, EPS and DPS historical growth rates are obtained from *Value Line*. Mr. Bourassa utilizes both 5- and 10-year EPS forecasts from *Value Line* for his projected dividend growth estimates. In each of his two constant growth DCF analyses, the current dividend yield (D_0/P_0) component for each of his sample companies is based upon a January 13, 2017 closing spot market (P_0) price. For purposes of his analysis, the 9.3 percent DCF derived COE estimate Mr. Bourassa relies upon represents the simple average of the 8.7 percent and 9.9 percent COE estimates shown in Schedules D-4.7(Pages 1 and 2), respectively.

In his Risk Premium (RPM) analysis, Mr. Bourassa incorporates two measures of the equity risk premium: (i) a 9.7 percent annual risk premium estimate obtained from the historical bond-equity spread covering the 24-year period, 1993-2016,[88] and (ii) a 5.6 percent annual risk premium estimate obtained from a current bond-equity spread based

[88] In direct testimony, Mr. Bourassa states that the historical period covered is, 1997-2016 (Bourassa Direct, p. 37, line 11), but as shown in Schedule D-4.9, the actual period covered is 1993-2016.

on DCF-derived projected EPS growth.[89] Mr. Bourassa obtains the 9.7 percent risk premium estimate by computing a composite average annual total return for his sample companies in years, 1993-2016, then subtracts the value obtained in each year by the average annual yield on 30-year long-term Treasury bonds, and computes a 24-year average annual risk premium. For purposes of his risk premium analysis, Mr. Bourassa relies on a 7.7 percent risk premium estimate, computed as the simple average of the 9.7 percent estimate obtained from historical data, and the 5.6 percent estimate obtained from projected EPS data ((9.7% + 5.6%) / 2 = 7.7%). To this 7.7 percent average risk premium estimate Mr. Bourassa then adds a 4.0 percent expected long-term Treasury bond rate, obtained from estimates provided by *Blue Chip Financial Forecasts* and *Value Line* covering the 3-year period, 2018-2020.[90] The 11.7 percent RPM COE estimate upon which Mr. Bourassa relies represents the sum of this 7.7 percent average risk premium and the 4.0 percent expected long-term Treasury bond rate. Mr. Bourassa's RPM analysis is presented in Schedule D-4.9, and his forecasts of long-term Treasury rates are presented in Schedule D-4.8.

For purposes of his CAPM analyses, Mr. Bourassa presents estimates obtained from three different versions of the CAPM: (i) the Traditional CAPM, utilizing a 7.5 percent market risk premium ("MRP");[91] (ii) the Empirical CAPM, utilizing this same 7.5 percent

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[89] See Bourassa Direct, p.37, lines 12-15).

[90] Footnote 3 in Schedule D-4.9 is misleading, as Mr. Bourassa's work papers reveal that this 4.0 percent expected long-term Treasury bond rate is sourced from data presented in Schedule D-4.8.

[91] As shown in Schedule D-4.11, Footnote 3, this 7.5 percent MRP is computed as an average of a 7.00 percent Historical MRP as measured over the period, 1926-2015, and an 8.09 percent Current MRP ((7.00% + 8.09%) / 2 = 7.5%).

MRP; and (iii) a Modified CAPM, utilizing a 6.50 percent MRP,[92] and incorporating a 2.93 percent (i.e., 293 basis point) upward size risk adjustment.[93] In each of Mr. Bourassa's three variations of the CAPM, he employs as his risk-free (R_f) rate the same 4.0 percent forecasted 30-year long-term Treasury rate used in his RPM analysis. The results of Mr. Bourassa's CAPM analyses are presented in Schedule D-4.11. As shown, Mr. Bourassa derives a 9.5 percent COE estimate for his sample companies from the Traditional CAPM, a 10.0 percent estimated COE from the Empirical CAPM, and an 11.7 percent estimated COE from the Modified CAPM. Mr. Bourassa's CAPM analyses is presented in Schedule D-4.11. As shown, he adopts a 10.4 percent CAPM estimated equity cost rate for his sample companies, a figure which represents the average cost estimate obtained from each of his three CAPM models ((9.5% + 10.0% + 11.7%) / 3 = 10.4%).

Q. Turning first to Mr. Bourassa's DCF analysis, does RUCO believe historical stock price growth to be an appropriate metric with which to estimate the dividend growth (g) component in the constant growth DCF model?

A. No, because stock price growth is <u>not</u> a determinant of dividend growth. In fact, the reverse is true, for without the ability to demonstrate growth in such metrics as earnings per share (EPS), dividends per share (DPS), earnings retention and book value per share (BVPS), investors would be unwilling to bid up the share price of a company's common equity in the market. In this regard, dividend growth is a determinant of stock price growth,

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[92] As shown in Schedule D-4.11, Footnote 4, this 6.5 percent MRP is computed as an average of a 5.00 percent Historical MRP as measured over the period, 1963-2015, and an 8.09 percent Current MRP ((5.00% + 8.09%) / 2 = 6.5%).

[93] See Bourassa Direct, p. 44. As shown in Schedule D-4.11, Footnote 5, this 2.93 percent upward size risk premium was obtained from the *Duff & Phelps Size Study*.

not *vice versa*. That Mr. Bourassa uses stock price growth as a metric to estimate dividend growth places, figuratively speaking, the cart before the horse.

Q. Does Mr. Bourassa's use of stock price growth to estimate the dividend growth (g) component in his DCF analysis overstate his DCF estimated cost of equity?

A. Yes.[94]

Q. Moving on to Mr. Bourassa's RPM analysis, Schedule D-4.9 presents the calculation of Mr. Bourassa's 9.7 percent, 24-year historical average annual equity risk premium for his sample companies, measured over the period, 1993-2016. As shown, the single highest annual total return (46.94 percent) and annual risk premium (44.35 percent) is obtained in 2016, the <u>final</u> year of the 24-year period selected for analysis. Does this fact call into question the validity of Mr. Bourassa's reliance upon the 9.7 percent risk premium obtained from his RPM analysis, and if so why?

A. Yes, it does. The 46.94 percent total market return achieved by Mr. Bourassa's proxy group of companies in 2016 far exceeds that of other years within this 24-year period, and thus is not representative of annual total market returns which investors might expect going forward. In order to have validity, the risk premium component in an RPM analysis must be reflective of investor expectations, and Mr. Bourassa's inclusion of the stellar

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[94] Schedule D-4.4 presents Mr. Bourassa's calculation of 5-year historical dividend growth for his sample companies. As shown, the 8.80% average dividend growth rate presented in Column 5 represents an average of the 5-year historical growth rates presented in Columns 1-4, with the 16.40% growth in stock price appreciation (Column 1) far exceeding the other growth rates. By removing stock price growth as a metric, Mr. Bourassa would have obtained an average dividend growth rate of 6.26%, a figure 252 basis points lower than the 8.80% growth rate he relies upon.

market returns from 2016 into his analysis not only violates this premise, but overstates his RPM estimated COE.

Q. Does Mr. Bourassa's direct testimony provide support for exclusion of the 2016 investment returns achieved by his sample companies in the computation of the equity risk premium component in his RPM analysis?

A. Yes, for when explaining the RPM (*See* Bourassa Direct, p. 37, lines 1-3), he states that to implement the RPM, "*it is assumed that the past relationship will continue into the future*" (emphasis added). Thus, with these words Mr. Bourassa acknowledges that exclusion of the 2016 investment returns from his RPM analysis is proper, as they are neither representative of investment returns from the past, nor expected '*to continue into the future.*'

Q. Based upon the figures shown in Schedule D-4.9, would exclusion of the 2016 investment returns have significantly reduced the historical risk premium in Mr. Bourassa's RPM analysis?

A. Yes, for when computed over the 23-year period, 1993-2015, exclusion of the 2016 investment returns results in an 8.2 percent average risk premium, a figure <u>150 basis points lower</u> than the 9.7 percent risk premium obtained by Mr. Bourassa (9.7% - 8.2% = 1.5%). For obvious reasons, a reduction to the historical risk premium would lead to reductions in the combined historical/current average risk premium relied upon by Mr. Bourassa, and result in a lower RPM estimated COE.[95]

Q. As shown in Schedule D-4.9, Mr. Bourassa employs a 4.0 percent forecasted long-term Treasury rate in his RPM cost of equity analysis. Does Mr. Bourassa's use of a forecasted rate in his RPM analysis comport with the RPM methodology as described in his direct testimony?

A. No, it does not. In explaining the RPM (*See* Bourassa Direct, pp. 36-37, lines 23:1), Mr. Bourassa states that the "*general approach*" involves adding the "*current debt yield*" to the equity risk premium component to derive the RPM estimated COE (emphasis added). Thus, rather than using a forecasted measure of the long-term Treasury rate, Mr. Bourassa should instead have used either a current spot, or recent average, yield on the 30-year Treasury bond.

Q. In regard to the '*current debt yield*,' does RUCO believe the '*general approach*' to the RPM as described by Mr. Bourassa to be the appropriate RPM methodology?

A. Yes, as the current yield on long-term Treasury bonds is reflective of the rate borne by investors in the marketplace, and as such is the rate which should properly be used when estimating the cost of equity. The use of forecasted long-term Treasury bond yields is inappropriate, and results in estimates of the COE being overstated.

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[95] When averaging this reduced 8.2% historical risk premium with Mr. Bourassa's 5.6% current risk premium, a 6.9% average historical/current risk premium is obtained ((8.2% + 5.6%)/2 = 6.9%). Adding this reduced 6.9% risk premium to Mr. Bourassa's proposed 4.0% expected long-term Treasury rate equates to a reduced 10.9% RPM estimated COE.

Q. Please quantify the extent to which Mr. Bourassa's use of a 4.0 percent forecasted 30-year treasury rate overstates his RPM derived estimated cost of equity.

A. As shown in RUCO Schedule JAC-4 (Page 1), the current 3-month average yield on the 30-year U.S. Treasury Bond is 2.82 percent. Thus, Mr. Bourassa's use of a forecasted 4.0 percent 30-year long-term Treasury rate overstates his RPM estimated COE by an additional 118 basis points (4.00% - 2.82% = 1.18%).

Q. For purposes of his 4.0 percent forecasted long-term Treasury rate, Mr. Bourassa incorporates estimates provided by *Blue Chip Financial Forecasts* (See Bourassa Direct, pp. 38, and Schedule D-4.8). Is there reason to believe that interest rate forecasts provided by *Blue Chip Financial Forecasts* have systematically been overstated?

A. Yes, for as shown in RUCO Exhibit JAC-A, forecasts of 10-year U.S. Treasury rates provided by *Blue Chip Economic Indicators* have consistently and systematically been overstated.

Q. For purposes of his RPM analysis, does Mr. Bourassa employ a compound geometric mean in the computation of the annual total returns presented in Schedule D-4.9?

A. No, Mr. Bourassa makes exclusive use of arithmetic mean returns when computing the annual total returns presented in Schedule D-4.9.

Q. Why is exclusive use of arithmetic returns in the development of Mr. Bourassa's RPM equity risk premium inappropriate?

A. It is inappropriate for two reasons. First, exclusive use of arithmetic returns leads to the development of higher, and potentially excessive, risk premiums. Second, investors have access to both arithmetic and geometric returns, and utilize both when making investment decisions. For example, mutual fund investors rely on geometric returns when evaluating a fund's historic and prospective returns, and *Value Line* reports historic investment returns on a geometric or compound annual growth rate basis. Thus, to exclude geometric returns in the development of an equity risk premium fails to give recognition to their importance in the investment decision-making process.

Q. Has the Arizona Corporation Commission (ACC) previously ruled on the issue of geometric returns and whether they should be considered in the development of an equity risk premium?

A. Yes, and the ACC has consistently ruled that geometric returns should be considered in the development of an equity risk premium.[96]

[96] *See* Decision No. 70011 (dated November 27, 2007), in *UNS Gas, Inc.* (Docket No. G-04204A-06-0463); Decision No. 70360 (dated May 27, 2008), in *UNS Electric, Inc.* (Docket No. E-04204A-06-0783); Decision No. 71308 (dated October 21, 2009), in *Chaparral City Water Company* (Docket No. W-02113A-07-0551); Decision No. 71623 (dated April 14, 2010), in *UNS Gas, Inc.* (Docket No. G-04204A-08-0571); Decision No. 71845 (dated August 25, 2010), in *Arizona Water Company* (Docket No. W-01445A-08-0440); Decision No. 71914 (dated September 30, 2010), in *UNS Electric, Inc.* (Docket No. E-04204A-09-0206);

Q. In failing to give recognition to geometric (i.e., compound average annual growth) returns in his RPM analysis, does Mr. Bourassa overstate the annual risk premiums for his sample companies?

A. Yes, which suggests that his RPM cost of equity results have further been overstated.

Q. Turning now to Mr. Bourassa's Traditional CAPM cost of equity analysis, as shown in Schedule D-4.11 he obtains estimates from both a Historical Market Risk Premium (MRP) CAPM as well as a Current MRP CAPM. In both, however, the risk-free (R_f) rate component is the same 4.0 percent forecasted long-term Treasury rate as that used by Mr. Bourassa in his RPM analysis. How does RUCO respond?

A. For the reasons noted earlier in my discussion of Mr. Bourassa's RPM analysis, use of forecasted Treasury yields in the CAPM is inappropriate, and serves to overstate the estimated market cost of equity. This is particularly true given that Mr. Bourassa relies, in part, on estimates from *Blue Chip Economic Indicators*. The appropriate risk-free (R_f) rate to be used in the CAPM is the current long-term Treasury rate. The current 3-month average yield on the 30-year U.S. Treasury Bond is 2.82 percent. Thus, Mr. Bourassa's use of a forecasted 4.0 percent risk-free rate overstates the COE estimates derived from both his Historical MRP and Current MRP CAPM models by 118 basis points (4.00% - 2.82% = 1.18%).

Q. Does RUCO have concerns regarding the 7.00 percent market risk premium (RP_m) component of Mr. Bourassa's Historical MRP CAPM?

A. No.

Q. Does RUCO have concerns regarding the 8.09 percent market risk premium (MRP) component employed by Mr. Bourassa in his Current MRP CAPM?

A. Yes, as this 8.09 percent MRP is not reflective of current market conditions and is significantly overstated.

Q. What evidence does RUCO have to demonstrate that the 8.09 percent market risk (RP_m) premium in Mr. Bourassa's Current MRP CAPM is overstated?

A. Evidence of its overstatement can be found in rebuttal testimony filed by Mr. Bourassa in a recent Quail Creek Water Company rate case.[97] Specifically, in Rebuttal (Page 10, lines 20-22), Mr. Bourassa alludes to a *Wall Street Journal* article which reported, as he states, that "estimates of the equity risk premium for the S&P 500 as of the end of April 2015 was one of the highest estimates going back to 1960." A review of the article to which Mr. Bourassa cites[98] reveals that as of the end of April 2015, the equity risk premium on the S&P 500 was 5.8 percent, and based upon the research findings of Dr. Aswath Damodaran, Professor of Finance at the Stern School of Business at New York University.

Q. Does Dr. Damodaran regularly update his research findings as to the current equity risk premium for the S&P 500?

A. Yes, Dr. Damodaran maintains a website dedicated to that purpose.[99] In visiting the website, RUCO found that he had updated his analysis to December 1, 2017, and as of

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[97] *Quail Creek Water Company* (Docket No. W-02514A-14-0343), Rebuttal Testimony (Cost of Capital) filed by Thomas J. Bourassa, dated June 3, 2015.

[98] Lahart, Justin, "Lower Yields May be Stocks' Real Threat," *The Wall Street Journal*, Heard on the Street Column, May 17, 2015. http://www.wsj.com/articles/lower-yields-may-be-stocks-real-threat-1431885420

[99] http://pages.stern.nyu.edu/~adamodar/

that date the current equity risk premium on the S&P 500 was estimated to be 4.68 percent.

Q. Would an equity risk premium on the S&P 500 of 4.68 percent, measured as of December 1, 2017, be considered an indication of the "current" MRP?

A. Yes, because the S&P 500 is a broad based market index of 500 publicly-traded companies, and the performance of the S&P 500 is often used as a proxy for that of the market as a whole.

Q. Does RUCO have further evidence that Mr. Bourassa's 8.09 percent current MRP is overstated?

A. Yes. According to Duff & Phelps, the current equity risk premium is 5.5 percent.[100]

Q. In light of the above, please quantify the degree to which Mr. Bourassa's 8.09 percent current market risk premium is overstated.

A. Based upon the above referenced Dr. Damodaran (4.68%) and Duff & Phelps (5.5%) measures of the current equity risk premium, the current average equity risk premium is 5.09 percent ((4.68% + 5.50%) / 2 = 5.09%). Therefore, Mr. Bourassa has overstated the current equity risk premium component in his Current MRP CAPM analysis by 300 basis points (8.09% - 5.09% = 3.00%).

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[100] Duff & Phelps is a resource to which Mr. Bourassa frequently cites in testimony. As of November 15, 2016, Duff & Phelps determined the current Equity Risk Premium to be 5.5 percent, and continues to remain at that level. http://www.duffandphelps.com/assets/pdfs/publications/valuation/coc/us-normalized-risk-free-rate-nov15-16.pdf

Q. Please explain why cost of equity estimates obtained from the ECAPM should not be relied upon.

A. The ECAPM modification to the traditional CAPM is predicated on the notion that cost of equity estimates derived from the CAPM are biased downward for companies having a beta coefficient less than 1.0, and biased upward for companies having a beta coefficient greater than 1.0. When obtaining cost of equity estimates from the CAPM, use of an adjusted beta serves to increase the beta coefficient for companies with a beta less than 1.0, and decrease the beta coefficient for companies with a beta greater than 1.0. As noted previously, the beta values utilized by Mr. Bourassa in his CAPM analyses are provided by *Value Line*. However, because *Value Line* betas are "adjusted" betas, the ECAPM beta adjustment is an unnecessary redundancy, and serves to overstate the cost of equity.

Q. To what authority does Mr. Bourassa cite as support for his reliance on cost of equity estimates derived from the ECAPM?

A. As authority (Bourassa Direct, p. 40, lines 5-8), Mr. Bourassa cites to Dr. Roger Morin, at pages 189-191 of his book, *New Regulatory Finance*.[101]

Q. Have you had an opportunity to review Dr. Morin's discussion of the ECAPM on the above cited pages (i.e., 189-191) of his book, *New Regulatory Finance*?

A. Yes, I have, and on page 189 of that book, Dr. Morin points out that "*several finance scholars* have developed, refined and expanded versions of the CAPM by relaxing the

[101] Morin, Roger, *New Regulatory Finance*, Virginia: Public Utilities Reports (2006).

constraints imposed on the CAPM" (emphasis added), with the ECAPM being a refined/expanded variation of the CAPM.

Q. In ruling on whether cost of equity estimates obtained from the ECAPM should be considered in a rate case, has the Federal Energy Regulatory Commission ("FERC") recently issued a decision in which reference is made to the above cited passage from Dr. Morin's book?

A. Yes. In a Corrected Initial Decision (dated December 29, 2015) issued in Docket No. EL14-12-002, the FERC ruled that ECAPM estimates proposed by a Dr. Avera, a cost of capital witness testifying before the FERC, should not be considered. In attempting to make his case for the ECAPM, Dr. Avera cited as authority Dr. Morin's book, *New Regulatory Finance* (p. 189); nevertheless, the FERC ruled as follows:

> 330. This Initial Decision will not consider the ECAPM in determining the proper Base ROEs for the MISO TOs. *The quote from New Regulatory Finance suggests that at this time the ECAPM is relied upon by no more than a few "financial scholars."* In addition, all of the proxy-group companies have betas below 1.0. Accordingly, they will inevitably have higher COEs under an ECAPM than under a CAPM. Dr. Avera's CAPM already supports providing the MISO TOs a Base ROE above the Midpoint. *There is no need to include an obscure, and arguably more controversial, variant of that pricing model.*[102] (emphasis added)

Q. In light of the above, is it RUCO's position that cost of equity estimates derived from Mr. Bourassa's ECAPM should be given no weight in this proceeding?

A. Yes.

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[102] Federal Energy Regulatory Commission, Corrected Initial Decision in Docket No. EL14-12-002 (Issued December 29, 2015), Finding of Fact No. 330, p. 102. http://stmedia.startribune.com/documents/ALJ+transmission+ruling.pdf

Q. Please explain why cost of equity estimates obtained from Mr. Bourassa's Modified CAPM should not be relied upon.

A. First, as shown in footnote 4 of Schedule D-4.11, the 6.50 percent MRP component of Mr. Bourassa's Modified CAPM incorporates the same 8.09 percent current MRP employed by Mr. Bourassa in his Traditional CAPM model, and as previously discussed this 8.09 percent current MRP is overstated by 300 basis points (8.09% - 5.09% = 3.00%). Thus, by any reasonable standard, the 6.50 percent MRP component in Mr. Bourassa's Modified CAPM is significantly overstated. Second, for the reasons noted in my earlier discussion of Mr. Bourassa's Traditional CAPM, the risk free rate in Mr. Bourassa's Modified CAPM is overstated by 118 basis points (4.00% - 2.82% = 1.18%). Third, Mr. Bourassa's Modified CAPM also incorporates an upward 293 basis point size risk premium (RP_s). In view of the previously noted overstatements to Mr. Bourassa's Traditional CAPM, and considering that Mr. Bourassa's 11.7 percent Modified CAPM estimated COE exceeds by 220 basis points his 9.5 percent Traditional CAPM estimate (11.7% - 9.5% = 2.20%), there is abundant evidence to suggest that his Modified CAPM estimate significantly overstates the COE.

Q. As shown in Schedule D-4.1, Mr. Bourassa's proposed 10.7 percent recommended cost of equity makes provision for an upward 40 basis point company-specific/small size risk premium adjustment. Does this fact further suggest that Mr. Bourassa's Modified CAPM results have been significantly overstated?

A. Yes, because the 293 basis point upward size risk premium (RP_s) adjustment in Mr. Bourassa's Modified CAPM represents a double-counting of a size risk adjustment made to his overall cost of equity analysis.[103]

Q. Does RUCO believe that it is appropriate to make an upward small size risk premium adjustment to the cost of equity for LU-LPSCO in this proceeding?

A. No. Empirical research has demonstrated that a small company risk premium adjustment to the cost of equity is unwarranted for regulated utilities. Annie Wong, of Western Connecticut State University, conducted a study on utility stocks to determine if the so-called size effect exists in the utility industry, and she writes as follows:

> The fact that the two samples show different, though weak, results indicates that utility and industrial stocks do not share the same characteristics. First, given firm size, utility stocks are consistently less risky than industrial stocks. Second, industrial betas tend to decrease with firm size but utility betas do not. These findings may be attributed to the fact that all public utilities operate in an environment with regional monopolistic power and regulated financial structure. As a result, the business and financial risks are very similar among the utilities regardless of their size. Therefore, utility betas would not necessarily be expected to be related to firm size. The object of this study is to examine if the size effect exists in the utility industry. After controlling for equity values, there is some weak evidence that firm size is a missing factor from the CAPM for the industrial but not for the utility stocks. This implies that although the size phenomenon has been strongly documented for industrials, the findings suggest that *there is no need to adjust for the firm size in utility regulations*.[104] (emphasis added)

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[103] Mr. Bourassa's 10.7% recommended COE includes an upward 40 basis point small size risk adjustment; however, it is offset, in part, by a downward 20 basis point Hamada financial risk adjustment.

[104] Annie Wong, "Utility Stock and the Size Effect: An Empirical Analysis," *Journal of the Midwest Finance Association*, (1993), p.98.

Q. Has the Commission previously ruled on the issue of firm size and whether it warrants a risk premium adjustment to the cost of equity?

A. Yes. In Decision No. 64282,[105] the ACC ruled for Arizona Water that firm size does not warrant recognition of a risk premium stating, "We do not agree with the Company's proposal to assign a risk premium to Arizona Water based on its size relative to other publicly traded water utilities...." The Commission confirmed its previous ruling in Decision No. 64727[106] for Black Mountain Gas agreeing with Staff that "the 'firm size phenomenon' does not exist for regulated utilities, and that therefore there is no need to adjust for risk for small firm size in utility regulation." All companies have firm-specific risks; therefore, the existence of unique risks for a company does not lead to the conclusion that its total risk is greater than other entities. Moreover, as previously discussed, investors cannot expect compensation for firm-specific risk since it can be eliminated through diversification.

Q. Has the ACC issued a more recent decision which reconfirms its prior ruling regarding firm size?

A. Yes, in the recent EPCOR Water Arizona case.[107] In Decision No. 75268,[108] the ACC ruled as follows:

> *Nor are we persuaded* by Ms. Ahern's claim *that EPCOR's "size" should be recognized as a business risk factor*. Although a company's size may sometimes be considered as a business risk factor, *for utilities of substantial size (i.e., those that have access to the equity capital markets) it is a minimal consideration in determining business risk*. Small utilities, (e.g., non-class A utilities) may have additional risk due to the inability to

105 Dated December 28, 2001.
106 Dated April 17, 2002.
107 *EPCOR Water Arizona, Inc.* (Docket No. WS-01303A-14-0010).
108 Dated September 8, 2015.

> hire employees or contract for sufficient levels of expertise management, technical & financial) to perform effectively and efficiently. Small utilities also have other risks such as information access, greater annual variability in operating expenses, and greater regulatory risk both due to lack of skilled rate case personnel and the percentage of operating expenses and rate base components reviewed by Staff and intervenors. Due to the latter two reasons, for any adopted return on equity the distribution of actual returns is greater for a small utility than for a large utility, and greater variability means greater risk. However, most of the proxy companies used in the cost of capital analyses, including EPCOR, are a conglomeration of many smaller water systems and have the capacity to attract the appropriate level of talent for proficient operation. Thus, the business risk for any of the EPCOR systems parallels that of the sample companies, and *we do not believe a cost of equity adjustment for size is appropriate*. (emphasis added)

Q. Does this suggest that pursuant to Decision No. 75268, Mr. Bourassa's upward 40 basis point adjustment for small size is unwarranted?

A. Yes.

Q. In closing, are there additional considerations as to why the 10.7 percent cost of equity proposed by Mr. Bourassa is excessive?

A. Yes. In a recent Investor Presentation made at the J.P. Morgan Energy Equity Conference held in New York on June 26-28, 2017, APUC indicated that the regulated ROEs for Liberty Utilities are currently between 9%-10%.[109] Thus, the 10.7 percent COE proposed by the Company is clearly excessive and should be denied.

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[109] *See* Company Response to RUCO 5.04, as presented in RUCO Exhibit JAC-A.
http://investors.algonquinpower.com/Cache/1500101012.PDF?Y=&O=PDF&D=&FID=1500101012&T=&IID=4142273

XI. CONCLUSION AND RECOMMENDATIONS

Q. Please summarize RUCO's cost of capital recommendations in this proceeding.

A. RUCO recommends that the Commission adopt the following:

1) A hypothetical capital structure composed of 46.00 percent long-term debt and 54.00 percent common equity;
2) A cost of debt of 3.78 percent;
3) A cost of common equity of 9.57 percent; and
4) An overall rate of return of 6.91 percent.

Q. Does this conclude your direct testimony?

A. Yes, it does.

ATTACHMENT 1

Attachment 1

John A. Cassidy, CRRA

EDUCATION

Arizona State University -- Master of Business Administration-Finance	(May 1987)
University of Arizona -- Master of Library Science	(August 1980)
Arizona State University -- B.A. History, Latin American Studies	(May 1976)

EXPERIENCE

Public Utilities Analyst V – Residential Utility Consumer Office (RUCO), Phoenix, AZ (July 2015-Present)

Public Utilities Analyst III -- Arizona Corporation Commission, Phoenix, AZ (March 2013-July 2015)

Public Utilities Analyst II -- Arizona Corporation Commission, Phoenix, AZ (May 2012-March 2013)

Public Utility Consultant -- Arizona Corporation Commission, Phoenix, AZ (Jan. 2012-May 2012)

Regulatory Utility Consultant – Self-Employed, Tempe, AZ (2009-2010)

- Assisted in the preparation of testimony filed by the Residential Utility Consumer Office (RUCO) in the Litchfield Park W/WW rate case (Docket No. SW-01428A-09-0103, et al)

Regulatory Utility Consultant – Self-Employed, Tempe, AZ (2007-2008)

- Filed formal cost of capital testimony/schedules on behalf of intervener, Anthem Town Council, and testified at evidentiary hearing in the Arizona-American Water Co., Anthem Water and Anthem/Agua Fria WW rate case (Docket No. WS-01303A-06-0403)

Utilities Auditor II -- Arizona Corporation Commission, Phoenix, AZ (Aug. 1993-Nov. 1997)

PROFESSIONAL DEVELOPMENT

Certified Rate of Return Analyst (CRRA) (May 2016)

Annual Regulatory Studies Program ("Camp NARUC"), Institute of Public Utilities, Michigan State University, East Lansing, MI (August 4-15, 2014)

Annual Financial Forum, Society of Utility and Regulatory Financial Analysts (SURFA) Indianapolis, IN (April 2013 and April 2016); New Orleans, LA (April 2017)

NARUC Utility Rate School, San Diego, CA (May 13-17, 2013)

HONORS

CPA Candidate - Passed the CPA exam (1997), but opted not to pursue certification

Beta Gamma Sigma - National Honor Society in Business Administration

Rate Dockets Testified - Cost of Capital:

Liberty Utilities (Litchfield Park Service Co.)	Docket No. SW-01428A-17-0058
Pima Water Company	Docket No. W-02199A-16-0421, et al.
Arizona Public Service Company	Docket No. E-01345A-16-0036
EPCOR Water Arizona	Docket No. WS-01303A-16-0145
Southwest Gas Corporation	Docket No. G-01551A-16-0107
Liberty Utilities (Bella Vista W / Rio Rico W/WW)	Docket Nos. W-02465A-15-0367, et al.
Arizona Water Company	Docket No. W-01445A-15-0277
Liberty Utilities (Black Mountain Sewer)	Docket Nos. SW-02361A-15-0206, et al.
Quail Creek Water Company	Docket No. W-02514A-14-0343
EPCOR Water Arizona	Docket No. WS-01303A-14-0010
Utility Source, L.L.C.	Docket No. WS-04235A-13-0331
Verde Santa Fe Wastewater Company	Docket No. SW-03437A-13-0292
Chaparral City Water Company	Docket No. W-02113A-13-0118
Payson Water Company	Docket No. W-03514A-13-0111
Lago Del Oro Water Company	Docket No. W-01944A-13-0215
Las Quintas Serenas Water Company	Docket No. W-01583A-13-0117
Litchfield Park Service Company	Docket Nos. SW-01428A-13-0042, et al.
Adaman Mutual Water Company	Docket No. W-01997A-12-0501
Global Water Utilities	Docket Nos. W-01212A-12-0309, et al.
New River Utility Company	Docket No. W-01737A-12-0478
Arizona Water Company	Docket No. W-01445A-12-0348
Far West Water & Sewer, Inc.	Docket No. WS-03478A-12-0307
Cordes Lakes Water Company	Docket No. W-02060A-12-0356
Rio Rico Utilities, Inc.	Docket No. WS-02676A-12-0196
Ray Water Company	Docket No. W-01380A-12-0254
Vail Water Company	Docket No. W-01651B-12-0339
Valley Water Company	Docket No. W-01412A-12-0195
Arizona Water Company	Docket No. W-01445A-11-0310
Pima Utility Company	Docket Nos. W-02199A-11-0329, et al.

Rate Dockets Testified - Revenue Requirement/Rate Design:

Pima Water Company	Docket No. W-02199A-16-0421, et al.
Arizona Water Company	Docket No. W-01445A-15-0277
Quail Creek Water Company	Docket No. W-02514A-14-0343
Beaver Dam Water Company	Docket No. W-03067A-12-0232
Eden Water Company	Docket No. W-02068A-11-0471
Great Prairie Oasis, dba Sunland Water Co.	Docket No. W-04015A-12-0051

Financing Dockets - Responsible for ACC Staff Report:

Arizona Public Service Company	Docket No. E-01345A-11-0423
Tucson Electric Power Company	Docket No. E-01933A-12-0176
Chaparral City Water Company	Docket No. W-02113A-13-0047
Payson Water Company	Docket No. W-03514A-13-0142
Lago Del Oro Water Company	Docket No. W-01944A-13-0242
Duncan Valley Electric Cooperative, Inc.	Docket No. E-01703A-13-0272
Sulphur Springs Valley Electric Cooperative, Inc.	Docket No. E-01575A-12-0457
Trico Electric Cooperative, Inc.	Docket No. E-01461A-12-0056
Great Prairie Oasis, dba Sunland Water Co.	Docket No. W-04015A-12-0050
Columbus Electric Cooperative, Inc.	Docket No. E-01851A-11-0415
Pima Utility Company	Docket Nos. W-02199A-11-0403, et al.

ATTACHMENT 2

AMER. STATES WATER NYSE-AWR

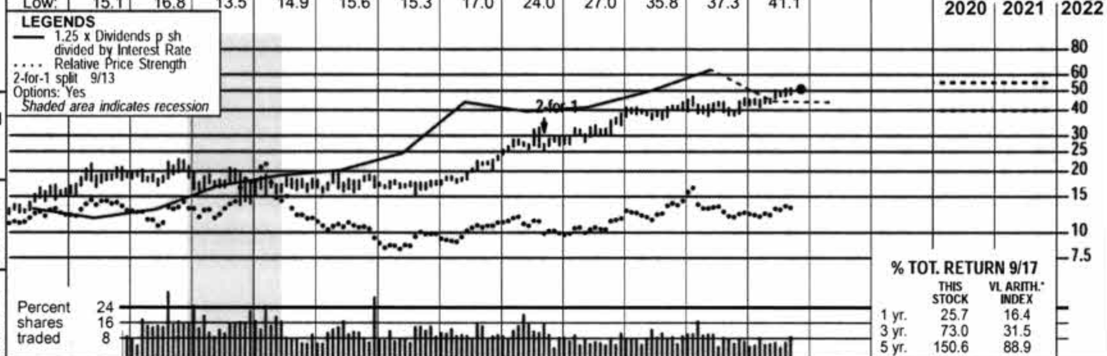
RECENT PRICE	P/E RATIO		RELATIVE P/E RATIO	DIV'D YLD	VALUE LINE
51.11	26.9	(Trailing: 27.6 Median: 20.0)	1.35	2.0%	

TIMELINESS 3 Lowered 8/11/17
SAFETY 2 Raised 7/20/12
TECHNICAL 2 Raised 9/29/17
BETA .80 (1.00 = Market)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
High:	21.9	23.1	21.0	19.4	19.8	18.2	24.1	33.1	38.7	44.1	47.2	51.8
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

Target Price Range 2020 | 2021 | 2022

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



2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	55	(+10%)	4%
Low	40	(-20%)	-3%

Insider Decisions

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

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	102	87	96
to Sell	87	89	84
Hld's(000)	24607	29082	28355

% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	25.7	16.4
3 yr.	73.0	31.5
5 yr.	150.6	88.9

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
6.53	6.89	6.99	6.81	7.03	7.88	8.75	9.21	9.74	10.71	11.12	12.12	12.19	12.17	12.56	11.92	12.40	12.65	Revenues per sh	15.95
1.26	1.27	1.04	1.11	1.32	1.45	1.65	1.69	1.70	2.11	2.13	2.48	2.65	2.67	2.81	2.70	2.85	3.05	"Cash Flow" per sh	3.85
.67	.67	.39	.53	.66	.67	.81	.78	.81	1.11	1.12	1.41	1.61	1.57	1.60	1.62	1.85	1.85	Earnings per sh A	2.35
.43	.44	.44	.44	.45	.46	.48	.50	.51	.52	.55	.64	.76	.83	.87	.91	.98	1.05	Div'd Decl'd per sh B■	1.35
1.59	1.34	1.88	2.51	2.12	1.95	1.45	2.23	2.09	2.12	2.13	1.77	2.52	1.89	2.39	3.55	3.15	3.15	Cap'l Spending per sh	3.60
6.61	7.02	6.98	7.51	7.86	8.32	8.77	8.97	9.70	10.13	10.84	11.80	12.72	13.24	12.77	13.52	14.20	14.85	Book Value per sh	16.80
30.24	30.36	30.42	33.50	33.60	34.10	34.46	34.60	37.06	37.26	37.70	38.53	38.72	38.29	36.50	36.57	36.70	36.80	Common Shs Outst'g C	37.00
16.7	18.3	31.9	23.2	21.9	27.7	24.0	22.6	21.2	15.7	15.4	14.3	17.2	20.1	24.6	25.6	*Bold figures are*		Avg Ann'l P/E Ratio	21.0
.86	1.00	1.82	1.23	1.17	1.50	1.27	1.36	1.41	1.00	.97	.91	.97	1.06	1.24	1.35	*Value Line*		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%	*estimates*		Avg Ann'l Div'd Yield	2.8%

CAPITAL STRUCTURE as of 6/30/17
Total Debt $365.3 mill. **Due in 5 Yrs** $41.7 mill.
LT Debt $321.0 mill. **LT Interest** $20.0 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 36,644,758 shs. as of 7/31/17

MARKET CAP: $1.9 billion (Mid Cap)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		20-22
301.4	318.7	361.0	398.9	419.3	466.9	472.1	465.8	458.6	436.1	465	470	Revenues ($mill)	590
28.0	26.8	29.5	41.4	42.0	54.1	62.7	61.1	60.5	59.7	62.0	66.0	Net Profit ($mill)	87.0
42.6%	37.8%	38.9%	43.2%	41.7%	39.9%	36.3%	38.4%	38.4%	36.8%	36.5%	35.0%	Income Tax Rate	35.0%
8.5%	6.9%	3.2%	5.8%	2.0%	2.5%	--	--	2.5%	.5%	1.5%	2.0%	AFUDC % to Net Profit	2.5%
46.9%	46.2%	45.9%	44.3%	45.4%	42.2%	39.8%	39.1%	41.1%	39.4%	40.0%	42.0%	Long-Term Debt Ratio	43.5%
53.1%	53.8%	54.1%	55.7%	54.6%	57.8%	60.2%	60.9%	58.9%	60.6%	60.0%	58.0%	Common Equity Ratio	56.5%
569.4	577.0	665.0	677.4	749.1	787.0	818.4	832.6	791.5	815.3	870	935	Total Capital ($mill)	1100
776.4	825.3	866.4	855.0	896.5	917.8	981.5	1003.5	1060.8	1150.9	1200	1250	Net Plant ($mill)	1400
6.7%	6.4%	5.9%	7.6%	7.1%	8.3%	8.9%	8.6%	9.0%	8.6%	8.5%	8.5%	Return on Total Cap'l	9.0%
9.3%	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.0%	13.0%	12.1%	12.0%	12.0%	Return on Shr. Equity	14.0%
9.3%	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.0%	13.0%	12.1%	12.0%	12.0%	Return on Com Equity	14.0%
3.9%	3.1%	3.2%	5.8%	5.3%	6.6%	6.8%	5.7%	6.0%	5.3%	5.0%	5.5%	Retained to Com Eq	6.0%
58%	64%	61%	47%	49%	45%	47%	53%	54%	56%	58%	58%	All Div'ds to Net Prof	57%

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	4.4	.4	2.1
Accts Receivable	18.9	20.0	25.3
Other	109.4	146.5	122.1
Current Assets	132.7	166.9	149.5
Accts Payable	50.6	43.7	45.2
Debt Due	28.3	90.3	44.3
Other	44.6	43.9	51.0
Current Liab.	123.5	177.9	140.5

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	140	113	465
2018	102	118	135	115	470

Cal-endar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.28	.39	.54	.36	1.57
2015	.32	.41	.56	.31	1.60
2016	.28	.45	.59	.30	1.62
2017	.34	.62	.59	.30	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
2013	.1775	.1775	.2025	.2025	.76
2014	.2025	.2025	.213	.213	.83
2015	.213	.213	.224	.224	.87
2016	.224	.224	.224	.242	.91
2017	.242	.242	.255		

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 was forced to divest an operation for a profit. The water utility's California-based Golden States Water subsidiary sold its Ojai Water System this summer to the municipal district of Casitas for $34.3 million. Ultimately, the company didn't have a choice, as Casitas was using eminent domain to acquire the assets. In any case, the sale resulted in a second-quarter pretax gain of $8.3 million, or about $0.13 a share.

The nonutility sector is performing well. Responsible for about 20% of the company's normalized profits, the ASUS subsidiary provides water services to U.S. military installations. The government is in the midst of privatizing the water systems on many domestic bases. Earlier this year, ASUS snagged a 50-year contract with the Elgin Air Force Base that is expected to generate $510 million in revenues. On October 2nd, the company announced that it was awarded another 50-year contract worth $601 million to service Ft. Riley in Kansas. We expect the company to continue to win a fair share of this business. Since these operations are unregulated, ASUS's return on equity is not limited, however, the business also carries more risk.

Overall, earnings and dividend growth prospects are good. Due mostly to the aforementioned sale of assets, we have raised our 2017 share-earning's estimate for the company $0.15, to $1.85. This represents a hefty 14% year-over-year gain. In 2018, we think that the company will manage to post the same strong share earnings as the nonregulated sector contribution to the bottom line rises.

We think both short- and long-term investors can find better alternatives elsewhere. Shares of AWR have been on a nice run of late. Historically, water utility stocks have been defensive income plays because of their low volatility, high dividend yields, and good dividend growth prospects. At its recent price, AWR's 2.0% yield is only on par with the *Value Line* median. In our opinion, most of the good news associated with the stock appears to be reflected in the recent price. Hence, this neutrally ranked equity has subpar total return prospects through 2020-2022.

James A. Flood *October 13, 2017*

(A) Primary earnings. Excludes nonrecurring gains/(losses): '04, 7¢; '05, 13¢; '06, 3¢; '08, (14¢); '10, (23¢); '11, 10¢. Next earnings report due mid-November.
(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	70
Earnings Predictability	85

AMERICAN WATER NYSE-AWK

RECENT PRICE **81.75** | P/E RATIO **27.7** (Trailing: 30.8, Median: NMF) | RELATIVE P/E RATIO **1.39** | DIV'D YLD **2.1%** | VALUE LINE

High:	23.7	23.0	25.8	32.8	39.4	45.1	56.2	61.2	85.2	83.1	
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

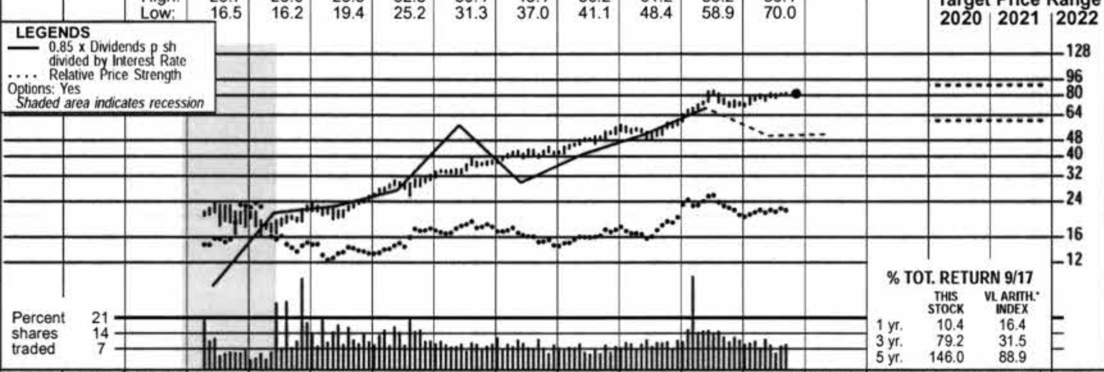
TIMELINESS 3 Lowered 8/18/17

SAFETY 3 New 7/25/08

TECHNICAL 2 Raised 10/13/17

BETA .65 (1.00 = Market)

LEGENDS
— 0.85 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	(+10%)	5%
Low	60	(-25%)	-4%

Insider Decisions

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

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	316	269	281
to Sell	278	302	291
Hld's(000)	145668	160388	158865

Percent shares traded 21 14 7

% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	10.4	16.4
3 yr.	79.2	31.5
5 yr.	146.0	88.9

2001	2002	2003	2004	2005	2006	2007E	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
--	--	--	--	--	13.08	13.84	14.61	13.98	15.49	15.18	16.25	16.28	16.78	17.72	18.54	*19.25*	*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	*5.60*	*6.15*	"Cash Flow" per sh	*7.45*
--	--	--	--	--	d.97	d2.14	1.10	1.25	1.53	1.72	2.11	2.06	2.39	2.64	2.62	*2.85*	*3.25*	Earnings per sh A	*4.15*
--	--	--	--	--	--	--	.40	.82	.86	.90	1.21	.84	1.21	1.33	1.47	*1.62*	*1.76*	Div'd Decl'd per sh B■	*2.35*
--	--	--	--	--	4.31	4.74	6.31	4.50	4.38	5.27	5.25	5.50	5.33	6.51	7.36	*6.75*	*6.70*	Cap'l Spending per sh	*6.40*
--	--	--	--	--	23.86	28.39	25.64	22.91	23.59	24.11	25.11	26.52	27.39	28.25	29.24	*30.90*	*32.40*	Book Value per sh D	*39.45*
--	--	--	--	--	160.00	160.00	160.00	174.63	175.00	175.66	176.99	178.25	179.46	178.28	178.10	*178.50*	*179.00*	Common Shs Outst'g C	*187.50*
--	--	--	--	--	--	--	18.9	15.6	14.6	16.8	16.7	19.9	20.0	20.5	27.7	*Bold figures are*		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	*Value Line*		Relative P/E Ratio	*1.15*
--	--	--	--	--	--	--	1.9%	4.2%	3.8%	3.1%	3.4%	2.0%	2.5%	2.5%	2.0%	*estimates*		Avg Ann'l Div'd Yield	*3.1%*
						2214.2	2336.9	2440.7	2710.7	2666.2	2876.9	2901.9	3011.3	3159.0	3302.0	*3440*	*3600*	Revenues ($mill)	*4325*
						d342.3	187.2	209.9	267.8	304.9	374.3	369.3	429.8	476.0	468.0	*510*	*580*	Net Profit ($mill)	*780*
						--	37.4%	37.9%	40.4%	39.5%	40.7%	39.1%	39.4%	39.1%	39.2%	*41.0%*	*38.0%*	Income Tax Rate	*36.5%*
						--	--	--	--	--	6.2%	5.1%	--	5.1%	1.4%	*2.0%*	*2.5%*	AFUDC % to Net Profit	*3.5%*
						50.9%	53.1%	56.9%	56.8%	55.7%	53.9%	52.4%	52.4%	53.7%	52.4%	*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	9561.3	9580.3	9635.5	9940.7	10364	10911	10967	*11600*	*12850*	Total Capital ($mill)	*16000*
						9318.0	9991.8	10524	11059	11021	11739	12391	12900	13933	14992	*15675*	*16400*	Net Plant ($mill)	*18000*
						NMF	3.7%	3.8%	4.4%	4.8%	5.4%	5.1%	5.5%	5.7%	5.6%	*6.0%*	*6.0%*	Return on Total Cap'l	*6.5%*
						NMF	4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	*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 6/30/17
Total Debt $7453.0 mil. **Due in 5 Yrs** $1698.0 mil.
LT Debt $5650.0 mil. **LT Interest** $300.0 mil.
(51% of Cap'l)

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

Common Stock 178,282,329 shs. as of 7/27/17

MARKET CAP: $14.6 billion (Large Cap)

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	45.0	75.0	64.0
Accts Receivable	255.0	269.0	288.0
Other	357.0	440.0	456.0
Current Assets	657.0	784.0	808.0
Accts Payable	126.0	154.0	134.0
Debt Due	682.0	1423.0	1803.0
Other	725.0	815.0	724.0
Current Liab.	1533.0	2392.0	2661.0

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

Cal-endar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	679.0	754.8	846.1	731.4	3011.3
2015	698.0	782.0	896.0	783.0	3159.0
2016	743.0	827.0	930.0	802.0	3302.0
2017	756.0	844.0	*985*	*855*	*3440*
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	*1.02*	*.58*	*2.85*
2018	*.62*	*.83*	*1.09*	*.71*	*3.25*

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		

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.

A court has granted preliminary approval to a settlement in a legal suit against American Water Works. In January of 2014, the wholly owned West Virginia-based subsidiary of the water utility was sued over the Freedom Industries chemical spill into the Elk River. According to the proposed deal, American Water would have to pay approximately $126 million to resolve all claims against it. Net of insurance proceeds, management believes that the final aftertax hit to earnings will be about $26 million, or $0.14 a share.

The bottom line has also been hurt by a couple of other factors. A recent ruling in the state of New York, which indicated that water utilities do not qualify for the manufacturer tax break, resulted in a one-time noncash charge of around $7 million in the second quarter. Also, during the same period, operating income from the company's nonutility business declined 30% due largely to reduced capital spending at U.S. military bases.

Still, on the whole, the utility's earning prospects are relatively bright. Even with the penalty from the West Virginia settlement (we have taken it out of this year's fourth quarter), we estimate that American Water's share earnings will rise 9% over 2016's mediocre figure. What's more, with the company earning a return on more assets and demand for the military expected to pick up (there are several military bases seeking bids to privatize their water systems), share earnings can probably climb a hefty 14% in 2018. The company's continued strategy of making many small acquisitions and using economies of scale to make the operations more efficient will also play a major part.

The long-term outlook for dividend growth is excellent. We think that the annual payout can rise 10% over the next 3- to 5-year period. This is the highest of any member of this group.

These shares do not hold any great appeal at this time, however. Despite being the largest and possibly best-run publicly owned water utility in the country, the premium demanded by the market for this group of stocks seems excessive, in our opinion. Hence, investors can probably do better elsewhere.

James A. Flood *October 13, 2017*

(A) Diluted earnings. Excludes nonrecurring losses: '08, $4.62; '09, $2.63; '11, $0.07. Discontinued operations: '06, ($0.04); '11, $0.03; '12, ($0.10); '13,($0.01). GAAP used as of 2014. Next earnings report due mid-November. 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 6/30/17: $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

AQUA AMERICA NYSE-WTR

RECENT PRICE 33.77 | P/E RATIO 24.3 (Trailing: 25.8 Median: 22.0) | RELATIVE P/E RATIO 1.21 | DIV'D YLD 2.5% | VALUE LINE

High:	23.8	21.3	17.6	17.2	18.4	19.0	21.5	28.1	28.2	31.1	35.8	34.7		Target Price Range
Low:	16.1	15.1	9.8	12.3	13.2	15.4	16.8	20.6	22.4	24.4	28.0	29.4		2020 | 2021 | 2022

TIMELINESS 3 Lowered 8/26/16

SAFETY 2 Raised 4/20/12

TECHNICAL 1 Raised 10/13/17

BETA .70 (1.00 = Market)

2020-22 PROJECTIONS

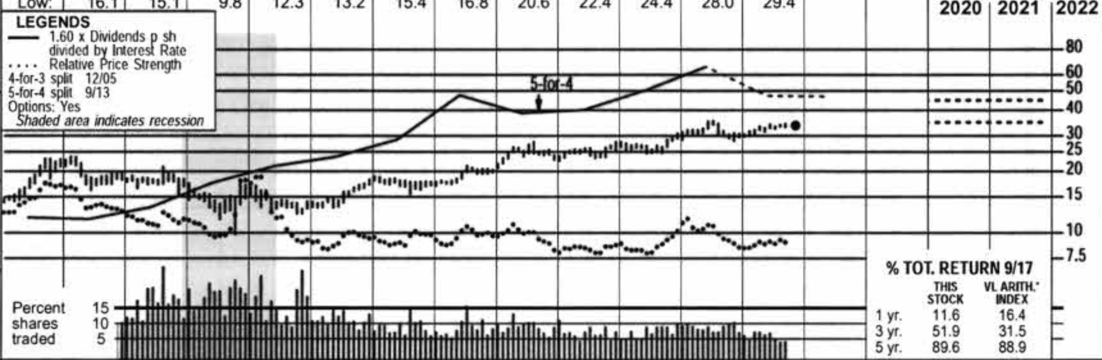
	Price	Gain	Ann'l Total Return
High	45	(+35%)	10%
Low	35	(+5%)	4%

Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	0	0	0	0	0	0	0	0	0
Options	0	7	6	7	7	0	1	7	0
to Sell	0	0	0	0	0	0	2	0	0

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	182	179	172
to Sell	171	180	155
Hld's(000)	88568	103594	104564



% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	11.6	16.4
3 yr.	51.9	31.5
5 yr.	89.6	88.9

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
2.16	2.28	2.38	2.78	3.08	3.23	3.61	3.71	3.93	4.21	4.10	4.32	4.32	4.37	4.61	4.62	*4.65*	*4.95*	Revenues per sh	*6.05*
.69	.76	.77	.87	.97	1.01	1.10	1.14	1.29	1.42	1.45	1.51	1.82	1.89	1.87	2.07	*2.15*	*2.25*	"Cash Flow" per sh	*2.75*
.41	.43	.46	.51	.57	.56	.57	.58	.62	.72	.83	.87	1.16	1.20	1.14	1.32	*1.36*	*1.45*	Earnings per sh A	*1.85*
.24	.26	.28	.29	.32	.35	.38	.41	.44	.47	.50	.54	.58	.63	.69	.74	*.80*	*.85*	Div'd Decl'd per sh B■	*1.15*
.87	.96	1.06	1.23	1.47	1.64	1.43	1.58	1.66	1.89	1.90	1.98	1.73	1.84	2.07	2.16	*2.55*	*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	21.1	21.3	21.9	21.2	20.8	23.5	23.9	*Bold figures are*		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	*Value Line*		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%	*estimates*		Avg Ann'l Div'd Yield	*2.9%*

CAPITAL STRUCTURE as of 6/30/17
Total Debt $2093.6 mill. Due in 5 Yrs $430.5 mill.
LT Debt $1882.6 mill. LT Interest $76.3 mill. (51% of Cap'l)

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

Pfd Stock None

Common Stock 177,651,543 shares as of 7/24/17

MARKET CAP: $6.0 billion (Large Cap)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		20-22
602.5	627.0	670.5	726.1	712.0	757.8	768.6	779.9	814.2	819.9	*830*	*880*	Revenues ($mill)	*1085*
95.0	97.9	104.4	124.0	144.8	153.1	205.0	213.9	201.8	234.2	*245*	*260*	Net Profit ($mill)	*335*
38.9%	39.7%	39.4%	39.2%	32.9%	39.0%	10.0%	10.5%	6.9%	8.2%	*9.0%*	*9.0%*	Income Tax Rate	*10.0%*
--	--	--	--	--	--	1.1%	2.4%	3.1%	3.8%	*3.5%*	*3.0%*	AFUDC % to Net Profit	*3.5%*
55.4%	54.1%	55.6%	56.6%	52.7%	52.7%	48.9%	48.5%	50.3%	48.4%	*47.0%*	*49.0%*	Long-Term Debt Ratio	*51.0%*
44.6%	45.9%	44.4%	43.4%	47.3%	47.3%	51.1%	51.5%	49.7%	51.6%	*53.0%*	*51.0%*	Common Equity Ratio	*49.0%*
2191.4	2306.6	2495.5	2706.2	2646.8	2929.7	3003.6	3216.0	3469.5	3587.7	*3735*	*4100*	Total Capital ($mill)	*5500*
2792.8	2997.4	3227.3	3469.3	3612.9	3936.2	4167.3	4402.0	4688.9	5001.6	*5080*	*5275*	Net Plant ($mill)	*5800*
5.9%	5.7%	5.6%	5.9%	6.9%	6.6%	8.0%	7.8%	6.9%	7.6%	*7.5%*	*7.5%*	Return on Total Cap'l	*7.5%*
9.7%	9.3%	9.4%	10.6%	11.6%	11.0%	13.4%	12.9%	11.7%	12.7%	*12.5%*	*12.5%*	Return on Shr. Equity	*12.5%*
9.7%	9.3%	9.4%	10.6%	11.6%	11.0%	13.4%	12.9%	11.7%	12.7%	*12.5%*	*12.5%*	Return on Com Equity	*12.5%*
3.2%	2.8%	2.7%	3.7%	4.6%	4.3%	6.7%	6.1%	4.7%	5.6%	*5.5%*	*5.0%*	Retained to Com Eq	*4.5%*
67%	70%	72%	65%	60%	61%	50%	52%	60%	56%	*58%*	*59%*	All Div'ds to Net Prof	*62%*

CURRENT POSITION ($MILL.)

	2015	2016	6/30/17
Cash Assets	3.2	3.7	7.8
Receivables	99.1	97.4	98.9
Inventory (AvgCst)	12.4	13.0	16.8
Other	13.7	14.6	14.6
Current Assets	128.4	128.7	138.1
Accts Payable	56.5	59.9	46.4
Debt Due	52.3	157.2	221.0
Other	84.4	84.4	65.1
Current Liab.	193.2	301.5	332.5

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	*233.8*	*205*	*830*
2018	*200*	*220*	*245*	*215*	*880*

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	*.31*	*.36*	*.47*	*.31*	*1.45*

Cal-endar	QUARTERLY DIVIDENDS PAID B ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.14	.14	.152	.152	.58
2014	.152	.152	.165	.165	.63
2015	.165	.165	.178	.178	.69
2016	.178	.178	.1913	.1913	.74
2017	.1913	.1913	.205		

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

A large percentage of Aqua America's future growth will likely come via acquisitions. Similar to other large publicly traded water utilities, Aqua has been a continual buyer of small local water districts. Indeed, most of the 100,000-plus water systems in the U.S. do not have the financial wherewithal to replace their aging infrastructures. By constantly purchasing these types of entities, Aqua can gradually increase its customer base. Moreover, since actual synergies do result from mergers in this industry, the new assets can be operated more efficiently.

There's always something happening on the regulatory front. The company has received rate relief in Indiana, New Jersey, North Carolina, Ohio and Pennsylvania. Other rate cases are pending in Virginia and Illinois. Aqua has good relationships with its regulators, so we are not expecting any major negative surprises.

Dividends should increase at a healthy rate for the foreseeable future. Last quarter, the payout was hiked by 7%. This is less than the company's five- and 10-year historical average of 8%. Nevertheless, we think Aqua's strong cash generation should enable its payouts to rise 8%-10% annually through 2020-2022.

Capital outlays are large but manageable. Aqua increased this year's capital expenditure budget to approximately $450 million. The majority of funds will be allocated to repair, maintain, and replace aged pipelines and equipment. We don't expect this figure to change much in 2018. In 2019, though, we think outlays should decline to the $300 million-$325 million range. Of the nine members included in the water group, Aqua is only one of two that rates a Financial Strength rating of at least an A. While the balance sheet may be more leveraged over the next couple of years, it should remain relatively healthy.

The stock has a high yield for a water utility. WTR is yielding 2.5%, or about 50 basis points more than its peers. This is unusual considering the equity's strong projected dividend growth. As a result, even though we still think shares of water utilities are currently trading at too high a premium, WTR is probably the best selection for those investors who must own a stock in this industry.

James A. Flood *October 13, 2017*

(A) Diluted egs. Excl. nonrec. gains: '01, 2¢; '02, 4¢; '03, 3¢; '12, 18¢. Excl. gain from disc. operations: '12, 7¢; '13, 9¢; '14, 11¢. May not sum due to rounding. Next earnings report due mid-November.
(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

ARTESIAN RES. CORP. NDQ-ARTNA

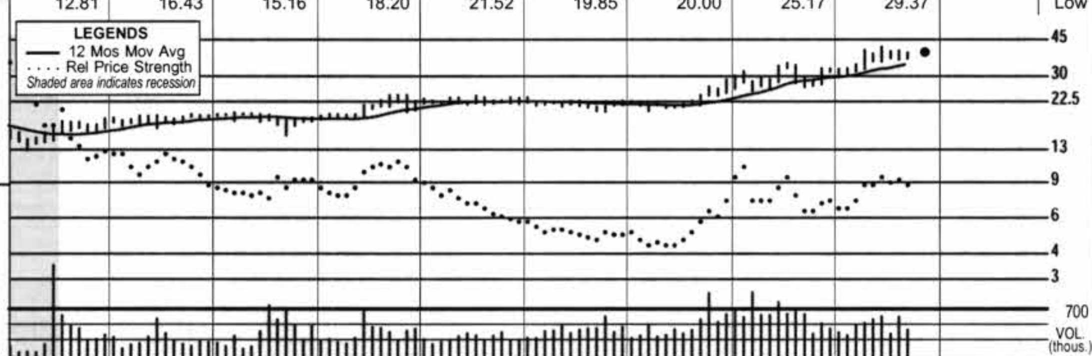
RECENT PRICE	TRAILING P/E RATIO	RELATIVE P/E RATIO	DIV'D YLD	
39.19	26.7	1.24	2.4%	VALUE LINE

	2009	2010	2011	2012	2013	2014	2015	2016	2017	
High	18.73	19.59	19.99	24.43	24.27	23.82	29.16	35.00	41.90	High
Low	12.81	16.43	15.16	18.20	21.52	19.85	20.00	25.17	29.37	Low

RANKS

PERFORMANCE	2	Above Average
Technical	3	Average
SAFETY	3	Average
BETA .65		(1.00 = Market)

Financial Strength	B
Price Stability	70
Price Growth Persistence	25
Earnings Predictability	75



© VALUE LINE PUBLISHING LLC	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018/2019
SALES PER SH	8.11	8.48	7.56	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	2.66	2.28	3.10	--	
BOOK VALUE PER SH	12.15	12.44	13.12	13.57	13.80	14.09	14.61	15.23	--	
COMMON SHS OUTST'G (MILL)	7.51	7.65	8.61	8.71	8.83	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	1.16	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 ($MILL)	60.9	64.9	65.1	70.6	69.1	72.5	77.0	79.1	--	*Bold figures*
OPERATING MARGIN	46.9%	46.5%	45.5%	48.7%	47.0%	48.8%	43.0%	44.4%	--	*are consensus*
DEPRECIATION ($MILL)	6.6	7.0	7.4	7.9	8.3	8.7	8.8	9.2	--	*earnings*
NET PROFIT ($MILL)	7.3	7.6	6.7	9.8	8.3	9.5	11.3	13.0	--	*estimates*
INCOME TAX RATE	40.1%	40.0%	40.8%	40.2%	40.2%	40.1%	--	--	--	*and, using the*
NET PROFIT MARGIN	11.9%	11.7%	10.4%	14.0%	12.0%	13.1%	14.7%	16.4%	--	*recent prices,*
WORKING CAP'L ($MILL)	d23.3	d27.9	d11.4	d11.4	d12.3	d13.5	d8.8	d4.7	--	*P/E ratios.*
LONG-TERM DEBT ($MILL)	106.0	105.1	106.5	106.3	105.5	105.0	103.6	102.3	--	
SHR. EQUITY ($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.

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			
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			
12/31/18					

Cal-endar	QUARTERLY DIVIDENDS PAID 1Q	2Q	3Q	4Q	Full Year
2014	.209	.212	.212	.215	.85
2015	.215	.218	.218	.222	.87
2016	.222	.225	.225	.228	.90
2017	.228	.232	.232		

INSTITUTIONAL DECISIONS

	4Q'16	1Q'17	2Q'17
to Buy	35	37	42
to Sell	30	34	34
Hld's(000)	3582	4022	4033

ASSETS ($mill.)	2015	2016	6/30/17
Cash Assets	.2	.2	.3
Receivables	6.4	7.8	6.8
Inventory	1.7	1.6	1.6
Other	6.1	5.0	4.2
Current Assets	14.4	14.6	12.9
Property, Plant & Equip, at cost	514.8	539.7	- -
Accum Depreciation	105.2	110.3	- -
Net Property	409.6	429.4	442.2
Other	7.6	7.0	11.5
Total Assets	431.6	451.0	466.6

LIABILITIES ($mill.)	2015	2016	6/30/17
Accts Payable	5.5	5.6	4.6
Debt Due	11.8	8.4	31.5
Other	5.9	5.3	8.1
Current Liab	23.2	19.3	44.2

LONG-TERM DEBT AND EQUITY as of 6/30/17

Total Debt $112.8 mill. Due in 5 Yrs. NA
LT Debt $81.3 mill.
Including Cap. Leases NA
(36% of Cap'l)

Leases, Uncapitalized Annual rentals NA

Pension Liability $1.0 mill. in '16 vs. $1.1 mill. in '15

Pfd Stock None Pfd Div'd Paid None

Common Stock 9,188,000 shares
(64% of Cap'l)

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 six months ended June 30, 2017, approximately 3.7 billion gallons of water were distributed in its Delaware systems and approximately 59.7 million gallons of water were distributed in 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. *E.B.*

October 13, 2017

TOTAL SHAREHOLDER RETURN

Dividends plus appreciation as of 9/30/2017

3 Mos.	6 Mos.	1 Yr.	3 Yrs.	5 Yrs.
1.05%	17.56%	36.22%	107.38%	93.74%

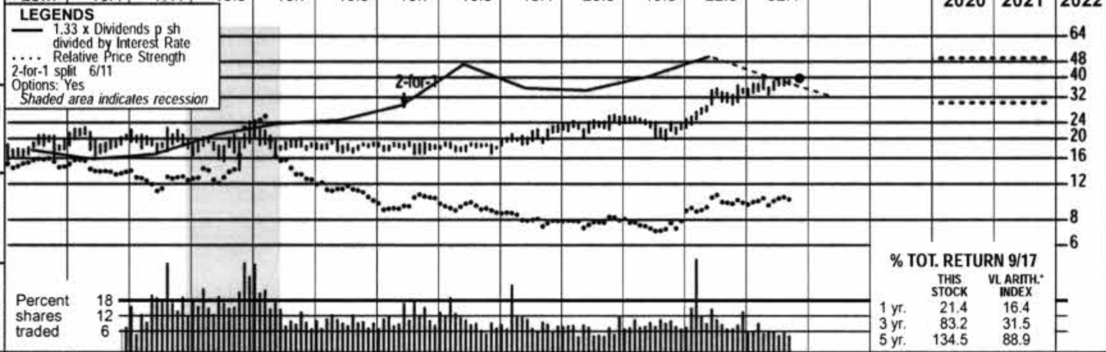
CALIFORNIA WATER NYSE-CWT

RECENT PRICE **39.65** | P/E RATIO **28.3** (Trailing: 33.0; Median: 20.0) | RELATIVE P/E RATIO **1.41** | DIV'D YLD **1.8%** | **VALUE LINE**

TIMELINESS 2 Raised 9/1/17
SAFETY 3 Lowered 7/27/07
TECHNICAL 2 Lowered 10/13/17
BETA .80 (1.00 = Market)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
High:	22.9	22.7	23.3	24.1	19.8	19.4	19.3	23.4	26.4	26.0	36.8	39.8					
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					

Target Price Range 2020 | 2021 | 2022



2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	50	(+25%)	8%
Low	30	(-25%)	-4%

Insider Decisions

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

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	93	97	88
to Sell	82	83	77
Hld's(000)	34200	38886	38422

% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	21.4	16.4
3 yr.	83.2	31.5
5 yr.	134.5	88.9

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
8.13	8.67	8.18	8.59	8.72	8.10	8.88	9.90	10.82	11.05	12.00	13.34	12.23	12.50	12.29	12.70	*13.45*	*13.90*	Revenues per sh	*14.70*
1.10	1.32	1.26	1.42	1.52	1.36	1.56	1.86	1.93	1.93	2.07	2.32	2.21	2.47	2.22	2.34	*2.65*	*2.80*	"Cash Flow" per sh	*3.15*
.47	.63	.61	.73	.74	.67	.75	.95	.98	.91	.86	1.02	1.02	1.19	.94	1.01	*1.35*	*1.45*	Earnings per sh A	*1.75*
.56	.56	.56	.57	.57	.58	.58	.59	.59	.60	.62	.63	.64	.65	.67	.69	*.72*	*.75*	Div'd Decl'd per sh B ■	*.99*
2.04	2.91	2.19	1.87	2.01	2.14	1.84	2.41	2.66	2.97	2.83	3.04	2.58	2.76	3.69	4.77	*3.85*	*3.65*	Cap'l Spending per sh	*3.65*
6.48	6.56	7.22	7.83	7.90	9.07	9.25	9.72	10.13	10.45	10.76	11.28	12.54	13.11	13.41	13.75	*14.20*	*14.45*	Book Value per sh C	*16.00*
30.36	30.36	33.86	36.73	36.78	41.31	41.33	41.45	41.53	41.67	41.82	41.98	47.74	47.81	47.88	47.97	*48.25*	*48.50*	Common Shs Outst'g D	*50.00*
27.1	19.8	22.1	20.1	24.9	29.2	26.1	19.8	19.7	20.3	21.3	17.9	20.1	19.7	24.8	29.6	*Bold figures are*		Avg Ann'l P/E Ratio	*23.0*
1.39	1.08	1.26	1.06	1.33	1.58	1.39	1.19	1.31	1.29	1.34	1.14	1.13	1.04	1.25	1.56	*Value Line*		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%	*estimates*		Avg Ann'l Div'd Yield	*2.5%*

CAPITAL STRUCTURE as of 6/30/17
Total Debt $746.1 mill. **Due in 5 Yrs** $174.0 mill.
LT Debt $519.9 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 48,018,000 shs.

MARKET CAP: $1.9 billion (Mid Cap)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		20-22
367.1	410.3	449.4	460.4	501.8	560.0	584.1	597.5	588.3	609.4	*650*	*675*	Revenues ($mill) E	*735*
31.2	39.8	40.6	37.7	36.1	42.6	47.3	56.7	45.0	48.7	*65.0*	*70.0*	Net Profit ($mill)	*88.0*
39.9%	37.7%	40.3%	39.5%	40.5%	37.5%	30.3%	33.0%	36.0%	35.5%	*35.0%*	*35.0%*	Income Tax Rate	*35.0%*
8.3%	8.6%	7.6%	4.2%	7.6%	8.0%	4.3%	2.7%	4.3%	6.1%	*5.0%*	*5.0%*	AFUDC % to Net Profit	*5.0%*
42.9%	41.6%	47.1%	52.4%	51.7%	47.8%	41.6%	40.1%	44.4%	44.6%	*45.0%*	*45.0%*	Long-Term Debt Ratio	*43.0%*
56.6%	58.4%	52.9%	47.6%	48.3%	52.2%	58.4%	59.9%	55.6%	55.4%	*55.0%*	*55.0%*	Common Equity Ratio	*57.0%*
674.9	690.4	794.9	914.7	931.5	908.2	1024.9	1045.9	1154.4	1191.2	*1250*	*1275*	Total Capital ($mill)	*1400*
1010.2	1112.4	1198.1	1294.3	1381.1	1457.1	1515.8	1590.4	1701.8	1859.3	*1900*	*1930*	Net Plant ($mill)	*2000*
5.9%	7.1%	6.5%	5.5%	5.5%	6.3%	6.0%	6.3%	5.2%	5.5%	*6.5%*	*6.5%*	Return on Total Cap'l	*7.0%*
8.1%	9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	*9.5%*	*10.0%*	Return on Shr. Equity	*11.0%*
8.1%	9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	*9.5%*	*10.0%*	Return on Com Equity	*11.0%*
1.8%	3.8%	3.8%	3.0%	2.3%	3.4%	3.4%	4.1%	2.0%	2.4%	*4.5%*	*5.0%*	Retained to Com Eq	*5.0%*
77%	61%	60%	66%	71%	62%	56%	55%	71%	68%	*53%*	*52%*	All Div'ds to Net Prof	*56%*

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	8.8	25.5	29.1
Other	118.8	116.6	141.5
Current Assets	127.6	142.1	170.6
Accts Payable	66.4	77.8	84.2
Debt Due	40.2	123.3	226.2
Other	41.9	49.1	50.6
Current Liab.	148.5	250.2	361.0

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

Cal-endar	QUARTERLY REVENUES ($ mill.)E Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	110.5	158.4	191.2	137.4	597.5
2015	122.0	144.4	183.5	138.4	588.3
2016	121.7	152.4	184.3	151.0	609.4
2017	122.0	171.1	*200*	*156.9*	*650*
2018	*140*	*170*	*205*	*160*	*675*

Cal-endar	EARNINGS PER SHARE A Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	d.11	.36	.70	.24	1.19
2015	.03	.21	.52	.18	.94
2016	d.02	.24	.48	.31	1.01
2017	.02	.39	*.62*	*.32*	*1.35*
2018	*.07*	*.38*	*.67*	*.33*	*1.45*

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

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 benefited from favorable rate activity in the second quarter. The regulated water provider saw revenues surge to $171 million, a 12% annual improvement, and a 40% increase on a sequential basis. The advance can largely be attributed to recent rate changes by the California regulatory authority (effective earlier this year). Specifically, rate increases alone added more than $17 million to the top line in the June period, with unbilled revenue accounting for the remainder of gains.

Profits are on the right track. California Water earned $0.39 a share in the second quarter, besting our $0.35 call. Lower incremental drought costs were positive, but the real takeaway was the 280-basis-point decline in operating expenses, notably slimmer maintenance and administrative costs. Our 2017 bottom-line estimate of $1.35 a share remains intact, equating to year-over-year growth of 34%.

We are tacking $10 million onto our current-year revenue estimate, to $650 million. This is partly owing to the strong second-quarter showing, but also factors in the higher base rate going forward. Meanwhile, our 2018 top-line forecast is unchanged, at $675 million.

The long-term story hasn't changed much. Acquisitions and capital spending remain the main themes here. The company has ample funding to allocate to infrastructure upgrades and water system improvements. Year to date, CWT has spent just over $100 million on investments, leaving approximately $450 million-$500 million at its disposal. Further, bolt-on acquisitions are a possible avenue to explore should management want to supplement organic growth. All this, along with continued inquiry into increased base rates, augurs well for business prospects into next decade.

These shares are trading near all-time highs. No doubt, the market has rewarded the company for returning to growth in 2016, as the stock price is up nearly 75% from last year's lows. This issue is timely (2), and is slated to outperform the year-ahead broader market averages. However, due to the run-up in price, total return potential over the 3- to 5-year stretch is below average.

Nicholas P. Patrikis *October 13, 2017*

(A) Basic EPS. Excl. nonrecurring gain (loss): '01, 2¢; '02, 4¢; '11, 4¢. Next earnings report due late November.
(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	70

CONNECTICUT WATER NDQ-CTWS

RECENT PRICE **60.93** | P/E RATIO **27.8** (Trailing: 30.5 / Median: 20.0) | RELATIVE P/E RATIO **1.39** | DIV'D YLD **2.0%** | **VALUE LINE**

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
High:	27.7	25.6	29.0	26.4	27.9	29.1	32.8	36.4	37.5	39.9	58.3	62.2
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

TIMELINESS 3 Raised 10/13/17
SAFETY 3 New 1/18/13
TECHNICAL 3 Lowered 10/13/17
BETA .65 (1.00 = Market)

2020-22 PROJECTIONS

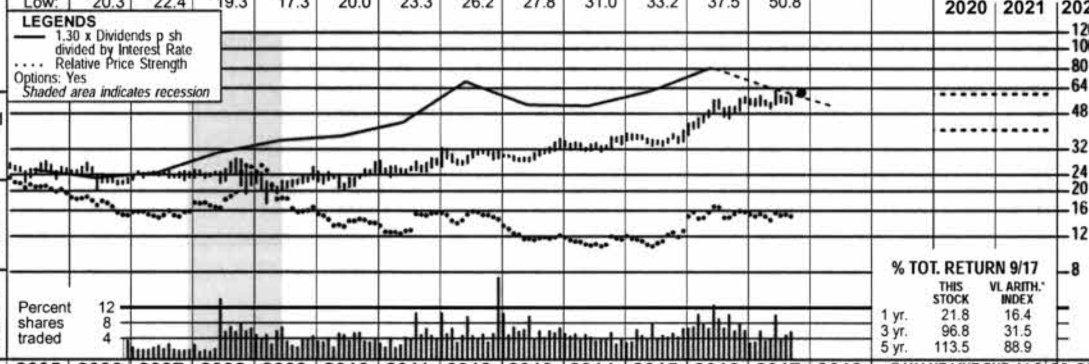
	Price	Gain	Ann'l Total Return
High	60	(Nil)	2%
Low	40	(-35%)	-7%

Insider Decisions

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

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	59	48	55
to Sell	45	56	44
Hld's(000)	5436	6170	6289



Target Price Range
2020 | 2021 | 2022

% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	21.8	16.4
3 yr.	96.8	31.5
5 yr.	113.5	88.9

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
5.93	5.77	5.91	6.04	5.81	5.68	7.05	7.24	6.93	7.65	7.93	9.47	8.29	8.45	8.58	8.77	**9.00**	**9.60**	Revenues per sh	**12.80**
1.78	1.78	1.89	1.91	1.62	1.52	1.90	1.95	1.93	2.04	2.11	2.64	2.63	2.97	3.18	3.31	**3.40**	**3.50**	"Cash Flow" per sh	**3.85**
1.13	1.12	1.15	1.16	.88	.81	1.05	1.11	1.19	1.13	1.13	1.53	1.66	1.92	2.04	2.08	**2.20**	**2.35**	Earnings per sh A	**2.65**
.80	.81	.83	.84	.85	.86	.87	.88	.90	.92	.94	.96	.98	1.01	1.05	1.12	**1.18**	**1.24**	Div'd Decl'd per sh B■	**1.40**
1.86	1.98	1.49	1.58	1.96	1.96	2.24	2.44	3.28	3.06	2.61	2.79	3.02	4.11	4.29	5.93	**4.50**	**4.35**	Cap'l Spending per sh	**3.35**
9.25	10.06	10.46	10.94	11.52	11.60	11.95	12.23	12.67	13.05	13.50	20.95	17.92	18.83	20.01	20.98	**21.70**	**21.65**	Book Value per sh D	**22.80**
7.65	7.94	7.97	8.04	8.17	8.27	8.38	8.46	8.57	8.68	8.76	8.85	11.04	11.12	11.19	11.25	**11.75**	**12.00**	Common Shs Outst'g C	**12.50**
21.5	24.3	23.5	22.9	28.6	29.0	23.0	22.2	18.4	20.7	23.0	19.4	18.4	17.5	17.6	23.3	*Bold figures are*		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	*Value Line*		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%	*estimates*		Avg Ann'l Div'd Yield	**2.8%**

CAPITAL STRUCTURE as of 6/30/17
Total Debt $210.6 mill. **Due in 5 Yrs** $19.8 mill.
LT Debt $205.4 mill. **LT Interest** $7.7 mill.
(45% of Cap'l)

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

Pfd Stock $0.8 mill. **Pfd Divd** NMF

Common Stock 11,575,400 shs.

MARKET CAP: $700 million (Small Cap)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		20-22
59.0	61.3	59.4	66.4	69.4	83.8	91.5	94.0	96.0	98.7	**106**	**115**	Revenues ($mill)	**160**
8.8	9.4	10.2	9.8	9.9	13.6	18.3	21.3	22.8	23.4	**26.0**	**28.0**	Net Profit ($mill)	**32.0**
32.4%	27.2%	19.5%	35.2%	41.3%	32.0%	28.0%	14.4%	3.5%	9.9%	**19.0%**	**20.0%**	Income Tax Rate	**28.0%**
--	1.7%	--	--	--	1.7%	2.0%	2.4%	2.3%	5.1%	**3.0%**	**2.5%**	AFUDC % to Net Profit	**2.5%**
47.8%	46.9%	50.6%	49.5%	53.2%	49.0%	46.9%	45.7%	44.1%	45.4%	**46.5%**	**47.0%**	Long-Term Debt Ratio	**46.5%**
51.8%	52.7%	49.1%	50.2%	46.5%	50.8%	52.9%	54.1%	55.7%	54.4%	**53.5%**	**53.0%**	Common Equity Ratio	**53.5%**
193.2	196.5	221.3	225.6	254.2	364.6	373.6	386.8	402.4	433.8	**475**	**490**	Total Capital ($mill)	**535**
284.3	302.3	325.2	344.2	362.4	447.9	471.9	506.9	546.3	601.4	**615**	**635**	Net Plant ($mill)	**675**
5.5%	5.9%	5.5%	5.4%	4.9%	4.8%	5.9%	6.4%	6.5%	6.3%	**6.0%**	**6.5%**	Return on Total Cap'l	**7.0%**
8.7%	9.0%	9.3%	8.6%	8.3%	7.3%	9.2%	10.1%	10.1%	9.9%	**10.0%**	**11.0%**	Return on Shr. Equity	**11.5%**
8.7%	9.1%	9.4%	8.7%	8.3%	7.3%	9.2%	10.2%	10.1%	9.9%	**10.0%**	**11.0%**	Return on Com Equity	**11.5%**
1.6%	1.9%	2.3%	1.6%	1.4%	2.8%	3.8%	4.8%	4.9%	4.6%	**4.5%**	**5.0%**	Retained to Com Eq	**5.5%**
82%	79%	76%	81%	83%	62%	59%	53%	52%	54%	**54%**	**53%**	All Div'ds to Net Prof	**53%**

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	.7	1.6	2.7
Accounts Receivable	11.0	13.0	12.9
Other	15.3	14.8	16.6
Current Assets	27.0	29.4	32.2
Accts Payable	11.9	13.1	9.6
Debt Due	2.8	4.9	5.2
Other	22.2	37.1	47.8
Current Liab.	36.9	55.1	62.6

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

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	**32.0**	**23.6**	**106**
2018	**25.0**	**30.0**	**35.0**	**25.0**	**115**

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	**.88**	**.23**	**2.20**
2018	**.35**	**.80**	**.90**	**.30**	**2.35**

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

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 delivered second-quarter results that fell short of our expectations. Revenues of $27.9 million improved marginally, on a year-over-year basis, but missed our $28.5 million call. The July period included a full quarter of Heritage Village operations, as well as incremental surcharges in both Connecticut and Maine. Not until the third quarter will the completed acquisition (July 1st) of the Avon Water Company be included in the financials. Similarly, the bottom line was a nickel shy of our estimate, at $0.73 a share. Net income was adversely impacted by several cents due to greater business development costs associated with the above-mentioned deals. Nonetheless, Connecticut Water should right the ship in the recently concluded third quarter, as we look for revenues of $32 million and share net of $0.88.

There has been some activity on the rate front. Earlier this summer, The Maine Water Company filed for a rate increase (pending approval from the Maine Public Utilities Commission) in its Biddeford and Saco division. This could potentially add about $2 million to the top line. Additionally, the company filed for a rate increase of 1.6% on WICA (recovered funds from infrastructure upgrades.)

Long term, acquisitions and higher capital spending are likely in the cards. Indeed, the strategy is starting to bear fruit, as CTWS lifted its customer base by nearly 9,500 via its Avon and Heritage purchases. Financials results should feel the effects beginning in the second half of this year. Moreover, Connecticut plans to take full advantage of WICA and WISC benefits (increase to WICA surcharge pending), and ought to continue to replace aging water mains in the coming years.

This equity has slipped a notch in Timeliness to 3, Average. What's more, the current valuation (28.0x 12-month earnings-per-share estimate) is a bit rich when compared to historical norms, and on a peer-to-peer basis. The stock is trading above our 3- to 5-year Target Price Range, and total return potential is subpar. Thus, we recommend investors wait for a better entry point before committing funds here.

Nicholas P. Patrikis *October 13, 2017*

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

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

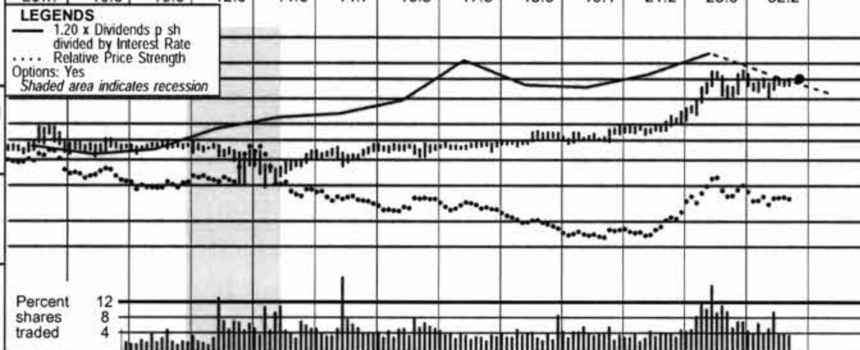
MIDDLESEX WATER NDQ-MSEX

RECENT PRICE 40.47 | P/E RATIO 26.3 (Trailing: 30.4 Median: 20.0) | RELATIVE P/E RATIO 1.32 | DIV'D YLD 2.1% | VALUE LINE

TIMELINESS 4 Lowered 7/7/17
SAFETY 2 New 10/21/11
TECHNICAL 3 Raised 7/14/17
BETA .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	42.8		Target Price Range	
Low:	16.5	16.9	12.0	11.6	14.7	16.5	17.5	18.6	19.1	21.2	25.0	32.2		2020 | 2021 | 2022	

LEGENDS
— 1.20 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	50	(+25%)	8%
Low	35	(-15%)	-1%

Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	0	0	0	0	0	0	0	0	0
Options	0	0	0	0	7	0	0	0	0
to Sell	0	0	1	1	0	0	0	0	0

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	40	45	60
to Sell	62	51	44
Hld's(000)	7874	9400	9201

Percent shares traded 12 8 4

% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	14.1	16.4
3 yr.	117.7	31.5
5 yr.	140.1	88.9

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	6.16	6.50	6.79	6.75	6.60	6.50	6.98	7.19	7.26	7.77	8.16	**8.30**	**8.65**	Revenues per sh	**9.40**
1.18	1.20	1.15	1.28	1.33	1.33	1.49	1.53	1.40	1.55	1.46	1.56	1.72	1.84	1.97	2.17	**2.35**	**2.50**	"Cash Flow" per sh	**3.10**
.66	.73	.61	.73	.71	.82	.87	.89	.72	.96	.84	.90	1.03	1.13	1.22	1.38	**1.48**	**1.60**	Earnings per sh A	**2.05**
.62	.63	.65	.66	.67	.68	.69	.70	.71	.72	.73	.74	.75	.76	.78	.81	**.84**	**.87**	Div'd Decl'd per sh B■	**1.02**
1.25	1.59	1.87	2.54	2.18	2.31	1.66	2.12	1.49	1.90	1.50	1.36	1.26	1.40	1.59	2.91	**1.80**	**1.90**	Cap'l Spending per sh	**2.05**
7.11	7.39	7.60	8.02	8.26	9.52	10.05	10.03	10.33	11.13	11.27	11.48	11.82	12.24	12.74	13.40	**13.95**	**14.35**	Book Value per sh	**16.45**
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	18.5	19.1	25.6	*Bold figures are*		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	*Value Line*		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%	*estimates*		Avg Ann'l Div'd Yield	**2.4%**
						86.1	91.0	91.2	102.7	102.1	110.4	114.8	117.1	126.0	132.9	**137**	**145**	Revenues ($mill)	**160**
						11.8	12.2	10.0	14.3	13.4	14.4	16.6	18.4	20.0	22.7	**24.5**	**27.0**	Net Profit ($mill)	**35.0**
						32.6%	33.2%	34.1%	32.1%	32.7%	33.9%	34.1%	35.0%	34.5%	34.0%	**35.0%**	**36.0%**	Income Tax Rate	**37.0%**
						--	--	--	6.8%	6.1%	3.4%	1.9%	1.7%	1.9%	2.7%	**2.0%**	**2.0%**	AFUDC % to Net Profit	**2.5%**
						49.0%	45.6%	46.6%	43.1%	42.3%	41.5%	40.4%	40.5%	39.4%	37.9%	**37.5%**	**37.5%**	Long-Term Debt Ratio	**37.5%**
						49.6%	51.8%	52.1%	55.8%	56.6%	57.4%	58.7%	58.8%	59.8%	61.5%	**62.0%**	**62.0%**	Common Equity Ratio	**62.0%**
						268.8	259.4	267.9	310.5	312.5	316.5	321.4	335.8	345.4	355.4	**370**	**385**	Total Capital ($mill)	**455**
						333.9	366.3	376.5	405.9	422.2	435.2	446.5	465.4	481.9	517.8	**525**	**535**	Net Plant ($mill)	**575**
						5.6%	5.8%	5.0%	5.7%	5.2%	5.4%	5.9%	6.3%	6.6%	7.1%	**7.5%**	**7.5%**	Return on Total Cap'l	**8.0%**
						8.6%	8.6%	7.0%	8.1%	7.5%	7.8%	8.7%	9.2%	9.6%	10.3%	**10.5%**	**11.0%**	Return on Shr. Equity	**12.5%**
						8.7%	8.9%	7.0%	8.2%	7.5%	7.8%	8.7%	9.3%	9.6%	10.3%	**10.5%**	**11.0%**	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%	**4.5%**	**5.0%**	Retained to Com Eq	**6.0%**
						79%	78%	98%	75%	87%	83%	73%	67%	63%	58%	**57%**	**54%**	All Div'ds to Net Prof	**50%**

CAPITAL STRUCTURE as of 6/30/17
Total Debt $159.6 mill. **Due in 5 Yrs** $32.1 mill.
LT Debt $136.4 mill. **LT Interest** $6.0 mill.
(Total interest coverage: 8.6x)
(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 16,337,784 shs. **as of 7/31/17**

MARKET CAP: $650 million (Small Cap)

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	3.5	3.9	3.7
Other	20.9	22.8	26.0
Current Assets	24.4	26.7	29.7
Accts Payable	6.5	12.3	15.0
Debt Due	8.7	18.2	23.2
Other	13.1	16.6	17.2
Current Liab.	28.3	47.1	55.4

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

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	**39.0**	**34.9**	**137**
2018	**33.0**	**37.0**	**40.0**	**35.0**	**145**

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	**.55**	**.33**	**1.48**
2018	**.33**	**.38**	**.57**	**.32**	**1.60**

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

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

Middlesex Water Company reported soft results for the second quarter. Following a somewhat colder (longer) winter season, customer water usage picked up only moderately through the late spring into early summer months. Indeed, the volatile Northeast region of the U.S. (MSEX's main area of operation) leaves the company subject to weather disruptions. First-quarter revenues came in roughly flat, year over year, at $33.0 million. Delaware operations registered a modest gain thanks to new customer additions, while its New Jersey segment slipped due to a continued trend of weak water consumption. Similar to the first quarter, net income took a step back, compared to the year-earlier figure. Share net of $0.33 missed our mark by $0.04, with increased water production costs weighing on profits.

Our current-year top- and bottom-line estimates are being modestly reduced. We now expect Middlesex to earn $1.48 a share (-$0.02 less than our previous call), on $137 million in revenues (-$1 million).

Infrastructure upgrades are still management's main focus. Under its recently established RENEW program and Water for Tomorrow initiative, the company aims to allocate nearly $12 million in each of the next three years to bolster its water transmission capabilities by replacing old water mains, valves, and services lines throughout New Jersey. Total capital spending on its water distribution infrastructure (approximately $200 million through next decade) ought to be closely monitored, with a portion of those corresponding investment costs being recovered by appropriate rate filings. Finally, a slow but sure pickup in consumption from New Jersey residents should provide an extra boost to the top line further out.

Our Timeliness Ranking System pegs shares of Middlesex Water Company as year-ahead market laggards (4, Below Average). In the same breath, the issue offers unattractive total return potential over the 3- to 5-year pull, and its dividend yield, though average, pales in comparison to its historical norms. Therefore, we suggest investors stay on the sidelines, for now.

Nicholas P. Patrikis *October 13, 2017*

(A) Diluted earnings. Next earnings report due early November.
(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	85

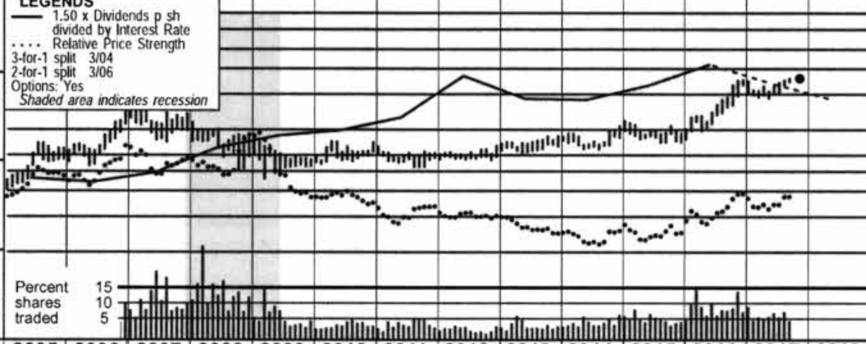
SJW GROUP NYSE-SJW

RECENT PRICE **57.60** | P/E RATIO **22.7** (Trailing: 21.6 Median: 23.0) | RELATIVE P/E RATIO **1.13** | DIV'D YLD **1.5%** | **VALUE LINE**

TIMELINESS 3 Raised 6/30/17
SAFETY 3 New 4/22/11
TECHNICAL 3 Lowered 8/11/17
BETA .75 (1.00 = Market)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
High:	45.3	43.0	35.1	30.4	28.2	26.8	26.9	30.1	33.7	35.7	56.9	57.8
Low:	21.2	27.7	20.0	18.2	21.6	20.9	22.6	24.5	25.5	27.5	28.6	45.4

LEGENDS
— 1.50 x Dividends p sh divided by Interest Rate
.... Relative Price Strength
3-for-1 split 3/04
2-for-1 split 3/06
Options: Yes
Shaded area indicates recession



Target Price Range 2020 | 2021 | 2022

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	80	(+40%)	10%
Low	55	(-5%)	1%

Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	0	0	0	0	0	0	0	0	0
Options	0	8	0	6	8	0	0	0	0
to Sell	1	1	1	0	0	0	0	0	1

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	81	83	67
to Sell	59	59	73
Hld's(000)	9218	10726	10969

Percent shares traded 15 10 5

% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	31.8	16.4
3 yr.	124.9	31.5
5 yr.	151.9	88.9

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
7.45	7.97	8.20	9.14	9.86	10.35	11.25	12.12	11.68	11.62	12.85	14.01	13.73	15.76	14.97	16.61	**17.15**	**16.80**	Revenues per sh	**20.65**
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	4.76	**4.60**	**4.65**	"Cash Flow" per sh	**5.15**
.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	**2.45**	**2.60**	Earnings per sh A	**3.00**
.43	.46	.49	.51	.53	.57	.61	.65	.66	.68	.69	.71	.73	.75	.78	.81	**.87**	**.93**	Div'd Decl'd per sh B■	**1.12**
2.63	2.06	3.41	2.31	2.83	3.87	6.62	3.79	3.17	5.65	3.75	5.67	4.68	5.02	5.24	6.95	**6.00**	**5.50**	Cap'l Spending per sh	**5.00**
8.17	8.40	9.11	10.11	10.72	12.48	12.90	13.99	13.66	13.75	14.20	14.71	15.92	17.75	18.83	20.61	**21.20**	**21.60**	Book Value per sh	**23.90**
18.27	18.27	18.27	18.27	18.27	18.28	18.36	18.18	18.50	18.55	18.59	18.67	20.17	20.29	20.38	20.46	**21.00**	**22.00**	Common Shs Outst'g C	**23.00**
18.5	17.3	15.4	19.6	19.7	23.5	33.4	26.2	28.7	29.1	21.2	20.4	24.3	11.2	16.6	15.7	*Bold figures are*		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	*Value Line*		Relative P/E Ratio	**1.40**
3.0%	3.4%	3.5%	3.0%	2.4%	2.0%	1.7%	2.3%	2.8%	2.8%	2.9%	3.0%	2.7%	2.6%	2.5%	2.0%	*estimates*		Avg Ann'l Div'd Yield	**1.7%**
						206.6	220.3	216.1	215.6	239.0	261.5	276.9	319.7	305.1	339.7	**360**	**370**	Revenues ($mill)	**475**
						19.3	20.2	15.2	15.8	20.9	22.3	23.5	51.8	37.9	52.8	**51.0**	**57.0**	Net Profit ($mill)	**69.0**
						39.4%	39.5%	40.4%	38.8%	41.1%	41.1%	38.7%	32.5%	38.1%	38.8%	**39.0%**	**39.0%**	Income Tax Rate	**39.0%**
						2.7%	2.3%	2.0%	--	--	--	--	--	2.0%	1.0%	**1.5%**	**1.5%**	AFUDC % to Net Profit	**1.5%**
						47.7%	46.0%	49.4%	53.7%	56.6%	55.0%	51.1%	51.6%	49.8%	50.7%	**49.0%**	**48.5%**	Long-Term Debt Ratio	**49.0%**
						52.3%	54.0%	50.6%	46.3%	43.4%	45.0%	48.9%	48.4%	50.2%	49.3%	**51.0%**	**51.5%**	Common Equity Ratio	**51.0%**
						453.2	470.9	499.6	550.7	607.9	610.2	656.2	744.5	764.6	855.0	**870**	**925**	Total Capital ($mill)	**1075**
						645.5	684.2	718.5	785.5	756.2	831.6	898.7	963.0	1036.8	1146.4	**1200**	**1250**	Net Plant ($mill)	**1325**
						5.7%	5.8%	4.4%	4.3%	4.9%	5.0%	5.0%	8.3%	6.3%	7.4%	**7.0%**	**7.5%**	Return on Total Cap'l	**7.5%**
						8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	**11.5%**	**12.0%**	Return on Shr. Equity	**12.5%**
						8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	**11.5%**	**12.0%**	Return on Com Equity	**12.5%**
						3.5%	3.3%	1.2%	1.2%	3.1%	3.3%	2.8%	10.2%	5.7%	8.6%	**7.5%**	**7.5%**	Retained to Com Eq	**8.0%**
						57%	59%	80%	80%	61%	59%	62%	29%	42%	31%	**36%**	**36%**	All Div'ds to Net Prof	**37%**

CAPITAL STRUCTURE as of 6/30/17
Total Debt $430.9 mill. **Due in 5 Yrs** $14.3 mill.
LT Debt $430.9 mill. **LT Interest** $20.0 mill.
(50% of Cap'l)

Leases, Uncapitalized: Annual rentals $6.6 mill.

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

Pfd Stock None.

Common Stock 20,506,494 shs.

MARKET CAP: $1.2 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	5.2	25.3	9.2
Accts Receivable	16.4	16.4	20.6
Other	51.8	57.9	43.1
Current Assets	73.4	99.6	72.9
Accts Payable	16.2	18.7	27.1
Debt Due	38.1	14.3	--
Other	25.3	30.6	43.3
Current Liab.	79.6	63.6	70.4

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	5.0%	5.5%	4.5%
"Cash Flow"	7.0%	12.0%	3.0%
Earnings	8.0%	20.5%	4.5%
Dividends	4.0%	3.0%	6.0%
Book Value	5.5%	6.5%	4.0%

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	61.1	86.9	112.3	79.4	339.7
2017	69.0	102.1	**102**	**87.0**	**360**
2018	**70.0**	**105**	**105**	**90.0**	**370**

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	**.75**	**.62**	**2.45**
2018	**.27**	**.88**	**.80**	**.65**	**2.60**

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

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

SJW Group is making a change at the helm. Current President and Chief Executive Officer Richard Roth announced his retirement effective November 5th. The board of directors has appointed Eric W. Thornburg as a replacement for both positions, as well as a new board member. Mr. Roth will also step down as Chairman, but will serve until the next annual stockholder's meeting.

The second-quarter performance was better than expected. SJW delivered impressive financial results during the June period, underpinned by cumulative rate increases and higher recordings in its water conservation memorandum account. Customer water usage also ramped up in the period. All told, revenues of $102 million rose 17% from the previous-year tally. Meanwhile, water production and operating costs edged higher, but the company managed to report earnings of $0.90 a share. Note, there was a one-time gain on the sale of real estate assets. Still, the bottom line would have exceeded our expectations.

Our financial projections are being raised across the board. We have added $0.25 to our current-year earnings estimate, to $2.45 a share mainly owing to the recent quarter's beat. For 2018, we now look for share net of $2.60 (+$0.25). Revenues for this year and next are being ratcheded up by $15 million and $20 million, to $360 million and $370 million, respectively.

Capital spending ought to be a key growth driver further out. Year to date, SJW has invested $62 million, and will likely allocate more funds to its Montevina project this year. On balance, only a small dent has been made in its $300 million spending budget. Lastly, the company ought to get a better handle on its operating costs, which should provide a modest boost to margins down the road.

SJW Group stock does not jump out at us at the current quotation. Shares of the San Jose utility have surged almost 15% in value since our July review. Even after raising our 2020-2022 Target Price Range, the issue presents lackluster total return potential over the long haul. Moreover, the dividend yield is below the *Value Line* median.

Nicholas P. Patrikis *October 13, 2017*

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

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

YORK WATER NDQ-YORW

RECENT PRICE 35.05 | P/E RATIO 34.4 (Trailing: 37.7, Median: 24.0) | RELATIVE P/E RATIO 1.72 | DIV'D YLD 1.8% | VALUE LINE

TIMELINESS **4** Lowered 8/25/17

SAFETY **3** Lowered 7/17/15

TECHNICAL **2** Raised 10/13/17

BETA .80 (1.00 = Market)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
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	

Target Price Range 2020 | 2021 | 2022

2020-22 PROJECTIONS

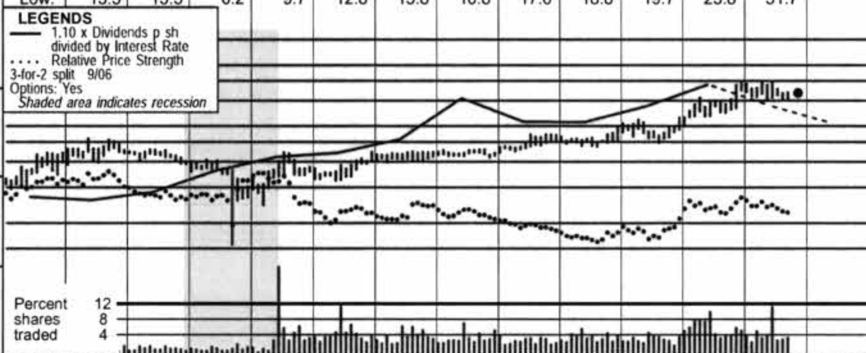
	Price	Gain	Ann'l Total Return
High	40	(+15%)	6%
Low	25	(-30%)	-5%

Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	1	1	1	1	13	2	2	13	2
Options	1	0	0	0	0	13	0	0	0
to Sell	0	0	0	0	0	0	0	0	0

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	46	38	42
to Sell	34	33	33
Hld's(000)	4284	5127	5206



% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	16.3	16.4
3 yr.	80.9	31.5
5 yr.	107.4	88.9

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	*3.90*	*4.10*	Revenues per sh	*5.65*
.59	.57	.65	.65	.79	.77	.86	.88	.95	1.07	1.09	1.12	1.19	1.36	1.45	1.42	*1.60*	*1.65*	"Cash Flow" per sh	*2.05*
.43	.40	.47	.49	.56	.58	.57	.57	.64	.71	.71	.72	.75	.89	.97	.92	*1.00*	*1.05*	Earnings per sh A	*1.40*
.34	.35	.37	.39	.42	.45	.48	.49	.51	.52	.53	.54	.55	.57	.60	.63	*.66*	*.70*	Div'd Decl'd per sh B	*.90*
.75	.66	1.07	2.50	1.69	1.85	1.69	2.17	1.18	.83	.74	.94	.76	1.10	1.11	1.03	*1.50*	*1.25*	Cap'l Spending per sh	*.85*
3.79	3.90	4.06	4.65	4.85	5.84	5.97	6.14	6.92	7.19	7.45	7.73	7.98	8.15	8.51	8.88	*9.15*	*9.55*	Book Value per sh	*11.00*
9.46	9.55	9.63	10.33	10.40	11.20	11.27	11.37	12.56	12.69	12.79	12.92	12.98	12.83	12.81	12.85	*12.90*	*12.75*	Common Shs Outst'g C	*12.00*
17.8	26.9	24.5	25.7	26.3	31.2	30.3	24.6	21.9	20.7	23.9	24.4	26.3	23.1	23.5	32.8	*Bold figures are*		Avg Ann'l P/E Ratio	*22.5*
.91	1.47	1.40	1.36	1.40	1.68	1.61	1.48	1.46	1.32	1.50	1.55	1.48	1.22	1.18	1.72	*Value Line*		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%	*estimates*		Avg Ann'l Div'd Yield	*2.8%*

CAPITAL STRUCTURE as of 6/30/17
Total Debt $88.2 mill. **Due in 5 Yrs** $30.5 mill.
LT Debt $88.2 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 12,845,000 shs.

MARKET CAP: $450 million (Small Cap)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
31.4	32.8	37.0	39.0	40.6	41.4	42.4	45.9	47.1	47.6	*50.0*	*52.0*	Revenues ($mill)	*68.0*
6.4	6.4	7.5	8.9	9.1	9.3	9.7	11.5	12.5	11.8	*13.0*	*13.5*	Net Profit ($mill)	*17.0*
36.5%	36.1%	37.9%	38.5%	35.3%	37.6%	37.6%	29.8%	27.5%	31.3%	*29.0%*	*30.0%*	Income Tax Rate	*31.5%*
3.6%	10.1%	--	1.2%	1.1%	1.1%	.8%	1.8%	1.6%	1.9%	*1.5%*	*1.5%*	AFUDC % to Net Profit	*1.0%*
46.5%	54.5%	45.7%	48.3%	47.1%	46.0%	45.1%	44.8%	44.4%	42.6%	*43.5%*	*44.0%*	Long-Term Debt Ratio	*45.0%*
53.5%	45.5%	54.3%	51.7%	52.9%	54.0%	54.9%	55.2%	55.6%	57.4%	*56.5%*	*56.0%*	Common Equity Ratio	*55.0%*
125.7	153.4	160.1	176.4	180.2	184.8	188.4	189.4	196.3	198.7	*210*	*215*	Total Capital ($mill)	*240*
191.6	211.4	222.0	228.4	233.0	240.3	244.2	253.2	261.4	270.9	*275*	*280*	Net Plant ($mill)	*295*
6.7%	5.7%	6.2%	6.5%	6.4%	6.4%	6.5%	7.4%	7.6%	7.2%	*7.5%*	*7.5%*	Return on Total Cap'l	*8.0%*
9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	*11.0%*	*11.0%*	Return on Shr. Equity	*12.5%*
9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	*11.0%*	*11.0%*	Return on Com Equity	*12.5%*
1.7%	1.4%	1.9%	2.7%	2.5%	2.4%	2.4%	3.9%	4.4%	3.4%	*4.0%*	*3.5%*	Retained to Com Eq	*4.5%*
82%	85%	78%	72%	73%	74%	74%	64%	62%	67%	*66%*	*67%*	All Div'ds to Net Prof	*64%*

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	2.9	4.2	--
Accounts Receivable	3.5	4.3	4.2
Inventory (Avg. Cost)	.8	.7	.8
Other	4.6	3.4	3.4
Current Assets	11.8	12.6	8.4
Accts Payable	1.8	3.7	5.1
Debt Due	--	--	--
Other	4.4	4.5	4.7
Current Liab.	6.2	8.2	9.8

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

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	*13.4*	*13.0*	*50.0*
2018	*12.2*	*12.7*	*13.8*	*13.3*	*52.0*

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	*.29*	*.28*	*1.00*
2018	*.22*	*.24*	*.30*	*.29*	*1.05*

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

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

Shares of York Water are trading at levels seen three months prior. It has been a relatively quiet summer for the Pennsylvania-based regulated water utility, as the stock price has been somewhat rangebound.

Second-quarter financial results were a mixed bag. Revenues of $12.3 million were in line with our expectations, with help from recent acquisitions and higher surcharges. But the annual jump in revenues did not directly translate to an increase in earnings. Operating expenses, namely maintenance and administrative, rose substantially to almost 39% of total revenues (+240 basis points year over year). Consequently, share net of $0.23 was flat compared to the like-2016 figure.

We are scaling back our 2017 and 2018 share-net estimates accordingly. Due to the rise in operating costs, we are lowering our current-year profit forecast by $0.03, to $1.00 a share. Meanwhile, our 2018 earnings estimate is being reduced by $0.05, to $1.05 a share.

Ensuing benefits from capital expenditures should help offset the uptick in operating costs (lower effective tax rate). York ought to continue to benefit on the tax front thanks to higher maintenance and repair deductions. Year-to-date spending is already 180% above last year's tally. For the remainder of 2017, York estimates an additional $9 million in capital investment on water mains and various infrastructure upgrades. Overall, our model projects top- and bottom-line advances of 5% and 9% this year, and 4% and 5% in the next, respectively.

This issue holds limited investment appeal, at the moment. The stock is an unfavorable selection for relative year-ahead price performance (Timeliness: 4). And from a price-to-earnings perspective, the recent valuation is a bit lofty, in our view. Although York's track record of dividend payout increases is second to none, the current yield is nothing to write home about. Indeed, the recent price surge has pushed the yield below 2.0%, fractionally below the broader market average. All told, those looking to gain exposure to the regulated water utility space will probably find more attractive options elsewhere.

Nicholas P. Patrikis *October 13, 2017*

(A) Diluted earnings. Next earnings report due late November.
(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	95

ATTACHMENT 3

S&P 500 2,579.36 +4.10 (+0.16 %)
Dow 30 23,435.01 +57.77 (+0.25 %)
Nasdaq 6,716.53 -11.14 (-0.17 %)

American States Water Company (AWR)

NYSE - NYSE Delayed Price. Currency in USD

Add to watchlist

Quote Lookup

53.62 -0.13 (-0.24 %) **53.62** 0.00 (0.00 %)

At close: 4:02PM EDT After hours: 4:35PM EDT

People also watch
CWT CTWS SJW MSEX WTR

Summary Chart Conversations Statistics Profile Financials Options Holders Historical Data Analysts

Currency in USD

Earnings Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	4	4	2	5
Avg. Estimate	0.59	0.32	1.7	1.79
Low Estimate	0.58	0.28	1.7	1.75
High Estimate	0.6	0.37	1.7	1.82
Year Ago EPS	0.59	0.3	1.62	1.7

Revenue Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	2	2	4	4
Avg. Estimate	145.78M	100.96M	455.37M	472.63M
Low Estimate	127M	92.91M	447M	460M
High Estimate	164.55M	109M	469.47M	481.42M
Year Ago Sales	123.81M	106.8M	436.09M	455.37M
Sales Growth (year/est)	17.70%	-5.50%	4.40%	3.80%

Earnings History	9/29/2016	12/30/2016	3/30/2017	6/29/2017
EPS Est.	0.58	0.3	0.32	0.45
EPS Actual	0.59	0.3	0.34	0.48
Difference	0.01	0	0.02	0.03
Surprise %	1.70%	0.00%	6.30%	6.70%

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Current Estimate	0.59	0.32	1.7	1.79

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
7 Days Ago	0.59	0.32	1.7	1.79
30 Days Ago	0.58	0.3	1.7	1.78
60 Days Ago	0.58	0.3	1.7	1.78
90 Days Ago	0.59	0.31	1.69	1.79

EPS Revisions	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Up Last 7 Days	N/A	1	N/A	N/A
Up Last 30 Days	1	1	N/A	1
Down Last 30 Days	N/A	N/A	1	N/A
Down Last 90 Days	N/A	N/A	N/A	N/A

Growth Estimates	AWR	Industry	Sector	S&P 500
Current Qtr.	N/A	N/A	N/A	0.22
Next Qtr.	6.70%	N/A	N/A	0.27
Current Year	4.90%	N/A	N/A	0.08
Next Year	5.30%	N/A	N/A	0.12
Next 5 Years (per annum)	4.90%	N/A	N/A	0.10
Past 5 Years (per annum)	1.28%	N/A	N/A	N/A

US Markets are closed

S&P 500
2,579.36
+4.10 (+0.16%)

Dow 30
23,435.01
+57.77 (+0.25%)

Nasdaq
6,716.53
-11.14 (-0.17%)

American Water Works Company, Inc. (AWK)

NYSE - NYSE Delayed Price. Currency in USD

Add to watchlist

Quote Lookup

87.21 -0.55 (-0.63%) **87.21** 0.00 (0.00%)

At close: 4:00PM EDT After hours: 4:27PM EDT

People also watch
WTR AWR CWT MSEX CTWS

Summary Chart NEW Conversations Statistics Profile Financials Options Holders Historical Data Analysts

Currency in USD

Earnings Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	12	11	15	15
Avg. Estimate	1.08	0.66	3.01	3.29
Low Estimate	1.03	0.61	2.98	3.2
High Estimate	1.12	0.7	3.12	3.4
Year Ago EPS	1.05	0.57	2.84	3.01

Revenue Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	8	8	11	12
Avg. Estimate	984.66M	833.18M	3.45B	3.64B
Low Estimate	957.9M	822.3M	3.39B	3.49B
High Estimate	1.01B	853.34M	3.59B	3.82B
Year Ago Sales	930M	802M	3.3B	3.45B
Sales Growth (year/est)	5.90%	3.90%	4.50%	5.40%

Earnings History	9/29/2016	12/30/2016	3/30/2017	6/29/2017
EPS Est.	1.01	0.57	0.53	0.79
EPS Actual	1.05	0.57	0.52	0.73
Difference	0.04	0	-0.01	-0.06
Surprise %	4.00%	0.00%	-1.90%	-7.60%

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Current Estimate	1.08	0.66	3.01	3.29

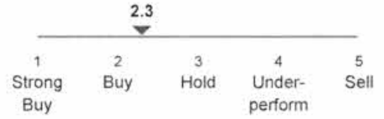
EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
7 Days Ago	1.08	0.66	3	3.27
30 Days Ago	1.09	0.65	3	3.28
60 Days Ago	1.1	0.65	3.01	3.28
90 Days Ago	1.07	0.64	3.03	3.29

EPS Revisions	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Up Last 7 Days	N/A	N/A	1	1
Up Last 30 Days	1	1	1	2
Down Last 30 Days	N/A	N/A	N/A	N/A
Down Last 90 Days	N/A	N/A	N/A	N/A

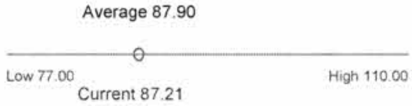
Growth Estimates	AWK	Industry	Sector	S&P 500
Current Qtr.	2.90%	N/A	N/A	0.22
Next Qtr.	15.80%	N/A	N/A	0.27
Current Year	6.00%	N/A	N/A	0.08
Next Year	9.30%	N/A	N/A	0.12
Next 5 Years (per annum)	7.30%	N/A	N/A	0.10
Past 5 Years (per annum)	5.91%	N/A	N/A	N/A

Recommendation Trends ›

Recommendation Rating ›



Analyst Price Targets (10) ›



Aqua America, Inc. (WTR)

NYSE - NYSE Delayed Price. Currency in USD

☆ Add to watchlist

Quote Lookup

35.43 -0.05 (-0.14%) **35.43** 0.00 (0.00 %)

At close: 4:02PM EDT After hours: 4:37PM EDT

People also watch
AWR CWT AWK CWCO SJW

Summary | Chart NEW | Conversations | Statistics | Profile | Financials | Options | Holders | Historical Data | Analysts

Currency in USD

Earnings Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	8	8	11	11
Avg. Estimate	0.43	0.31	1.36	1.44
Low Estimate	0.42	0.29	1.34	1.4
High Estimate	0.45	0.33	1.38	1.47
Year Ago EPS	0.41	0.28	1.32	1.36

Revenue Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	6	6	9	9
Avg. Estimate	234.41M	203.67M	842.24M	887.77M
Low Estimate	226.77M	197.28M	815.26M	846.87M
High Estimate	239.6M	210.8M	883.1M	930.47M
Year Ago Sales	226.59M	196.8M	819.88M	842.24M
Sales Growth (year/est)	3.40%	3.50%	2.70%	5.40%

Earnings History	9/29/2016	12/30/2016	3/30/2017	6/29/2017
EPS Est.	0.4	0.29	0.3	0.34
EPS Actual	0.41	0.28	0.28	0.34
Difference	0.01	-0.01	-0.02	0
Surprise %	2.50%	-3.40%	-6.70%	0.00%

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Current Estimate	0.43	0.31	1.36	1.44

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
7 Days Ago	0.43	0.31	1.36	1.44
30 Days Ago	0.43	0.31	1.36	1.44
60 Days Ago	0.43	0.31	1.36	1.44
90 Days Ago	0.43	0.31	1.36	1.44

EPS Revisions	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Up Last 7 Days	N/A	N/A	N/A	N/A
Up Last 30 Days	1	N/A	N/A	N/A
Down Last 30 Days	N/A	N/A	N/A	N/A
Down Last 90 Days	N/A	N/A	N/A	N/A

Growth Estimates	WTR	Industry	Sector	S&P 500
Current Qtr.	4.90%	N/A	N/A	0.22
Next Qtr.	10.70%	N/A	N/A	0.27
Current Year	3.00%	N/A	N/A	0.08
Next Year	5.90%	N/A	N/A	0.12
Next 5 Years (per annum)	5.60%	N/A	N/A	0.10
Past 5 Years (per annum)	5.90%	N/A	N/A	N/A

Artesian Resources Corporation (ARTNA)

NasdaqGS - NasdaqGS Real Time Price. Currency in USD

☆ Add to watchlist

Quote Lookup

40.09 -0.53 (-1.30%)

At close: 4:00PM EDT

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CTWS MSEX YORW SJW CWT

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Currency in USD

Earnings Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	1	1	1	1
Avg. Estimate	0.45	0.32	1.46	1.55
Low Estimate	0.45	0.32	1.46	1.55
High Estimate	0.45	0.32	1.46	1.55
Year Ago EPS	0.48	0.3	1.41	1.46

Revenue Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	1	1	1	1
Avg. Estimate	22.12M	20.18M	81.99M	85.17M
Low Estimate	22.12M	20.18M	81.99M	85.17M
High Estimate	22.12M	20.18M	81.99M	85.17M
Year Ago Sales	21.83M	19.42M	79.09M	81.99M
Sales Growth (year/est)	1.30%	3.90%	3.70%	3.90%

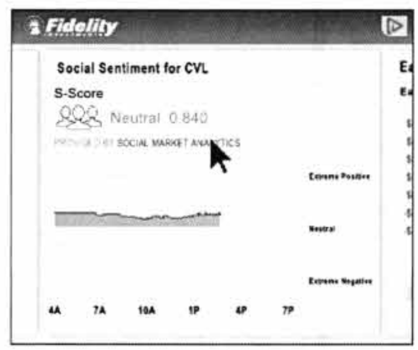
Earnings History	9/29/2016	12/30/2016	3/30/2017	6/29/2017
EPS Est.	0.41	0.25	0.35	0.38
EPS Actual	0.48	0.3	0.34	0.35
Difference	0.07	0.05	-0.01	-0.03
Surprise %	17.10%	20.00%	-2.90%	-7.90%

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Current Estimate	0.45	0.32	1.46	1.55

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
7 Days Ago	0.45	0.32	1.46	1.55
30 Days Ago	0.45	0.32	1.46	1.55
60 Days Ago	0.45	0.32	1.46	1.55
90 Days Ago	0.45	0.33	1.49	1.59

EPS Revisions	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Up Last 7 Days	N/A	N/A	N/A	N/A
Up Last 30 Days	N/A	N/A	N/A	N/A
Down Last 30 Days	N/A	N/A	N/A	N/A
Down Last 90 Days	N/A	N/A	N/A	N/A

Growth Estimates	ARTNA	Industry	Sector	S&P 500
Current Qtr.	-6.20%	N/A	N/A	0.22
Next Qtr.	6.70%	N/A	N/A	0.27
Current Year	3.50%	N/A	N/A	0.08
Next Year	6.20%	N/A	N/A	0.12
Next 5 Years (per annum)	4.00%	N/A	N/A	0.10
Past 5 Years (per annum)	8.39%	N/A	N/A	N/A



Recommendation Trends ›

Recommendation Rating ›

3

1	2	3	4	5
Strong Buy	Buy	Hold	Under-perform	Sell

Analyst Price Targets (1) ›

Low 17.00 High 17.00

(•) U.S. Markets closed

S&P 500	Dow 30	Nasdaq
2,579.36	23,435.01	6,716.53
+4.10 (+0.16%)	+57.77 (+0.25%)	-11.14 (-0.17%)

California Water Service Group (CWT)

NYSE - NYSE Delayed Price. Currency in USD

Add to watchlist

Quote Lookup

42.45 +0.45 (+1.07%) **42.45** 0.00 (0.00%)

At close: 4:02PM EDT After hours: 4:35PM EDT

People also watch
AWR CTWS SJW MSEX CWCO

Summary Chart NEW Conversations Statistics Profile Financials Options Holders Historical Data Analysts

Currency in USD

Earnings Estimate	Current Qtr. (Dec 2017)	Next Qtr. (Mar 2018)	Current Year (2017)	Next Year (2018)
No. of Analysts	6	3	6	7
Avg. Estimate	0.24	0.11	1.32	1.41
Low Estimate	0.2	0.04	1.27	1.32
High Estimate	0.27	0.23	1.39	1.47
Year Ago EPS	0.31	0.02	1.01	1.32

Revenue Estimate	Current Qtr. (Dec 2017)	Next Qtr. (Mar 2018)	Current Year (2017)	Next Year (2018)
No. of Analysts	3	2	4	5
Avg. Estimate	150.83M	118.72M	653M	678.51M
Low Estimate	142.78M	110.43M	650M	671.03M
High Estimate	161M	127M	655.8M	689.8M
Year Ago Sales	150.93M	122.04M	609.37M	653M
Sales Growth (year/est)	-0.10%	-2.70%	7.20%	3.90%

Earnings History	12/30/2016	3/30/2017	6/29/2017	9/29/2017
EPS Est.	0.2	0.05	0.32	0.68
EPS Actual	0.31	0.02	0.39	0.7
Difference	0.11	-0.03	0.07	0.02
Surprise %	55.00%	-60.00%	21.90%	2.90%

EPS Trend	Current Qtr. (Dec 2017)	Next Qtr. (Mar 2018)	Current Year (2017)	Next Year (2018)
Current Estimate	0.24	0.11	1.32	1.41

EPS Trend	Current Qtr. (Dec 2017)	Next Qtr. (Mar 2018)	Current Year (2017)	Next Year (2018)
7 Days Ago	0.25	0.11	1.32	1.41
30 Days Ago	0.25	0.11	1.31	1.39
60 Days Ago	0.25	0.11	1.31	1.39
90 Days Ago	0.26	0.14	1.29	1.39

EPS Revisions	Current Qtr. (Dec 2017)	Next Qtr. (Mar 2018)	Current Year (2017)	Next Year (2018)
Up Last 7 Days	N/A	N/A	N/A	N/A
Up Last 30 Days	N/A	N/A	N/A	N/A
Down Last 30 Days	1	N/A	N/A	N/A
Down Last 90 Days	N/A	N/A	N/A	N/A

Growth Estimates	CWT	Industry	Sector	S&P 500
Current Qtr.	-22.60%	N/A	N/A	0.22
Next Qtr.	450.00%	N/A	N/A	0.27
Current Year	30.70%	N/A	N/A	0.08
Next Year	6.80%	N/A	N/A	0.12
Next 5 Years (per annum)	9.80%	N/A	N/A	0.10
Past 5 Years (per annum)	-11.52%	N/A	N/A	N/A

Recommendation Trends ›

Recommendation Rating ›

Analyst Price Targets (5) ›

(•) US Markets are closed

S&P 500	Dow 30	Nasdaq	Crude Oil
2,579.36	23,435.01	6,716.53	54.27
+4.10 (+0.16%)	+57.77 (+0.25%)	-11.14 (-0.17%)	-0.11 (-0.20%)

CTWS

Connecticut Water Service, Inc. (CTWS)

NasdaqGS - NasdaqGS Real Time Price. Currency in USD

Add to watchlist

Quote Lookup

62.17 +0.15 (+0.24%)

At close: 4:00PM EDT

People also watch

MSEX SJW ARTNA CWT YORW

Summary Chart NEW Conversations Statistics Profile Financials Options Holders Historical Data Analysts

Currency in USD

Earnings Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	2	2	2	2
Avg. Estimate	0.93	0.21	2.21	2.28
Low Estimate	0.88	0.17	2.2	2.2
High Estimate	0.97	0.24	2.22	2.35
Year Ago EPS	0.84	0.07	2.08	2.21

Revenue Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	1	1	2	2
Avg. Estimate	34.73M	24.29M	107.7M	114.81M
Low Estimate	34.73M	24.29M	106M	114.62M
High Estimate	34.73M	24.29M	109.39M	115M
Year Ago Sales	29.48M	21.58M	98.67M	107.7M
Sales Growth (year/est)	17.80%	12.50%	9.20%	6.60%

Earnings History	9/29/2016	12/30/2016	3/30/2017	6/29/2017
EPS Est.	0.82	0.11	0.37	0.76
EPS Actual	0.84	0.07	0.36	0.73
Difference	0.02	-0.04	-0.01	-0.03
Surprise %	2.40%	-36.40%	-2.70%	-3.90%

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Current Estimate	0.93	0.21	2.21	2.28

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
7 Days Ago	0.93	0.21	2.21	2.28
30 Days Ago	0.93	0.21	2.21	2.29
60 Days Ago	0.93	0.21	2.21	2.29
90 Days Ago	0.9	0.22	2.22	2.29

EPS Revisions	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Up Last 7 Days	N/A	N/A	N/A	N/A
Up Last 30 Days	N/A	N/A	N/A	N/A
Down Last 30 Days	N/A	N/A	N/A	N/A
Down Last 90 Days	N/A	N/A	N/A	N/A

Growth Estimates	CTWS	Industry	Sector	S&P 500
Current Qtr.	10.70%	N/A	N/A	0.22
Next Qtr.	200.00%	N/A	N/A	0.27
Current Year	6.20%	N/A	N/A	0.08
Next Year	3.20%	N/A	N/A	0.12
Next 5 Years (per annum)	6.00%	N/A	N/A	0.10
Past 5 Years (per annum)	2.67%	N/A	N/A	N/A

Recommendation Trends ›

Recommendation Rating ›

3

1 Strong Buy | 2 Buy | 3 Hold | 4 Under-perform | 5 Sell

Analyst Price Targets (1) ›

Average 64.00

Low 64.00 High 64.00

Current 62.17

(•) US Markets are closed

S&P 500	Dow 30	Nasdaq	Crude Oil
2,579.36	23,435.01	6,716.53	54.27
+4.10 (+0.16%)	+57.77 (+0.25%)	-11.14 (-0.17%)	-0.11 (-0.20%)

Middlesex Water Company (MSEX)

NasdaqGS - NasdaqGS Real Time Price. Currency in USD

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Quote Lookup

43.14 -0.34 (-0.78%)

At close: 4:00PM EDT

People also watch
CTWS SJW ARTNA YORW CWT

Summary Chart NEW Conversations Statistics Profile Financials Options Holders Historical Data Analysts

Currency in USD

Earnings Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	1	1	1	1
Avg. Estimate	0.55	0.33	1.48	1.61
Low Estimate	0.55	0.33	1.48	1.61
High Estimate	0.55	0.33	1.48	1.61
Year Ago EPS	N/A	0.19	1.38	1.48

Revenue Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	1	1	1	1
Avg. Estimate	39.23M	34M	136M	142M
Low Estimate	39.23M	34M	136M	142M
High Estimate	39.23M	34M	136M	142M
Year Ago Sales	N/A	31.81M	132.91M	136M
Sales Growth (year/est)	N/A	6.90%	2.30%	4.40%

Earnings History	Invalid Date	12/30/2016	3/30/2017	6/29/2017
EPS Est.	N/A	0.29	0.31	0.38
EPS Actual	N/A	0.19	0.27	0.33
Difference	N/A	-0.1	-0.04	-0.05
Surprise %	N/A	-34.50%	-12.90%	-13.20%

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Current Estimate	0.55	0.33	1.48	1.61

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
7 Days Ago	0.55	0.33	1.48	1.61
30 Days Ago	0.55	0.33	1.48	1.61
60 Days Ago	0.55	0.33	1.48	1.61
90 Days Ago	0.55	0.3	1.54	1.63

EPS Revisions	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Up Last 7 Days	N/A	N/A	N/A	N/A
Up Last 30 Days	N/A	N/A	N/A	N/A
Down Last 30 Days	N/A	N/A	N/A	N/A
Down Last 90 Days	N/A	N/A	N/A	N/A

Growth Estimates	MSEX	Industry	Sector	S&P 500
Current Qtr.	N/A	N/A	N/A	0.22
Next Qtr.	73.70%	N/A	N/A	0.27
Current Year	7.20%	N/A	N/A	0.08
Next Year	8.80%	N/A	N/A	0.12
Next 5 Years (per annum)	2.70%	N/A	N/A	0.10
Past 5 Years (per annum)	1.71%	N/A	N/A	N/A

Recommendation Trends ›

Recommendation Rating ›

1

1 Strong Buy | 2 Buy | 3 Hold | 4 Under-perform | 5 Sell

Analyst Price Targets (1) ›

Average 44.00

Low 44.00 High 44.00

Current 43.14

(•) US Markets are closed

S&P 500	Dow 30	Nasdaq	Crude Oil
2,579.36	23,435.01	6,716.53	54.27
+4.10 (+0.16 %)	+57.77 (+0.25 %)	-11.14 (-0.17 %)	-0.11 (-0.20%)

SJW Group (SJW)

NYSE - NYSE Delayed Price. Currency in USD

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Quote Lookup

60.01 +0.70 (+1.18 %) **59.85** +0.11 (0.18 %)

At close: 4:02PM EDT After hours: 4:11PM EDT

People also watch
MSEX CTWS CWT AWR YORW

Summary Chart NEW Conversations Statistics Profile Financials Options Holders Historical Data **Analysts**

Currency in USD

Earnings Estimate	Current Qtr. (Dec 2017)	Next Qtr. (Mar 2018)	Current Year (2017)	Next Year (2018)
No. of Analysts	1	1	1	1
Avg. Estimate	0.44	0.23	2.48	2.52
Low Estimate	0.44	0.23	2.48	2.52
High Estimate	0.44	0.23	2.48	2.52
Year Ago EPS	0.67	0.18	2.57	2.48

Revenue Estimate	Current Qtr. (Dec 2017)	Next Qtr. (Mar 2018)	Current Year (2017)	Next Year (2018)
No. of Analysts	1	1	1	1
Avg. Estimate	83M	71M	379M	387M
Low Estimate	83M	71M	379M	387M
High Estimate	83M	71M	379M	387M
Year Ago Sales	79.31M	69.05M	339.71M	379M
Sales Growth (year/est)	4.70%	2.80%	11.60%	2.10%

Earnings History	12/30/2016	3/30/2017	6/29/2017	9/29/2017
EPS Est.	0.65	0.22	0.64	0.79
EPS Actual	0.67	0.18	0.9	0.94
Difference	0.02	-0.04	0.26	0.15
Surprise %	3.10%	-18.20%	40.60%	19.00%

EPS Trend	Current Qtr. (Dec 2017)	Next Qtr. (Mar 2018)	Current Year (2017)	Next Year (2018)
Current Estimate	0.44	0.23	2.48	2.52

EPS Trend	Current Qtr. (Dec 2017)	Next Qtr. (Mar 2018)	Current Year (2017)	Next Year (2018)
7 Days Ago	0.59	0.28	2.47	2.63
30 Days Ago	0.59	0.28	2.47	2.63
60 Days Ago	0.59	0.28	2.47	2.63
90 Days Ago	0.56	0.26	2.14	2.29

EPS Revisions	Current Qtr. (Dec 2017)	Next Qtr. (Mar 2018)	Current Year (2017)	Next Year (2018)
Up Last 7 Days	N/A	N/A	1	N/A
Up Last 30 Days	N/A	N/A	1	N/A
Down Last 30 Days	1	1	N/A	1
Down Last 90 Days	N/A	N/A	N/A	N/A

Growth Estimates	SJW	Industry	Sector	S&P 500
Current Qtr.	-34.30%	N/A	N/A	0.22
Next Qtr.	27.80%	N/A	N/A	0.27
Current Year	-3.50%	N/A	N/A	0.08
Next Year	1.60%	N/A	N/A	0.12
Next 5 Years (per annum)	14.00%	N/A	N/A	0.10
Past 5 Years (per annum)	21.25%	N/A	N/A	N/A

Recommendation Trends ›

Recommendation Rating ›

(•) US Markets are closed

S&P 500	Dow 30	Nasdaq
2,579.36	23,435.01	6,716.53
+4.10 (+0.16 %)	+57.77 (+0.25 %)	-11.14 (-0.17 %)

YORW

The York Water Company (YORW)

NasdaqGS - NasdaqGS Real Time Price. Currency in USD

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Quote Lookup

33.40 -1.80 (-5.11 %)

At close: 4:00PM EDT

People also watch
MSEX CTWS ARTNA SJW CWT

Summary | Chart NEW | Conversations | Statistics | Profile | Financials | Options | Holders | Historical Data | Analysts

Currency in USD

Earnings Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	1	1	1	1
Avg. Estimate	0.28	0.25	0.96	0.99
Low Estimate	0.28	0.25	0.96	0.99
High Estimate	0.28	0.25	0.96	0.99
Year Ago EPS	0.27	0.23	0.92	0.96

Revenue Estimate	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
No. of Analysts	1	1	1	1
Avg. Estimate	13M	12.34M	48.9M	50.95M
Low Estimate	13M	12.34M	48.9M	50.95M
High Estimate	13M	12.34M	48.9M	50.95M
Year Ago Sales	12.6M	11.88M	47.58M	48.9M
Sales Growth (year/est)	3.20%	3.80%	2.80%	4.20%

Earnings History	9/29/2016	12/30/2016	3/30/2017	6/29/2017
EPS Est.	0.28	0.26	0.19	0.22
EPS Actual	0.27	0.23	0.2	0.23
Difference	-0.01	-0.03	0.01	0.01
Surprise %	-3.60%	-11.50%	5.30%	4.50%

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Current Estimate	0.28	0.25	0.96	0.99

EPS Trend	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
7 Days Ago	0.28	0.25	0.96	0.99
30 Days Ago	0.28	0.25	0.96	0.99
60 Days Ago	0.28	0.25	0.96	0.99
90 Days Ago	0.28	0.25	0.96	0.99

EPS Revisions	Current Qtr. (Sep 2017)	Next Qtr. (Dec 2017)	Current Year (2017)	Next Year (2018)
Up Last 7 Days	N/A	N/A	N/A	N/A
Up Last 30 Days	N/A	N/A	N/A	N/A
Down Last 30 Days	N/A	N/A	N/A	N/A
Down Last 90 Days	N/A	N/A	N/A	N/A

Growth Estimates	YORW	Industry	Sector	S&P 500
Current Qtr.	3.70%	N/A	N/A	0.22
Next Qtr.	8.70%	N/A	N/A	0.27
Current Year	4.30%	N/A	N/A	0.08
Next Year	3.10%	N/A	N/A	0.12
Next 5 Years (per annum)	4.90%	N/A	N/A	0.10
Past 5 Years (per annum)	6.09%	N/A	N/A	N/A

Recommendation Trends ›

Recommendation Rating ›

4

1	2	3	4	5
Strong Buy	Buy	Hold	Under-perform	Sell

Analyst Price Targets (1) ›

Low 27.00 High 27.00

SCHEDULES

Liberty Utilities (Litchfield Park Water & Sewer) Corporation
Test Year Ending December 31, 2016
Docket No. SW-01428A-17-0058

RUCO PROPOSED
HYPOTHETICAL CAPITAL STRUCTURE & WEIGHTED AVERAGE COST OF CAPITAL

Line No	Description	[A] Pro Forma Capitalization Per Company	[B] RUCO Adjustments	[C] RUCO Adjusted Hypothetical Capitalization	[D] Capital Ratio	[E] Cost Rate	[F] Weighted Cost
1	Long-Term Debt	$ 23,592,398	$ 12,582,612	$ 36,175,010	46.00%	3.78%	1.74%
2	Common Equity	55,048,929	$ (12,582,612)	$ 42,466,317	54.00%	9.57%	5.17%
3	TOTAL CAPITALIZATION	$ 78,641,327	$ -	$ 78,641,327	100.00%		**6.91%**

[A] : Company Schedule D-1 (Note: In Mr. Bourassa's Schedule D-1 workpapers, the dollar value of long-term debt and common equity are hidden from view.)
[B] : RUCO Adjustments
[C] : [A] - [B]
[D] : Capital ratio based on values shown in Columd [C].
[E] : Company Schedule D-1, and RUCO Schedule JAC-2.
[F] : [D] * [E]

Cost of Capital -- Common Equity

Line No			[A] Cost Estimate
1	Discounted Cash Flow Model ("DCF")	Schedule JAC - 3	9.63%
2	Capital Asset Pricing Model ("CAPM")	Schedule JAC - 4	7.68%
3	Comparable Earnings Model ("CE")	Schedule JAC - 5	11.40%
4	Cost of Common Equity		9.57%

[A]: From Schedules JAC-3, JAC-4 and JAC-5

PROXY GROUP -- DCF ANALYSIS

Line No	Proxy Group Companies	(A) Current Dividend Yield (D_0 / P_0)	(B) Historic Retention Growth	(C) Projected Retention Growth	(D) Historical Per Share Growth Rates	(E) Projected Per Share Growth Rates	(F) Projected EPS Growth	(G) Average Growth	(H) Expected Dividend Yield (D_1 / P_0)	(I) DCF Rates
1	American States Water Co.	2.0%	6.1%	5.5%	7.6%	6.8%	4.90%	6.2%	2.0%	8.2%
2	American Water Works Co., Inc	2.0%	4.3%	4.5%	7.7%	8.5%	7.30%	6.5%	2.0%	8.5%
3	Aqua America, Inc.	2.4%	5.5%	5.0%	8.5%	7.8%	5.60%	6.5%	2.5%	8.9%
4	Artesian Resources	2.3%	2.2%	N/A	5.9%	N/A	4.00%	4.0%	2.4%	6.4%
5	California Water Service Group	1.8%	3.1%	4.8%	3.5%	7.4%	9.80%	5.7%	1.9%	7.6%
6	Connecticut Water Service, Inc.	2.0%	4.2%	5.0%	8.6%	3.7%	6.00%	5.5%	2.1%	7.6%
7	Middlesex Water	2.0%	2.9%	5.2%	5.4%	5.7%	2.70%	4.4%	2.1%	6.4%
8	SJW Corporation	1.5%	6.1%	7.7%	9.8%	4.3%	14.00%	8.4%	1.5%	9.9%
9	York Water Company	1.9%	3.3%	4.0%	4.1%	6.8%	4.90%	4.6%	1.9%	6.5%
10	Mean	1.98%	4.18%	5.21%	6.78%	6.39%	6.58%	5.75%	2.04%	**7.79%**
11	Median	1.98%	4.18%	5.00%	7.59%	6.82%	5.60%	5.71%	2.04%	**7.58%**
12	Composite-Mean		6.22%	7.25%	**8.81%**	8.43%	8.62%	7.79%		
12	Composite-Median		6.22%	7.04%	$\boxed{\textbf{9.63\%}}$	8.86%	7.64%	7.76%		

References:
Column [A] : Schedule JAC - 3, page 3 of 4
Column [B] : Schedule JAC - 3, page 4 of 4
Column [C] : Schedule JAC - 3, page 4 of 4
Column [D] and Column [E] : Schedule JAC - 3, page 2 of 4
Column [F] : See Yahoo Finance, Growth Estimates - Next 5 Years - See Attachment 7
Column [G] : Average Columns [B] through [F]
Column [H] : Column [A] * (1 + (Column [G]* (0.5)))
Column [I] : Column [G] + Column [H]

Liberty Utilities (Litchfield Park Water & Sewer) Corporation
Test Year Ending December 31, 2016
Docket No. SW-01428A-17-0058

PROXY GROUP -- PER SHARE GROWTH RATES

Line No	Proxy Group Companies	5-Year Compound Average Annual Historical Growth, 2012-2016				5-Year Compound Average Annual Projected Growth, 2017-2021			
		EPS	DPS	BVPS	Average	EPS	DPS	BVPS	Average
1	American States Water Co.	7.7%	10.6%	4.5%	7.6%	7.7%	8.2%	4.4%	6.8%
2	American Water Works Co.	8.8%	10.3%	3.9%	7.7%	9.6%	9.8%	6.2%	8.5%
3	Aqua America, Inc.	9.7%	8.2%	7.7%	8.5%	7.0%	9.2%	7.3%	7.8%
4	Artesian Resources Corp.	11.2%	3.4%	3.0%	5.9%	N/A	N/A	N/A	N/A
5	California Water Service Group	3.3%	2.2%	5.0%	3.5%	11.6%	7.5%	3.1%	7.4%
6	Connecticut Water Service, Inc.	13.0%	3.6%	9.2%	8.6%	5.0%	4.6%	1.7%	3.7%
7	Middlesex Water	10.4%	2.1%	3.5%	5.4%	8.2%	4.7%	4.2%	5.7%
8	SJW Corporation	18.3%	3.3%	7.7%	9.8%	3.1%	6.7%	3.0%	4.3%
9	York Water Company	5.3%	3.5%	3.6%	4.1%	8.8%	7.4%	4.4%	6.8%
10	Average				6.78%				6.39%

Reference:
Value Line Investment Survey (October 13, 2017)

PROXY GROUP -- DIVIDEND YIELD

Line		(A)	(B)	(C)	(D)	(E)
			August 2017 - October 2017			
No	Proxy Group Companies	DPS	High	Low	Average	Yield
1	American States Water Co.	$1.02	$56.31	$46.87	$51.59	2.0%
2	American Water Works Co., Inc.	$1.66	$88.20	$79.77	$83.99	2.0%
3	Aqua America, Inc.	$0.82	$36.27	$32.82	$34.55	2.4%
4	Artesian Resources Corp.	$0.93	$43.22	$35.77	$39.50	2.3%
5	California Water Service Group	$0.72	$43.75	$36.30	$40.03	1.8%
6	Connecticut Water Service, Inc.	$1.19	$64.15	$53.24	$58.70	2.0%
7	Middlesex Water	$0.85	$46.39	$36.99	$41.69	2.0%
8	SJW Corporation	$0.87	$66.45	$53.01	$59.73	1.5%
9	York Water Company	$0.64	$37.37	$31.90	$34.64	1.9%
10	Average					**1.98%**

References:

Column (A) - Value Line Investment Survey (October 13, 2017)

(Reflects annualization of most recent quarterly dividend)

Columns (B), (C), and (D) - Yahoo Finance

http://finance.yahoo.com

PROXY GROUP -- GROWTH RATES - RETAINED TO COMMON EQUITY

Line No	Proxy Group Companies	(A) 2012	(B) 2013	(C) 2014	(D) 2015	(E) 2016	Average	2017	2018	2020-'22	Average
1	American States Water Co.	6.6%	6.8%	5.7%	6.0%	5.3%	6.1%	5.0%	5.5%	6.0%	5.5%
2	American Water Works Co., Inc	3.6%	4.7%	4.3%	4.7%	4.0%	4.3%	4.5%	4.5%	4.5%	4.5%
3	Aqua America, Inc.	4.3%	6.7%	6.1%	4.7%	5.6%	5.5%	5.5%	5.0%	4.5%	5.0%
4	Artesian Resources Corp.	2.5%	0.9%	1.6%	2.6%	3.4%	2.2%				
5	California Water Service Group	3.4%	3.4%	4.1%	2.0%	2.4%	3.1%	4.5%	5.0%	5.0%	4.8%
6	Connecticut Water Service, Inc.	2.8%	3.8%	4.8%	4.9%	4.6%	4.2%	4.5%	5.0%	5.5%	5.0%
7	Middlesex Water	1.4%	2.4%	3.1%	3.5%	4.3%	2.9%	4.5%	5.0%	6.0%	5.2%
8	SJW Corporation	3.3%	2.8%	10.2%	5.7%	8.6%	6.1%	7.5%	7.5%	8.0%	7.7%
9	York Water Company	2.4%	2.4%	3.9%	4.4%	3.4%	3.3%	4.0%	3.5%	4.5%	4.0%
10	Average						**4.18%**				**5.21%**

Source: Value Line Investment Survey (October 13, 2017)

CAPITAL ASSET PRICING MODEL -- PROXY COMPANY COST RATES

Line No	Proxy Group Companies	[A] Risk Free Rate	[B] BETA		[C] Risk Premium		[D] Beta X Risk Premium	[E] CAPM Rates
1	American States Water Co.	2.58%	0.80	X	6.95%	=	5.56%	8.14%
2	American Water Works Co., Inc.	2.58%	0.65	X	6.95%	=	4.52%	7.10%
3	Aqua America, Inc.	2.58%	0.70	X	6.95%	=	4.87%	7.45%
4	Artesian Resources Corp.	2.58%	0.65	X	6.95%	=	4.52%	7.10%
5	California Water Service Group	2.58%	0.80	X	6.95%	=	5.56%	8.14%
6	Connecticut Water Service, Inc.	2.58%	0.65	X	6.95%	=	4.52%	7.10%
7	Middlesex Water	2.58%	0.80	X	6.95%	=	5.56%	8.14%
8	SJW Corporation	2.58%	0.75	X	6.95%	=	5.22%	7.79%
9	York Water Company	2.58%	0.80	X	6.95%	=	5.56%	8.14%
10	Average							7.68%

Line No	20 year Treasury Bonds		30 year Treasury Bonds
11			
12	August, 2017	2.55%	2.80%
13	September, 2017	2.53%	2.78%
14	October, 2017	2.65%	2.88%
15	Average	2.58%	2.82%
16			
17	RUCO Risk-Free Rate	2.58%	

REFERENCES

Column [A]: United States Treasury Department - Attachment 2

https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yieldYear&year=2016

Column [B]: Value Line Investment Survey (October 13, 2017) - See Attachment 1

Column [C]: JAC - 4, Page 2 of 2

Column [D]: [B] * [C]

Column [E]: [A] + [D]

STANDARD & POOR'S 500 COMPOSITE
20-YEAR U.S. TREASURY BOND YIELDS
RISK PREMIUMS

Line No.	Year	[A] EPS	[B] BVPS	[C] ROE	[D] 20-YEAR T-BOND	[E] RISK PREMIUM
1	1977		$79.07			
2	1978	$12.33	$85.35	15.00%	7.90%	7.10%
3	1979	$14.86	$94.27	16.55%	8.86%	7.69%
4	1980	$14.82	$102.48	15.06%	9.97%	5.09%
5	1981	$15.36	$109.43	14.50%	11.55%	2.95%
6	1982	$12.64	$112.46	11.39%	13.50%	-2.11%
7	1983	$14.03	$116.93	12.23%	10.38%	1.85%
8	1984	$16.64	$122.47	13.90%	11.74%	2.16%
9	1985	$14.61	$125.20	11.80%	11.25%	0.55%
10	1986	$14.48	$126.82	11.49%	8.98%	2.51%
11	1987	$17.50	$134.07	13.42%	7.92%	5.50%
12	1988	$23.75	$141.32	17.25%	8.97%	8.28%
13	1989	$22.87	$147.26	15.85%	8.81%	7.04%
14	1990	$21.73	$153.01	14.47%	8.19%	6.28%
15	1991	$16.29	$158.85	10.45%	8.22%	2.23%
16	1992	$18.86	$149.74	12.22%	7.29%	4.93%
17	1993	$21.89	$180.88	13.24%	7.17%	6.07%
18	1994	$30.60	$193.06	16.37%	6.59%	9.78%
19	1995	$33.96	$216.51	16.58%	7.60%	8.98%
20	1996	$38.73	$237.08	17.08%	6.83%	10.25%
21	1997	$39.72	$249.52	16.33%	6.69%	9.64%
22	1998	$37.71	$266.40	14.62%	5.72%	8.90%
23	1999	$48.17	$290.68	17.29%	6.20%	11.09%
24	2000	$50.00	$325.80	16.22%	6.23%	9.99%
25	2001	$24.70	$338.37	7.44%	5.63%	1.81%
26	2002	$27.59	$321.72	8.36%	5.43%	2.93%
27	2003	$48.73	$367.17	14.15%	4.96%	9.19%
28	2004	$58.55	$414.75	14.98%	5.04%	9.94%
29	2005	$69.93	$453.06	16.12%	4.64%	11.48%
30	2006	$81.51	$504.39	17.03%	5.00%	12.03%
31	2007	$66.18	$529.59	12.80%	4.91%	7.89%
32	2008	$14.88	$451.37	3.03%	4.36%	-1.33%
33	2009	$50.97	$513.58	10.56%	4.11%	6.45%
34	2010	$77.35	$579.14	14.16%	4.03%	10.13%
35	2011	$86.95	$613.14	14.59%	3.62%	10.97%
36	2012	$86.51	$666.97	13.52%	2.54%	10.98%
37	2013	$100.20	$715.84	14.49%	3.12%	11.37%
38	2014	$102.31	$726.96	14.18%	3.07%	11.11%
39	2015	$86.53	$740.29	11.79%	2.55%	9.25%
40	2016	$94.55	$768.98	12.53%	2.22%	10.31%
41	Average			**13.67%**	**6.71%**	**6.95%**

[A]: Diluted earnings per share on the S&P 500 Composite Index.
[B]: Book value per share on the S&P 500 Composite Index.
[C]: Average of current- and prior year [B] / current year [A].
[D]: Annual income returns on 20-year U.S. Treasury bonds.
[E]: [C] - [D]

Sources for [A] and [B]: Standard & Poor's 2015 Analysts' Handbook and
Standard & Poor's 500 Earnings Report
https://ycharts.com/indicators/reports/sp_500_earnings
Source for [D]: Morningstar 2015 Classic Yearbook (Table A-7) and
U.S. Department of the Treasury
https://www.treasury.gov/Pages/default.aspx

COMPARABLE EARNINGS ANALYSIS

RETURN ON COMMON EQUITY FOR RUCO'S PROXY GROUP OF COMPANIES

Company	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2020 - 2022	10-Year Historical Average 2007-2016	5-Year Historical Average 2012-2016	5-Year Projected Average 2017-2021
American States Water Co.	9.3%	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.0%	13.0%	12.1%	12.0%	12.0%	14.0%	10.9%	12.3%	12.7%
American Water Works			5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	9.5%	10.0%	10.5%	7.8%	8.7%	10.0%
Aqua America, Inc.	9.7%	9.3%	9.4%	10.6%	11.6%	11.0%	13.4%	12.9%	11.7%	12.7%	12.5%	12.5%	12.5%	11.2%	12.3%	12.5%
Artesian Resources Corp.	7.4%	7.3%	8.0%	8.0%	6.0%	8.3%	6.8%	7.6%	8.5%	9.3%				7.7%	8.1%	N/A
California Water Service Group	8.1%	9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	9.5%	10.0%	11.0%	8.5%	8.1%	10.2%
Connecticut Water Service, Inc.	8.7%	9.1%	9.4%	8.7%	8.3%	7.3%	9.2%	10.2%	10.1%	9.9%	10.0%	11.0%	11.5%	9.1%	9.3%	10.8%
Middlesex Water	8.7%	8.9%	7.0%	8.2%	7.5%	7.8%	8.7%	9.3%	9.6%	10.3%	10.5%	11.0%	12.5%	8.6%	9.1%	11.3%
SJW Corporation	8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	11.5%	12.0%	12.5%	8.9%	10.4%	12.0%
York Water	9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	11.0%	11.0%	12.5%	9.8%	10.3%	11.5%
Mean	8.7%	8.8%	7.9%	8.6%	8.5%	9.0%	9.2%	10.6%	10.1%	10.4%	10.8%	11.2%	12.1%	9.20%	9.9%	11.40%
Median	8.7%	9.0%	8.2%	8.6%	8.0%	8.4%	8.7%	10.2%	9.9%	10.3%	10.8%	11.0%	12.5%	8.90%	9.3%	11.40%
Average of Mean and Median														9.05%	9.60%	11.40%

Source: Value Line Investment Survey (October 13, 2017).

ECONOMIC INDICATORS

Line No	Year	Real GDP Growth	Industrial Production Growth	Unemploy-ment Rate	Consumer Price Index	Producer Price Index
1	1975	-1.1%	-8.9%	8.5%	7.0%	6.6%
2	1976	5.4%	10.8%	7.7%	4.8%	3.7%
3	1977	5.5%	5.9%	7.0%	6.8%	6.9%
4	1978	5.0%	5.7%	6.0%	9.0%	9.2%
5	1979	2.8%	4.4%	5.8%	13.3%	12.8%
6	1980	-0.2%	-1.9%	7.0%	12.4%	11.8%
7	1981	1.8%	1.9%	7.5%	8.9%	7.1%
8	1982	-2.1%	-4.4%	9.5%	3.8%	3.6%
9	1983	4.0%	3.7%	9.5%	3.8%	0.6%
10	1984	6.8%	9.3%	7.5%	3.9%	1.7%
11	1985	3.7%	1.7%	7.2%	3.8%	1.8%
12	1986	3.1%	0.9%	7.0%	1.1%	-2.3%
13	1987	2.9%	4.9%	6.2%	4.4%	2.2%
14	1988	3.8%	4.5%	5.5%	4.4%	4.0%
15	1989	3.5%	1.8%	5.3%	4.6%	4.9%
16	1990	1.8%	-0.2%	5.6%	6.1%	5.7%
17	1991	-0.5%	-2.0%	6.8%	3.1%	-0.1%
18	1992	3.0%	3.1%	7.5%	2.9%	1.6%
19	1993	2.7%	3.4%	6.9%	2.7%	0.2%
20	1994	4.0%	5.5%	6.1%	2.7%	1.7%
21	1995	3.7%	4.8%	5.6%	2.5%	2.3%
22	1996	4.5%	4.3%	5.4%	3.3%	2.8%
23	1997	4.5%	7.3%	4.9%	1.7%	-1.2%
24	1998	4.2%	5.8%	4.5%	1.6%	0.0%
25	1999	3.7%	4.5%	4.2%	2.7%	2.9%
26	2000	4.1%	4.0%	4.0%	3.4%	3.6%
27	2001	1.1%	-3.4%	4.7%	1.6%	-1.6%
28	2002	1.8%	0.2%	5.8%	2.4%	1.2%
29	2003	2.8%	1.2%	6.0%	1.9%	4.0%
30	2004	3.8%	2.3%	5.5%	3.3%	4.2%
31	2005	3.3%	3.2%	5.1%	3.4%	5.4%
32	2006	2.7%	2.2%	4.6%	2.5%	1.1%
33	2007	1.8%	2.5%	4.6%	4.1%	6.2%
34	2008	-0.3%	-3.5%	5.8%	0.1%	-0.9%
35	2009	-2.8%	-11.5%	9.3%	2.7%	4.3%
36	2010	2.5%	5.5%	9.6%	1.5%	4.7%
37	2011	1.6%	3.1%	8.9%	3.0%	4.7%
38	2012	2.2%	2.9%	8.1%	1.7%	1.4%
39	2013	1.7%	2.0%	7.4%	1.5%	0.8%
40	2014	2.6%	3.1%	6.2%	0.8%	-1.2%
41	2015	2.9%	-0.7%	5.3%	0.7%	-3.8%
42	2016	1.5%	-1.2%	4.9%	2.1%	1.9%

Source: Council of Economic Advisors, Economic Indicators, various issues.

Liberty Utilities (Litchfield Park Water & Sewer) Corporation
Test Year Ending December 31, 2016
Docket No. SW-01428A-17-0058

ECONOMIC INDICATORS

Line No	Year	Real GDP* Growth	Industrial Production Growth	Unemploy-ment Rate	Consumer Price Index	Producer Price Index
1	**2003**					
2	1st Qtr.	1.2%	1.1%	5.8%	4.8%	5.6%
3	2nd Qtr.	3.5%	-0.9%	6.2%	0.0%	-0.5%
4	3rd Qtr.	7.5%	-0.9%	6.1%	3.2%	3.2%
5	4th Qtr.	2.7%	1.5%	5.9%	-0.3%	2.8%
6	**2004**					
7	1st Qtr.	3.0%	2.8%	5.6%	5.2%	5.2%
8	2nd Qtr.	3.5%	4.9%	5.6%	4.4%	4.4%
9	3rd Qtr.	3.6%	4.6%	5.4%	0.8%	0.8%
10	4th Qtr.	2.5%	4.3%	5.4%	3.6%	7.2%
11	**2005**					
12	1st Qtr.	4.1%	3.8%	5.3%	4.4%	5.6%
13	2nd Qtr.	1.7%	3.0%	5.1%	1.6%	-0.4%
14	3rd Qtr.	3.1%	2.7%	5.0%	8.8%	14.0%
15	4th Qtr.	2.1%	2.9%	4.9%	-2.0%	4.0%
16	**2006**					
17	1st Qtr.	5.4%	3.4%	4.7%	4.8%	-0.2%
18	2nd Qtr.	1.4%	4.5%	4.6%	4.8%	5.6%
19	3rd Qtr.	0.1%	5.2%	4.7%	0.4%	-4.4%
20	4th Qtr.	3.0%	3.5%	4.5%	0.0%	3.6%
21	**2007**					
22	1st Qtr.	0.9%	2.5%	4.5%	4.8%	6.4%
23	2nd Qtr.	3.2%	1.6%	4.5%	5.2%	6.8%
24	3rd Qtr.	2.3%	1.8%	4.6%	1.2%	1.2%
25	4th Qtr.	2.9%	1.7%	4.8%	0.6%	6.5%
26	**2008**					
27	1st Qtr.	-1.8%	1.9%	4.9%	2.8%	9.6%
28	2nd Qtr.	1.3%	0.2%	5.3%	7.6%	14.0%
29	3rd Qtr.	-3.7%	-3.0%	6.0%	2.8%	-0.4%
30	4th Qtr.	-8.9%	6.0%	6.9%	-13.2%	-28.4%
31	**2009**					
32	1st Qtr.	-5.3%	-11.6%	8.1%	2.4%	-0.4%
33	2nd Qtr.	-0.3%	-12.9%	9.3%	3.2%	9.2%
34	3rd Qtr.	1.4%	-9.3%	9.6%	2.0%	-0.8%
35	4th Qtr.	4.0%	-4.5%	10.0%	2.5%	8.8%
36	**2010**					
37	1st Qtr.	1.6%	2.7%	9.7%	0.9%	6.5%
38	2nd Qtr.	3.9%	6.5%	9.7%	-1.2%	-2.4%
39	3rd Qtr.	2.8%	6.9%	9.6%	2.8%	4.0%
40	4th Qtr.	2.8%	6.2%	9.6%	2.8%	9.2%
41	**2011**					
42	1st Qtr.	-1.5%	5.4%	9.0%	4.8%	9.6%
43	2nd Qtr.	2.9%	3.6%	9.0%	3.2%	3.6%
44	3rd Qtr.	0.8%	3.3%	9.1%	2.4%	6.4%
45	4th Qtr.	4.6%	4.0%	8.7%	0.4%	-1.2%
46	**2012**					
47	1st Qtr.	2.3%	4.5%	8.3%	3.2%	2.0%
48	2nd Qtr.	1.6%	4.7%	8.2%	0.0%	-2.8%
49	3rd Qtr.	2.5%	3.4%	8.1%	4.0%	9.6%
50	4th Qtr.	0.1%	2.8%	7.8%	0.0%	-3.6%
51	**2013**					
52	1st Qtr.	1.9%	2.5%	7.7%	2.0%	1.2%
53	2nd Qtr.	1.1%	2.0%	7.6%	1.2%	2.4%
54	3rd Qtr.	3.0%	2.6%	7.3%	1.6%	0.0%
55	4th Qtr.	3.8%	3.3%	7.0%	1.2%	0.3%
56	**2014**					
57	1st Qtr.	-1.2%	3.2%	6.6%	1.6%	0.3%
58	2nd Qtr.	4.0%	4.2%	6.2%	3.6%	0.2%
59	3rd Qtr.	5.0%	4.7%	6.1%	0.0%	0.0%
60	4th Qtr.	2.3%	4.5%	5.7%	-2.8%	-0.8%
61	**2015**					
62	1st Qtr.	3.2%	3.5%	5.6%	-0.2%	-2.3%
63	2nd Qtr.	2.7%	1.5%	5.4%	0.6%	1.2%
64	3rd Qtr.	1.6%	1.1%	5.2%	0.0%	-1.8%
65	4th Qtr.	0.5%	-0.8%	5.0%	0.2%	-0.9%
66	**2016**					
67	1st Qtr.	0.6%	-1.7%	4.9%	1.1%	-2.7%
68	2nd Qtr.	2.2%	-1.3%	4.9%	1.0%	-2.2%
69	3rd Qtr.	2.8%	-1.2%	4.9%	1.1%	-1.5%
70	4th Qtr.	1.8%	-0.1%	4.7%	1.8%	0.9%
71	**2017**					
72	1st Qtr.	1.2%	0.6%	4.7%	2.5%	0.6%
73	2nd Qtr.	3.1%	2.1%	4.4%	1.9%	2.1%
74	3rd Qtr.	3.0%	1.5%	4.3%	1.9%	1.5%

*GDP=Gross Domestic Product
Source: Council of Economic Advisors, Economic Indicators, various issues.

Liberty Utilities (Litchfield Park Water & Sewer) Corporation
Test Year Ending December 31, 2016
Docket No. SW-01428A-17-0058

INTEREST RATES

Line No	Year	Prime Rate	US Treasury T Bills 3 Month	US Treasury T Bonds 10 Year	Utility Bonds Aaa		Utility Bonds Aa	Utility Bonds A	Utility Bonds Baa
1	1975	7.86%	5.84%	7.99%	9.03%		9.44%	10.09%	10.96%
2	1976	6.84%	4.99%	7.61%	8.63%		8.92%	9.29%	9.82%
3	1977	6.83%	5.27%	7.42%	8.19%		8.43%	8.61%	9.06%
4	1978	9.06%	7.22%	8.41%	8.87%		9.10%	9.29%	9.62%
5	1979	12.67%	10.04%	9.43%	9.86%		10.22%	10.49%	10.96%
6	1980	15.27%	11.51%	11.43%	12.30%		13.00%	13.34%	13.95%
7	1981	18.89%	14.03%	13.92%	14.64%		15.30%	15.95%	16.60%
8	1982	14.86%	10.69%	13.01%	14.22%		14.79%	15.86%	16.45%
9	1983	10.79%	8.63%	11.10%	12.52%		12.83%	13.66%	14.20%
10	1984	12.04%	9.58%	12.46%	12.72%		13.66%	14.03%	14.53%
11	1985	9.93%	7.48%	10.62%	11.68%		12.06%	12.47%	12.96%
12	1986	8.33%	5.98%	7.67%	8.92%		9.30%	9.58%	10.00%
13	1987	8.21%	5.82%	8.39%	9.52%		9.77%	10.10%	10.53%
14	1988	9.32%	6.69%	8.85%	10.05%		10.26%	10.49%	11.00%
15	1989	10.87%	8.12%	8.49%	9.32%		9.56%	9.77%	9.97%
16	1990	10.01%	7.51%	8.55%	9.45%		9.65%	9.86%	10.06%
17	1991	8.46%	5.42%	7.86%	8.85%		9.09%	9.36%	9.55%
18	1992	6.25%	3.45%	7.01%	8.19%		8.55%	8.69%	8.86%
19	1993	6.00%	3.02%	5.87%	7.29%		7.44%	7.59%	7.91%
20	1994	7.15%	4.29%	7.09%	8.07%		8.21%	8.31%	8.63%
21	1995	8.83%	5.51%	6.57%	7.68%		7.77%	7.89%	8.29%
22	1996	8.27%	5.02%	6.44%	7.48%		7.57%	7.75%	8.16%
23	1997	8.44%	5.07%	6.35%	7.43%		7.54%	7.60%	7.95%
24	1998	8.35%	4.81%	5.26%	6.77%		6.91%	7.04%	7.26%
25	1999	8.00%	4.66%	5.65%	7.21%		7.51%	7.62%	7.88%
26	2000	9.23%	5.85%	6.03%	7.88%		8.06%	8.24%	8.36%
27	2001	6.91%	3.44%	5.02%	7.47%		7.59%	7.78%	8.02%
28	2002	4.67%	1.62%	4.61%		[1]	7.19%	7.37%	8.02%
29	2003	4.12%	1.01%	4.01%			6.40%	6.58%	6.84%
30	2004	4.34%	1.38%	4.27%			6.04%	6.16%	6.40%
31	2005	6.19%	3.16%	4.29%			5.44%	5.65%	5.93%
32	2006	7.96%	4.73%	4.80%			5.84%	6.07%	6.32%
33	2007	8.05%	4.41%	4.63%			5.94%	6.07%	6.33%
34	2008	5.09%	1.48%	3.66%			6.18%	6.53%	7.25%
35	2009	3.25%	0.16%	3.26%			5.75%	6.04%	7.06%
36	2010	3.25%	0.14%	3.22%			5.24%	5.46%	5.96%
37	2011	3.25%	0.06%	2.78%			4.78%	5.04%	5.57%
38	2012	3.25%	0.09%	1.80%			3.83%	4.13%	4.86%
39	2013	3.25%	0.06%	2.35%			4.24%	4.47%	4.98%
40	2014	3.25%	0.03%	2.54%			4.19%	4.28%	4.80%
41	2015	3.27%	0.06%	2.14%			4.00%	4.12%	5.03%
42	2016	3.51%	0.33%	1.84%					

[1] Note: Moody's has not published Aaa utility bond yields since 2001.

Sources: Council of Economic Advisors, Economic Indicators; Moody's Bond Record; Federal Reserve Bulletin; various issues.

INTEREST RATES

Line No		Prime Rate	US Treasury T Bills 3 Month	US Treasury T Bonds 10 Year	Utility Bonds Aa	Utility Bonds A	Utility Bonds Baa
1	**2007**						
2	Jan	8.25%	4.96%	4.76%	5.78%	5.96%	6.16%
3	Feb	8.25%	5.02%	4.72%	5.73%	5.90%	6.10%
4	Mar	8.25%	4.97%	4.56%	5.66%	5.85%	6.10%
5	Apr	8.25%	4.88%	4.69%	5.83%	5.97%	6.24%
6	May	8.25%	4.77%	4.75%	5.86%	5.99%	6.23%
7	June	8.25%	4.63%	5.10%	6.18%	6.30%	6.54%
8	July	8.25%	4.84%	5.00%	6.11%	6.25%	6.49%
9	Aug	8.25%	4.34%	4.67%	6.11%	6.24%	6.51%
10	Sept	7.75%	4.01%	4.52%	6.10%	6.18%	6.45%
11	Oct	7.50%	3.97%	4.53%	6.04%	6.11%	6.36%
12	Nov	7.50%	3.49%	4.15%	5.87%	5.97%	6.27%
13	Dec	7.25%	3.08%	4.10%	6.03%	6.16%	6.51%
14	**2008**						
15	Jan	6.00%	2.86%	3.74%	5.87%	6.02%	6.35%
16	Feb	6.00%	2.21%	3.74%	6.04%	6.21%	6.60%
17	Mar	5.25%	1.38%	3.51%	5.99%	6.21%	6.68%
18	Apr	5.00%	1.32%	3.68%	5.99%	6.29%	6.82%
19	May	5.00%	1.71%	3.88%	6.07%	6.27%	6.79%
20	June	5.00%	1.90%	4.10%	6.19%	6.38%	6.93%
21	July	5.00%	1.72%	4.01%	6.13%	6.40%	6.97%
22	Aug	5.00%	1.79%	3.89%	6.09%	6.37%	6.98%
23	Sept	5.00%	1.46%	3.69%	6.13%	6.49%	7.15%
24	Oct	4.00%	0.84%	3.81%	6.95%	7.56%	8.58%
25	Nov	4.00%	0.30%	3.53%	6.83%	7.60%	8.98%
26	Dec	3.25%	0.04%	2.42%	5.93%	6.54%	8.13%
27	**2009**						
28	Jan	3.25%	0.12%	2.52%	6.01%	6.39%	7.90%
29	Feb	3.25%	0.31%	2.87%	6.11%	6.30%	7.74%
30	Mar	3.25%	0.25%	2.82%	6.14%	6.42%	8.00%
31	Apr	3.25%	0.17%	2.93%	6.20%	6.48%	8.03%
32	May	3.25%	0.15%	3.29%	6.23%	6.49%	7.76%
33	June	3.25%	0.17%	3.72%	6.13%	6.20%	7.30%
34	July	3.25%	0.19%	3.56%	5.63%	5.97%	6.87%
35	Aug	3.25%	0.18%	3.59%	5.33%	5.71%	6.36%
36	Sept	3.25%	0.13%	3.40%	5.15%	5.53%	6.12%
37	Oct	3.25%	0.08%	3.39%	5.23%	5.55%	6.14%
38	Nov	3.25%	0.05%	3.40%	5.33%	5.64%	6.18%
39	Dec	3.25%	0.07%	3.59%	5.52%	5.79%	6.26%
40	**2010**						
41	Jan	3.25%	0.06%	3.73%	5.55%	5.77%	6.16%
42	Feb	3.25%	0.10%	3.69%	5.69%	5.87%	6.25%
43	Mar	3.25%	0.15%	3.73%	5.64%	5.84%	6.22%
44	Apr	3.25%	0.15%	3.85%	5.62%	5.81%	6.19%
45	May	3.25%	0.16%	3.42%	5.29%	5.50%	5.97%
46	June	3.25%	0.12%	3.20%	5.22%	5.46%	6.18%
47	July	3.25%	0.16%	3.01%	4.99%	5.26%	5.98%
48	Aug	3.25%	0.15%	2.70%	4.75%	5.01%	5.55%
49	Sept	3.25%	0.15%	2.65%	4.74%	5.01%	5.53%
50	Oct	3.25%	0.13%	2.54%	4.89%	5.10%	5.62%
51	Nov	3.25%	0.13%	2.76%	5.12%	5.37%	5.85%
52	Dec	3.25%	0.15%	3.29%	5.32%	5.56%	6.04%

Line No		Prime Rate	US Treasury T Bills 3 Month	US Treasury T Bonds 10 Year	Utility Bonds Aa	Utility Bonds A	Utility Bonds Baa
1	**2011**						
2	Jan	3.25%	0.15%	3.39%	5.29%	5.57%	6.06%
3	Feb	3.25%	0.14%	3.58%	5.42%	5.68%	6.10%
4	Mar	3.25%	0.11%	3.41%	5.33%	5.56%	5.97%
5	Apr	3.25%	0.06%	3.46%	5.32%	5.55%	5.98%
6	May	3.25%	0.04%	3.17%	5.08%	5.32%	5.74%
7	June	3.25%	0.04%	3.00%	5.04%	5.26%	5.67%
8	July	3.25%	0.03%	3.00%	5.05%	5.27%	5.70%
9	Aug	3.25%	0.05%	2.30%	4.44%	4.69%	5.22%
10	Sept	3.25%	0.02%	1.98%	4.24%	4.48%	5.11%
11	Oct	3.25%	0.02%	2.15%	4.21%	4.52%	5.24%
12	Nov	3.25%	0.01%	2.01%	3.92%	4.25%	4.93%
13	Dec	3.25%	0.02%	1.98%	4.00%	4.33%	5.07%
14	**2012**						
15	Jan	3.25%	0.02%	1.97%	4.03%	4.34%	5.06%
16	Feb	3.25%	0.08%	1.97%	4.02%	4.36%	5.02%
17	Mar	3.25%	0.09%	2.17%	4.16%	4.48%	5.13%
18	Apr	3.25%	0.08%	2.05%	4.10%	4.40%	5.11%
19	May	3.25%	0.09%	1.80%	3.92%	4.20%	4.97%
20	June	3.25%	0.09%	1.62%	3.79%	4.08%	4.91%
21	July	3.25%	0.10%	1.53%	3.58%	3.93%	4.85%
22	Aug	3.25%	0.11%	1.68%	3.65%	4.00%	4.88%
23	Sept	3.25%	0.10%	1.72%	3.69%	4.02%	4.81%
24	Oct	3.25%	0.10%	1.75%	3.68%	3.91%	4.54%
25	Nov	3.25%	0.11%	1.65%	3.60%	3.84%	4.42%
26	Dec	3.25%	0.08%	1.72%	3.75%	4.00%	4.56%
27	**2013**						
28	Jan	3.25%	0.07%	1.91%	3.90%	4.15%	4.66%
29	Feb	3.25%	0.10%	1.98%	3.95%	4.18%	4.74%
30	Mar	3.25%	0.09%	1.96%	3.90%	4.15%	4.66%
31	Apr	3.25%	0.06%	1.76%	3.74%	4.00%	4.49%
32	May	3.25%	0.05%	1.93%	3.91%	4.17%	4.65%
33	June	3.25%	0.05%	2.30%	4.27%	4.53%	5.08%
34	July	3.25%	0.04%	2.58%	4.44%	4.68%	5.21%
35	Aug	3.25%	0.04%	2.74%	4.53%	4.73%	5.28%
36	Sept	3.25%	0.02%	2.81%	4.58%	4.80%	5.31%
37	Oct	3.25%	0.06%	2.62%	4.48%	4.70%	5.17%
38	Nov	3.25%	0.07%	2.72%	4.56%	4.77%	5.24%
39	Dec	3.25%	0.07%	2.90%	4.59%	4.81%	5.25%
40	**2014**						
41	Jan	3.25%	0.05%	2.86%	4.44%	4.63%	5.09%
42	Feb	3.25%	0.06%	2.71%	4.38%	4.53%	5.01%
43	Mar	3.25%	0.05%	2.72%	4.40%	4.51%	5.00%
44	Apr	3.25%	0.04%	2.71%	4.30%	4.41%	4.85%
45	May	3.25%	0.03%	2.56%	4.16%	4.26%	4.69%
46	June	3.25%	0.03%	2.60%	4.23%	4.29%	4.73%
47	July	3.25%	0.03%	2.54%	4.16%	4.23%	4.66%
48	Aug	3.25%	0.03%	2.42%	4.07%	4.13%	4.65%
49	Sept	3.25%	0.02%	2.53%	4.18%	4.24%	4.79%
50	Oct	3.25%	0.02%	2.30%	3.96%	4.06%	4.67%
51	Nov	3.25%	0.02%	2.33%	4.03%	4.09%	4.75%
52	Dec	3.25%	0.04%	2.21%	3.90%	3.95%	4.70%

Line No		Prime Rate	US Treasury T Bills 3 Month	US Treasury T Bonds 10 Year	Utility Bonds Aa	Utility Bonds A	Utility Bonds Baa
1	**2015**						
2	Jan	3.25%	0.03%	1.88%	3.52%	3.58%	4.39%
3	Feb	3.25%	0.02%	1.98%	3.62%	3.67%	4.44%
4	Mar	3.25%	0.03%	2.04%	3.67%	3.74%	4.51%
5	Apr	3.25%	0.02%	1.94%	3.63%	3.75%	4.51%
6	May	3.25%	0.02%	2.20%	4.05%	4.17%	4.91%
7	June	3.25%	0.02%	2.36%	4.29%	4.39%	5.13%
8	July	3.25%	0.03%	2.32%	4.27%	4.40%	5.22%
9	Aug	3.25%	0.07%	2.17%	4.13%	4.25%	5.23%
10	Sept	3.25%	0.02%	2.17%	4.25%	4.39%	5.42%
11	Oct	3.25%	0.02%	2.07%	4.13%	4.29%	5.47%
12	Nov	3.25%	0.13%	2.26%	4.22%	4.40%	5.57%
13	Dec	3.50%	0.23%	2.24%	4.18%	4.35%	5.55%
14	**2016**						
15	Jan	3.50%	0.26%	2.09%	4.09%	4.27%	5.49%
16	Feb	3.50%	0.31%	1.78%	3.94%	4.11%	5.28%
17	Mar	3.50%	0.30%	1.89%	3.93%	4.16%	5.12%
18	Apr	3.50%	0.23%	1.81%	3.74%	4.00%	4.75%
19	May	3.50%	0.27%	1.81%	3.65%	3.93%	4.60%
20	Jun	3.50%	0.27%	1.64%			
21	Jul	3.50%	0.30%	1.50%			
22	Aug	3.50%	0.30%	1.56%			
23	Sep	3.50%	0.29%	1.63%			
24	Oct	3.50%	0.33%	1.76%			
25	Nov	3.50%	0.45%	2.14%			
26	Dec	3.75%	0.51%	2.49%			
27	**2017**						
28	Jan	3.75%	0.52%	2.43%			
29	Feb	3.75%	0.53%	2.42%			
30	Mar	4.00%	0.72%	2.48%			
31	Apr	4.00%	0.81%	2.30%			
32	May	4.00%	0.89%	2.30%			
33	Jun	4.25%	0.99%	2.19%			
34	Jul	4.25%	1.08%	2.32%			
35	Aug	4.25%	1.03%	2.21%			
36	Sep	4.25%	1.04%	2.20%			
37	Oct	4.25%	1.08%	2.36%			
38	Nov	4.25%					
39	Dec						

[1] Note: Moody's has not published Aaa utility bond yields since 2001.

Sources: Council of Economic Advisors, Economic Indicators; Moody's Bond Record; Federal Reserve Bulletin; various issues.

STOCK PRICE INDICATORS

Line No	Year	S&P Composite	NASDAQ Composite	DJIA	S&P Dividend/Price Ratio	S&P Earnings/Price Ratio
1	1975			802.49	4.31%	9.15%
2	1976			974.92	3.77%	8.90%
3	1977			894.63	4.62%	10.79%
4	1978			820.23	5.28%	12.03%
5	1979			844.40	5.47%	13.46%
6	1980			891.41	5.26%	12.66%
7	1981			932.92	5.20%	11.96%
8	1982			884.36	5.81%	11.60%
9	1983			1,190.34	4.40%	8.03%
10	1984			1,178.48	4.64%	10.02%
11	1985			1,328.23	4.25%	8.12%
12	1986			1,792.76	3.49%	6.09%
13	1987			2,275.99	3.08%	5.48%
14	1988			2,060.82	3.64%	8.01%
15	1989	322.84		2,508.91	3.45%	7.41%
16	1990	334.59		2,678.94	3.61%	6.47%
17	1991	376.18	491.69	2,929.33	3.24%	4.79%
18	1992	415.74	$599.26	3,284.29	2.99%	4.22%
19	1993	451.21	715.16	3,522.06	2.78%	4.46%
20	1994	460.42	751.65	3,793.77	2.82%	5.83%
21	1995	541.72	925.19	4,493.76	2.56%	6.09%
22	1996	670.50	1,164.96	5,742.89	2.19%	5.24%
23	1997	873.43	1,469.49	7,441.15	1.77%	4.57%
24	1998	1,085.50	1,794.91	8,625.52	1.49%	3.46%
25	1999	1,327.33	2,728.15	10,464.88	1.25%	3.17%
26	2000	1,427.22	2,783.67	10,734.90	1.15%	3.63%
27	2001	1,194.18	2,035.00	10,189.13	1.32%	2.95%
28	2002	993.94	1,539.73	9,226.43	1.61%	2.92%
29	2003	965.23	1,647.17	8,993.59	1.77%	3.84%
30	2004	1,130.65	1,986.53	10,317.39	1.72%	4.89%
31	2005	1,207.06	2,099.03	10,547.67	1.83%	5.36%
32	2006	1,310.67	2,265.17	11,408.67	1.87%	5.78%
33	2007	1,476.66	2,577.12	13,169.98	1.86%	5.29%
34	2008	1,220.89	2,162.46	11,252.61	2.37%	3.54%
35	2009	946.73	1,841.03	8,876.15	2.40%	1.86%
36	2010	1,139.31	2,347.70	10,662.80	1.98%	6.04%
37	2011	1,268.89	2,680.42	11,966.36	2.05%	6.77%
38	2012	1,379.56	2,965.77	12,967.08	2.24%	6.20%
39	2013	1,642.51	3,537.69	14,999.67	2.14%	5.57%
40	2014	1,930.67	4,374.31	16,773.99	2.04%	5.25%
41	2015	2,061.20	4,943.49	17,590.61	2.10%	4.59%
42	2016	2,092.39	4,982.49	17,908.08	2.19%	4.17%

Source: Council of Economic Advisors, Economic Indicators, various issues.
https://www.gpo.gov/fdsys/browse/collection.action?collectionCode=ECONI

Liberty Utilities (Litchfield Park Water & Sewer) Corporation
Test Year Ending December 31, 2016
Docket No. SW-01428A-17-0058

STOCK PRICE INDICATORS

Line No		S&P Composite	NASDAQ Composite	DJIA	S&P Dividends/Price Ratio	S&P Earnings/Price Ratio
1	**2004**					
2	1st Qtr.	1,133.29	2,041.95	10,488.43	1.64%	4.62%
3	2nd Qtr.	1,122.87	1,984.13	10,289.04	1.71%	4.92%
4	3rd Qtr.	1,104.15	1,872.90	10,129.85	1.79%	5.18%
5	4th Qtr.	1,162.07	2,050.22	10,362.25	1.75%	4.83%
6						
7	**2005**					
8	1st Qtr.	1,191.98	2,056.01	10,648.48	1.77%	5.11%
9	2nd Qtr.	1,181.65	2,012.24	10,382.35	1.85%	5.32%
10	3rd Qtr.	1,225.91	2,144.61	10,532.24	1.83%	5.42%
11	4th Qtr.	1,262.07	2,246.09	10,827.79	1.86%	5.60%
12						
13	**2006**					
14	1st Qtr.	1,283.04	2,287.97	10,996.04	1.85%	5.61%
15	2nd Qtr.	1,281.77	2,240.46	11,188.84	1.90%	5.86%
16	3rd Qtr.	1,288.40	2,141.97	11,274.49	1.91%	5.88%
17	4th Qtr.	1,389.48	2,390.26	12,175.30	1.81%	5.75%
18						
19	**2007**					
20	1st Qtr.	1,425.30	2,444.85	12,470.97	1.84%	5.85%
21	2nd Qtr.	1,496.43	2,552.37	13,214.26	1.82%	5.65%
22	3rd Qtr.	1,490.81	2,609.68	13,488.43	1.86%	5.15%
23	4th Qtr.	1,494.09	2,701.59	13,502.95	1.91%	4.51%
24						
25	**2008**					
26	1st Qtr.	1,350.19	2,332.91	12,383.86	2.11%	4.55%
27	2nd Qtr.	1,371.65	2,426.26	12,508.59	2.10%	4.05%
28	3rd Qtr.	1,251.94	2,290.87	11,322.40	2.29%	3.94%
29	4th Qtr.	909.80	1,599.64	8,795.61	2.98%	1.65%
30						
31	**2009**					
32	1st Qtr.	809.31	1,485.14	7,774.06	3.00%	0.86%
33	2nd Qtr.	892.23	1,731.41	8,327.83	2.45%	0.82%
34	3rd Qtr.	996.68	1,985.25	9,229.93	2.16%	1.19%
35	4th Qtr.	1,088.70	2,162.33	10,172.78	1.99%	4.57%
36						
37	**2010**					
38	1st Qtr.	1,121.60	2,274.88	10,454.42	1.94%	5.21%
39	2nd Qtr.	1,135.25	2,343.40	10,570.54	1.97%	6.51%
40	3rd Qtr.	1,096.39	2,237.97	10,390.24	2.09%	6.30%
41	4th Qtr.	1,204.00	2,534.62	11,236.02	1.95%	6.15%
42						
43	**2011**					
44	1st Qtr.	1,302.74	2,741.01	12,024.62	1.85%	6.13%
45	2nd Qtr.	1,319.04	2,766.64	12,370.73	1.97%	6.35%
46	3rd Qtr.	1,237.12	2,613.11	11,671.47	2.15%	7.69%
47	4th Qtr.	1,225.65	2,600.91	11,798.65	2.25%	6.91%
48						
49	**2012**					
50	1st Qtr.	1,347.44	2,902.90	12,839.80	2.12%	6.29%
51	2nd Qtr.	1,350.39	2,928.62	12,765.58	2.30%	6.45%
52	3rd Qtr.	1,402.21	3,029.86	13,118.72	2.27%	6.00%
53	4th Qtr.	1,418.21	3,001.69	13,142.91	2.28%	6.07%
54						
55	**2013**					
56	1st Qtr.	1,514.41	3,177.10	14,000.30	2.21%	5.59%
57	2nd Qtr.	1,609.77	3,369.49	14,961.28	2.15%	5.66%
58	3rd Qtr.	1,675.31	3,643.63	15,255.25	2.14%	5.65%
59	4th Qtr.	1,770.45	3,960.54	15,751.96	2.06%	5.42%
60						
61	**2014**					
62	1st Qtr.	1,834.30	4,210.05	16,170.26	2.04%	5.39%
63	2nd Qtr.	1,900.37	4,195.81	16,603.50	2.06%	5.26%
64	3rd Qtr.	1,975.95	4,483.51	16,953.85	2.02%	5.38%
65	4th Qtr.	2012.04	4607.88	17368.36	2.03%	4.97%
66						
67	**2015**					
68	1st Qtr.	2063.46	4821.99	17806.47	2.02%	4.80%
69	2nd Qtr.	2102.03	5017.47	18007.48	2.05%	4.60%
70	3rd Qtr.	2,026.14	4,921.81	17,065.52	2.16%	4.72%
71	4th Qtr.	2,053.17	5,000.70	17,482.97	2.16%	4.23%
72						
73	**2016**					
74	1st Qtr.	1948.32	4609.47	16,635.76	2.31%	4.20%
75	2nd Qtr.	2074.99	4845.55	17,763.85	2.19%	4.14%
76	3rd Qtr.	2161.36	5165.06	18,367.92	2.13%	4.11%
77	4th Qtr.	2184.88	5309.89	18,864.77	2.13%	4.22%
78						
79	**2017**					
80	1st Qtr.	2323.95	5730.36	20385.12	2.05	4.24
81	2nd Qtr.	2396.22	6087.11	20979.77	2.02	4.29
82	3rd Qtr.	2467.72	6344.72	21889.58		
83	4th Qtr.					

Source: Council of Economic Advisors, Economic Indicators, various issues.
https://www.gpo.gov/fdsys/browse/collection.action?collectionCode=ECONI

PROXY GROUP COMMON EQUITY RATIOS

					Historical					5-Year Average	Projected			5-Year Average	Combined Historical &
	Company	2009	2010	2011	2012	2013	2014	2015	2016	2012-2016	2017	2018	2020-'22	2017-2021	Projected Avg.
1	American States Water Co.	54.1%	55.7%	54.6%	57.8%	60.2%	60.9%	58.9%	60.6%	59.7%	60.0%	58.0%	56.5%	58.2%	58.9%
2	American Water Works Co., Inc	43.1%	43.2%	44.2%	46.1%	47.6%	47.4%	46.2%	47.5%	47.0%	46.5%	45.0%	46.0%	45.8%	46.4%
3	Aqua America, Inc.	44.4%	43.4%	47.3%	47.3%	51.1%	51.5%	49.7%	51.6%	50.2%	53.0%	51.0%	49.0%	51.0%	50.6%
4	Artesian Resources Corp.	46.2%	47.5%	51.5%	52.7%	53.6%	54.5%	56.1%	57.6%	54.9%					54.9%
5	California Water Service Group	52.9%	47.6%	48.3%	52.2%	58.4%	59.9%	55.6%	55.4%	56.3%	55.0%	55.0%	57.0%	55.7%	56.0%
6	Connecticut Water Service, Inc.	49.1%	50.2%	46.5%	50.8%	52.9%	54.1%	55.7%	54.4%	53.6%	53.5%	53.0%	53.5%	53.3%	53.5%
7	Middlesex Water	52.1%	55.8%	56.6%	57.4%	58.7%	58.8%	59.8%	61.5%	59.2%	62.0%	62.0%	62.0%	62.0%	60.6%
8	SJW Corporation	50.6%	46.3%	43.4%	45.0%	48.9%	48.4%	50.2%	49.3%	48.4%	51.0%	51.5%	51.0%	51.2%	49.8%
9	York Water Company	54.3%	51.7%	52.9%	54.0%	54.9%	55.2%	55.6%	57.4%	55.4%	56.5%	56.0%	55.0%	55.8%	55.6%
10	Average	49.6%	49.0%	49.5%	51.5%	54.0%	54.5%	54.2%	55.0%	53.9%	54.7%	53.9%	53.8%	54.1%	**54.0%**

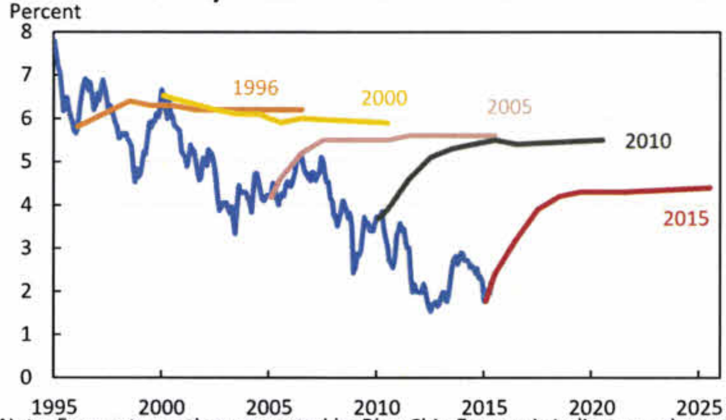
Source: Value Line (October 13, 2017)

EXHIBIT JAC-A

have tended to be inaccurate. Between 1984 and 2012, CBO, private-sector forecasters, and the Administration all systematically overestimated the path of nominal interest rates just two years into the future (CBO 2015a).

Figure 5

10-Year Treasury Rates and Historical Economist Forecasts



Note: Forecasts are those reported by Blue Chip Economic Indicators released in March of the given calendar year, the median of over 50 private-sector economists. Source: Blue Chip Economic Indicators, Aspen Publishers.

A central question in forming a long-run forecast is whether interest rates are statistically stationary—i.e., whether they have a tendency to return to a definite long-run mean value or average. To the extent interest rates are mean-reverting, the historical average may contain the most useful information for projecting the long-run long-term interest rate. On the other hand, if changes in interest rates are permanent (or at least, highly persistent), recent data may contain more useful information about long-run interest rates than historical data. In general, econometric tests suggest that real and nominal interest rates revert to their mean very slowly, with close to unit root (non-stationary)[9] properties.[10] Tests for non-stationarity tend to be weak, however, in that distinguishing between a true unit root and mean reversion with very high persistence is difficult in a finite sample of data (Neely and Rapach 2008).

Economic theory strongly suggests that real interest rates are bounded, if not fully mean reverting (as discussed in more detail in section III).[11] A high return on investment should trigger a reallocation of resources from consumption toward capital accumulation, driving down the marginal product of capital and the real interest rate over time. Similarly, a low return on

[9] A time series is said to contain a unit root if its random changes contain a permanent component. In this case it is statistically non-stationary.

[10] Hamilton et. al. (2015) reject the hypothesis that the real interest rate converges to a fixed constant. The difficulty in predicting the long-run real interest rate leads them to be skeptical of models, like the Ramsey model considered below, that place a strong emphasis on the link between output growth and the real interest rate.

[11] Even when interest rates are mean-reverting, and therefore stationary in the statistical sense, they can be "trend-stationary," reverting to means that evolve deterministically over time rather than being constants. Thus, stationarity of interest rates does not rule out the possibility that they trend upward or downward over long periods as a result of somewhat predictable, secular economic forces.

EXHIBIT JAC-B

LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.
DOCKET NO. SW-01427A-17-0058, *et al.*
RESPONSE TO RUCO'S FIFTH SET OF DATA REQUESTS

October 6, 2017

Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85392

Company Response Number: 5.01

Q. Capital Structure – Please provide the capital structure for (1) the Company's ultimate parent, Algonquin Power and Utilities Corporation ("Algonquin"), (2) the Company's immediate parent, Liberty Utilities Corporation, and (3) Litchfield Park Water & Sewer Company as of the following dates: (i) December 31, 2012, (ii) December 31, 2013, (iii) December 31, 2014, (iv) December 31, 2015 and (v) December 31, 2016.

OBJECTION: This is a rate case for Liberty Litchfield Park and only its test year and pro forma capital structures are reasonably calculated to lead to the discovery of admissible evidence. Moreover, RUCO has information on the Company's test year capital structure and the 3 prior years as such information is included in the Company's direct schedules. Finally, RUCO has access to the Company's annual reports in which the information requested regarding the Company is publicly available.

Response: Notwithstanding its objection, the Company refers RUCO to the response to data request RUCO 3.03.

SUPPLEMENTAL RESPONSE: See the attached file APUC Cap Structure 2016-2012.xlsx. The documents regarding Liberty Utilities (Sub) Corp. were previously provided on August 12, 2017 and August 18, 2017.

LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.
DOCKET NO. SW-01427A-17-0058, *et al.*
RESPONSE TO RUCO'S FIFTH SET OF DATA REQUESTS

August 1, 2017

Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85392

Company Response Number: 5.02

Q. 5-Year Capital Budget – Please provide a breakout of the Company's projected capital investment projects over the 5-year period, 2017-2021, for both the (1) Water Division and (2) Wastewater Division.

RESPONSE: Please refer to the file supplied in response to Staff data request TBH 3.3.

LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.
DOCKET NO. SW-01427A-17-0058, *et al.*
RESPONSE TO RUCO'S FIFTH SET OF DATA REQUESTS

August 1, 2017

Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85392

Company Response Number: 5.03

Q. Financing Application – As stated in the Company's Financing Application (pp. 2-3, lines 22:4), the purpose of the requested financing is to effectuate a rebalancing of the Company's capital structure from its present 100 percent equity structure to a capital structure consisting of 70 percent equity and 30 percent debt. As further stated in the Financing Application, the Company seeks authority to issue debt in an amount not to exceed $30,000,000; however, as shown in Schedule D-1 of the Company's Rate Application, the amount of long-term debt anticipated to be drawn down at closing is $23,540,493. In light of the above, please respond to the following:

1) As contemplated in the Company's Rate Application, indicate the reason(s) why the Company does not plan to initially draw down the entire $30,000,000 requested debt authorization, at closing; and
2) Indicate when (i.e., the date) the Company anticipates the entire $30,000,000 requested financing authority to be drawn down.

RESPONSE: The Company's intent is a balanced capital structure consisting of 30 percent debt and 70 percent equity. For ratemaking purposes, these amounts would need to be synchronized not only to the rate base approved in this proceeding but also additional rate base to be effected by incremental investments in plant subsequent to this proceeding. The Company's proposed rate base is approximately $86.8 million, 30 percent of which is approximately $26 million. For these reasons, the Company seeks authority to incur debt up to $30 million.

LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.
DOCKET NO. SW-01427A-17-0058, *et al.*
RESPONSE TO RUCO'S FIFTH SET OF DATA REQUESTS

August 1, 2017

Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85392

Company Response Number: 5.04

Q. Company Proposed 10.7 percent ROE – In its rate Application, the Company proposes a 10.7 percent cost of equity for LPSCO. Admit that at an Investor Presentation made at the J.P. Morgan Energy Equity Conference held in New York on June 26-28, 2017, Algonquin indicated that the regulated ROEs for Liberty Utilities are currently between 9%-10%.

RESPONSE: Admit. Per the J.P Morgan Energy Equity Conference held in New York on June 26-28, 2017, Algonquin indicated that the ROEs for Liberty Utilities are currently between 9%-10%.

Retrieved from https://seekingalpha.com/article/4084640-algonquin-power-and-utilities-aqn-presents-j-p-morgan-energy-equity-investor-conference

EXHIBIT JAC-C

LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.
DOCKET NO. SW-01427A-17-0058, *et al.*
RESPONSE TO RUCO'S TWELFTH SET OF DATA REQUESTS

November 2, 2017

Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85392

Company Response Number: 12.01

Q. Capital Structure – Algonquin Power & Utilities Corporation ("APUC") is the ultimate parent of Liberty Utilities (Litchfield Park Water & Sewer) Corp. In its 2016 Annual Report (*See* Algonquin Power and Utilities Corporation, 2016 Annual Report, p.54), APUC states that in regard to the management of capital structure, APUC's objectives include:

(i) The maintenance of its capital structure "consistent with investment grade credit metrics appropriate to the sectors in which APUC operates;" and
(ii) The maintenance of "appropriate debt and equity levels in conjunction with standard industry practices and to limit financial constraints on the use of capital."

Additionally, APUC states that it "continually reviews its capital structure to ensure its individual business groups are using a capital structure which is appropriate for their respective industries."

In light of the above, and given the Company's proposed 70 percent equity / 30 percent debt capital structure, please respond to the following:

1) Is it the Company's assertion that the maintenance of a 70 percent equity / 30 percent debt capital structure is consistent with the investment grade credit metrics appropriate for a capital intensive, regulated water / wastewater public service corporation?
   a) If "yes," provide support for such an assertion;
   b) If "no," admit that the Company's proposed 70 percent equity / 30 percent debt capital structure is inconsistent with the above noted objective appearing in APUC's 2016 Annual Report;

Response: The Company has not made an assertion in this case on whether a 70/30 capital structure "is consistent with the investment grade credit metrics appropriate for a capital intensive, regulated water/wastewater public service corporation" as stated in this question. As authorized in recent ACC decisions and as stated in the Company's filings, the Company asserts that a 70/30 capital structure is appropriate for Liberty Litchfield Park. The Company denies that its proposed capital structure is inconsistent with the above-noted objective statements from APUC's 2016 Annual Report.

2) Is it the Company's assertion that maintaining equity and debt at levels of 70 percent and 30 percent, respectively, is standard industry practice within the water / wastewater utility industry?
   a) If "yes," provide support for such an assertion;
   b) If "no," admit that the Company's proposed 70 percent equity / 30 percent debt capital structure is <u>inconsistent</u> with the above noted objective appearing in APUC's 2016 Annual Report;

Response: The Company has not made an assertion in this case on whether a 70/30 capital structure "is standard industry practice within the water/wastewater utility industry" as stated in this question. As authorized in recent ACC decisions and as stated in the Company's filings, the Company asserts that a 70/30 capital structure is appropriate for Liberty Litchfield Park. The Company further denies that its proposed capital structure is inconsistent with the above-noted objective statements from APUC's 2016 Annual Report.

3) Provide a schedule listing all APUC individual business groups, and for each individual business group indicate:
   a) The name of each operating subsidiary within the individual business group;
   b) The respective industry for each operating subsidiary;
   c) If the operating subsidiary is regulated or non-regulated; and

Objection: The Company objects to this data request because it is overly broad and unduly burdensome and does not appear to be reasonably calculated to lead to the discovery of admissible evidence in this rate case. Additionally, the requested "schedule" is not presently available and the Company is not obligated to prepare "schedules" for RUCO as part of the discovery process.

Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85392

Response: Without waving such objections, the Company responds that the business groups of APUC are listed and described in APUC's 2016 Annual Report, including the respective industries for each group and whether regulated or unregulated.

4) Indicate if the Company agrees with the general proposition that business risk is greater for APUC's non-regulated operating subsidiaries than for than APUC's regulated operating subsidiaries;
   a) If "yes," admit that the appropriate capital structure of APUC's non-regulated operating subsidiaries would necessitate a higher equity component than the capital structure of APUC's regulated operating subsidiaries,
   b) If "no," provide support (i.e., published academic research or journal articles) demonstrating that firms operating in competitive, non-regulated industries face lower business risk exposure than regulated public utilities who are the sole service provider in their certificated service territory.

Objection: The Company objects to this data request because it constitutes inappropriate discovery. Specifically, RUCO advances an unsupported "general proposition" with which the Company appears unable to disagree unless it provides independent support for its disagreement. If RUCO wishes to advance a proposition in its testimony, the Company can then choose how to respond and what support to provide to support its response. This question also is conclusory, vague, confusing and can't be accurately answered as is without further clarification from RUCO.

LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.
DOCKET NO. SW-01427A-17-0058, *et al.*
RESPONSE TO RUCO'S TWELFTH SET OF DATA REQUESTS

November 2, 2017

Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85392

Company Response Number: 12.02

Q. APUC – Admit or Deny the following regarding APUC, Liberty Litchfield Park's ultimate parent (See attached Exhibit A):

1) From 2012-2016, APUC's long-term debt has grown at a compound average annual rate of 50.1 percent;

Response: Admit.

2) From 2012-2016, APUC's preferred stock has grown at a compound average annual rate of 16.4 percent; and

Response: Admit.

3) From 2012-2016, APUC's common equity has grown at a compound average annual rate of 15.3 percent.

Response: Deny, the compound average growth in shareholder equity, exclusive of preferred shares, during the period of 2012-2016 approximates 15.7%.

LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.
DOCKET NO. SW-01427A-17-0058, *et al.*
RESPONSE TO RUCO'S TWELFTH SET OF DATA REQUESTS

November 2, 2017

Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85392

Company Response Number: 12.03

Q. Capital Structure – Liberty Litchfield Park currently has a 100 percent equity capital structure. In direct testimony, Company witness Mr. Gerald W. Becker includes a brief discussion (*See* Becker Direct, pp. 38-39) of the Company's request for approval of debt financing in an amount up to $26.2 million. As noted by Mr. Becker,

> "The purpose of the requested financing approval is for the Company to infuse debt into the Company's capital structure, resulting in a *more balanced* 70 percent equity and 30 percent debt capital structure. *This is part of an effort to modify and maintain each of the Arizona operating utilities at 70 percent equity and 30 percent debt...*" (emphasis added)

In light of the above, admit that the '*more balanced*' 70 percent equity / 30 percent debt capital structure proposed by the Company for Liberty Litchfield Park is not the equivalent of a *balanced capital structure.*

Response: Deny. See the responses to data requests 12.01(1) and 12.01(2) above.

November 2, 2017

Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85392

Company Response Number: 12.04

Q. Capital Structure – Access to Capital – The direct testimony of Company witness, Mr. Gerald W. Becker addresses Liberty Utilities shared services model and proposed cost allocations. Mr. Becker states that the Company has proposed corporate cost allocations from APUC and Liberty Utilities Canada totaling approximately \$1.2 million (Becker Direct, p.36, lines 19-20), and justifies recognition of these allocated costs, in part, on grounds that APUC provides access to capital for Liberty Litchfield Park, referring to it as a "significant benefit" to Liberty Litchfield Park and her sister Arizona companies (Becker Direct, pp. 17-18, lines 21:10). Mr. Becker points out that because APUC common shares are traded on both the Toronto and New York exchanges, this "ensures that Liberty Litchfield Park has uninterrupted access to capital." Mr. Becker concludes (Becker Direct, p. 19, lines 10-13) with the observation that "APUC's presence on the stock exchanges is the means by which Liberty Utilities obtains capital for investment and *I do not think anyone disputes that APUC's access to capital is a benefit to Liberty Litchfield Park and its customers in Arizona*." (emphasis added).

In light of the above, admit that until such time the Company proposes a balanced capital structure for Liberty Litchfield Park, ratepayers have derived little or no benefit from APUC having access to the capital markets.

Response: Deny. It is undisputed that customers derive substantial benefits from access to capital without which the Company could not build, maintain and construct necessary plant and facilities in providing adequate and reliable utility service to customers. In various ACC dockets, the Commission, Commission Staff and RUCO all acknowledged, agreed and determined that customers benefit from Liberty Utilities access to capital for its regulated utilities. *See* ACC Decision No. 75510 (Liberty Black Mountain) at 11 ("The Parties agree that Liberty Black Mountain's ability to access capital through APUC, a publicly traded company on the TSX, is a benefit to customers…."); Comprehensive Settlement Agreement (Liberty Black Mountain), Docket Nos. 15-0206 and 15-0207 at §2.3.2.1 (signed by RUCO, Staff and Liberty Black Mountain) ("Customers of Liberty Black Mountain benefit from Liberty Black Mountain's access to capital through its ultimate parent entity, APUC…."); ACC Decision No. 75809 (Liberty Bella Vista/Liberty Rio Rico) at 10 ("The parties agree that Liberty's ratepayers benefit from the ability to access capital through APUC, a publicly traded company on the TSX."); Comprehensive Settlement Agreement (Liberty Bella Vista/Liberty Rio Rico), Docket Nos. 15-0367, 15-0370, 15-0368, and 15-0371, at §3.3.3 (signed by RUCO, Staff and Liberty Black Mountain) ("Customers of Liberty Bella Vista, Liberty Rio Rico, Liberty Black Mountain, Liberty Entrada Del Oro, Liberty Gold Canyon, Liberty Litchfield Park, and any other water and sewer utility that may be acquired by Liberty Utilities in Arizona benefit from each entity's access to capital through their ultimate parent entity, APUC, which is publicly traded on the Toronto Stock Exchange ("TSX")…)".

November 2, 2017

Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85392

Company Response Number: 12.05

Q. APUC Dividend Yield, Dividend Payout and Growth Metrics – Admit or Deny the following:

1) Admit that the current dividend yield (as of COM Oct. 20, 2017) on APUC common stock (ticker AQN) is currently 4.32 percent, a figure more than 2x the average dividend yield on publicly traded stocks in the domestic U.S. water utility industry;

Response: APUC's dividend yield speaks for itself. The Company can't answer this question without further details on RUCO's definition of "publicly traded stocks in the domestic U.S. water utility industry." As set forth in its 2016 Annual Report, APUC owns regulated and unregulated businesses across North America, including green and clean energy assets such hydroelectric, wind, thermal, and solar power facilities, as well as utility distribution businesses (water, wastewater, electric and natural gas) through its two operating subsidiaries, Algonquin Power Company and Liberty Utilities. Given the diversity of its operations with both regulated and unregulated businesses, comparing APUC to publicly traded companies only operating in the regulated U.S. water utility industry as suggested in this question is not appropriate.

2) Admit that over the 5-year period, 2012-2016, APUC has experienced an average dividend payout ratio of 140.5 percent;

Response: Deny. APUC's dividend payout ratio using a traditional payout calculation of dividends to earnings has averaged approximately 200% (see table below) from 2012-2016. Increase in the scale of APUC's business and increase in utility rate base has increased depreciation thereby decreasing earnings and inflating the payout ratio based on earnings. Given APUC's goal to grow the business through reinvestment and acquisition, the more appropriate metric to measure dividend payout would be dividends to cash provided by operating activities. This metric has averaged 58% over the 2012-2016 time period, thereby allowing APUC

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to maintain its dividend yield while reinvesting funds for future growth and development.

Algonquin Power & Utilities Corp						
(all amounts in CA $millions)	2016	2015	2014	2013	2012	Avg Payout
Cash Provided by operating activities	$ 287.3	$ 261.9	$ 192.7	$ 98.9	$ 63.0	
Dividends declared to common shareholders	$ 149.2	$ 124.8	$ 82.9	$ 68.3	$ 50.2	
Payout ratio	52%	48%	43%	69%	80%	58%
Net earnings attributable to shareholders	$ 130.9	$ 117.5	$ 75.7	$ 20.3	$ 14.5	
Dividends declared to common shareholders	$ 149.2	$ 124.8	$ 82.9	$ 68.3	$ 50.2	
Payout ratio	114%	106%	110%	336%	346%	202%

3) Admit that over the period, 2012-2016, the dividend paid on APUC common stock has experienced compound average growth of 16.4 percent per annum, a growth rate more than 2x greater than the average dividend growth rate experienced by publicly traded stocks in the domestic U.S. water utility industry over this same period;

Response: See response to data request 12.05(1) above.

4) Admit that APUC plans to maintain a dividend growth rate of 10.0 percent through the year 2021, and

Response: Admit.

5) Admit that the metrics noted in 1-4, above, benefit APUC shareholders, not Liberty Litchfield Park ratepayers.

Response: Deny. See response to data request 12.04 above. As noted above, customers of Liberty Litchfield Park derive substantial benefits from APUC's financial metrics, including access to capital and low cost debt. Absent such metrics, any increased cost of equity and debt for APUC and its operating subsidiaries, such as Liberty Litchfield Park, would be passed on to customers in the form of higher costs and higher utility rates.

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Company Response Number: 12.06

Q. Capital Structure – Provide a listing of all other water and sewer utilities owned by the parent company of Liberty Utilities (Litchfield Park Water & Sewer) Corporation. For each utility provide the following:

a. Most recent rate case, including (i) state of jurisdiction and (ii) docket number;
b. Final determination of capital structure;
c. Cost of debt;
d. Authorized cost of equity;
e. Indicate whether the proceeding was settled or litigated; and
f. The date of the final order for the most recent rate case for each water or sewer utility.

Response: Liberty Utilities (Sub) Corp. is the parent entity of Liberty Litchfield Park, and also is the parent for five other regulated utilities in Arizona and three regulated utilities in Texas. RUCO was a party in all of the most recent rate cases for the Arizona utilities, except for Liberty Entrada Del Oro. RUCO can review the ACC decisions cited below for itself as those decisions are publicly available on E-docket.

Liberty Utilities (Bella Vista Water) Corp. -- ACC Decision No. 75809 (70/30 capital structure)
Liberty Utilities (Black Mountain Sewer) Corp. – ACC Decision No. 75510 (70/30 capital structure)
Liberty Utilities (Entrada Del Oro Sewer) Corp. – ACC Decision No. 76019 (70/30 capital structure)
Liberty Utilities (Gold Canyon Sewer) Corp. – ACC Decision No. 70624 (60/40 capital structure)
Liberty Utilities (Rio Rico Sewer & Water) Corp. -- ACC Decision No. 75809 (70/30 capital structure)

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Liberty Utilities (Sub) Corp. also is the parent to three regulated companies in Texas. The last rate cases decisions for each company are noted below.

Liberty Utilities (Tall Timbers Sewer) Corp. – Tall Timbers Utility Company, Inc. n/k/a Liberty Utilities (Tall Timbers Sewer) Corp. filed a rate application with the Texas Commission on Environmental Quality, Docket No. 2009-1381-UCR, in April 2009 with 100% equity and 12.0% ROE. That case was settled with rates effective July 2010. Liberty Tall Timbers currently has a rate case pending before the Texas Public Utilities Commission under Docket No. 46256. A settlement has been reached in that case, but has not been finalized yet.

Liberty Utilities (Silverleaf Water) LLC – Algonquin Water Resources of Texas, LLC n/k/a/ Liberty Silverleaf filed a rate application in October 2009 with the Texas Commission on Environmental Quality, Docket No.2009-2087-UCR with 100% equity and 12.0% ROE. That case was settled with rates effective May 13, 2010.

Liberty Utilities (Woodmark Sewer) Corp. – Woodmark Utilities, Inc. n/k/a Liberty Utilities (Woodmark Sewer) Corp. filed a rate application with the Texas Commission on Environmental Quality, Docket No. 2014-0064-VCR, in June 2013 with 100% equity and 12.0% ROE. That case was settled with rates effective September 16, 2013. Liberty Woodmark currently has a rate case pending before the Texas Public Utilities Commission under Docket No. 46256. A settlement has been reached in that case, but has not been finalized yet.

EXHIBIT JAC-D

LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.
DOCKET NO. SW-01427A-17-0058, *et al.*
RESPONSE TO RUCO'S FOURTEENTH SET OF DATA REQUESTS

November 22, 2017

Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
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Company Response Number: 14.01

Q. APUC – In response to RUCO 12.02(3), the Company denies that the compound average growth rate in APUC common stock was 15.3 percent over the 4-year period, 2012-2016, and instead asserts that the compound average growth in shareholder equity, "exclusive of preferred shares," over this 4-year period "approximates 15.7%." Please provide (1) a schedule detailing the Company's calculation of this 15.7% approximate growth rate, and (2) an explanation as to why the Company elected to make its calculation exclusive of APUC preferred shares.

OBJECTION: The Company is not responsible for the preparation of schedules to prove or disprove calculations made by RUCO in another data request.

RESPONSE: Without waiving its objection, the Company excluded preferred shares from its response to RUCO 12.02(3) because RUCO 12.02(3) asked the Company to admit that "[f]rom 2012-2016, APUC's common equity has grown at a compound average annual rate of 15.3 percent." See attached RUCO 14.01.xlsx.

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Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

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Company Response Number: 14.02

Q. Permanent Capital – Admit that (i) long-term debt, (ii) preferred stock, and (iii) common stock are all forms of permanent capital.

OBJECTION: The Company cannot admit or deny because the term "permanent capital" is vague and not clearly defined.

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Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

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Company Response Number: 14.03

Q. Capital Structure – In response to RUCO 12.06, the Company states that Liberty Utilities (Sub) Corp. is the "parent entity" of six regulated utilities in Arizona and three additional regulated utilities in Texas. Among the three Texas utilities identified, the Company's response states that two of these Texas utilities – Liberty Utilities (Woodmark Sewer) Corp. and Liberty Utilities (Tall Timbers Sewer) Corp. – currently have a rate case pending before the Texas Public Utility Commission (Docket No. 46256).

In light of the above, please respond to the following:

1) Admit that in the pending Liberty Utilities (Woodmark Sewer) Corp. and Liberty Utilities (Tall Timbers Sewer) Corp. rate docket, Liberty proposes a 30% debt / 70% equity capital structure;

OBJECTION: The Company is not responsible for the rate case filings of Liberty Utilities (Tall Timbers Sewer) Corp. and Liberty Utilities (Woodmark Sewer) Corp. in Texas. The rate case filings by Liberty Tall Timbers and Liberty Woodmark in Texas Public Commission Docket No. 46256 speak for themselves relating to the proposed capital structures of Liberty Tall Timbers and Liberty Woodmark in that pending Texas rate case.

RESPONSE: Without waiving its objection, the Company admits that the rate case application filed by Liberty Tall Timbers and Liberty Woodmark included a proposed 70% equity and 30% equity capital structure. That Texas rate case is subject to a pending settlement and the parties in that rate case propose that the Texas PUC approve the settlement.

2) Admit that Texas PUC Staff witness, Ms. Emily Sears, CRRA, recommends use of a hypothetical 46.28% debt / 53.72% equity capital structure, on grounds that (i) a capital structure should be "representative of the industry

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norm," (ii) a capital structure should be an "efficient use of capital;"(iii) use of a capital structure outside the range of the industry norm capital structure results in "an overstated overall rate of return," and (iv) Liberty's proposed 30% debt / 70% equity capital structure is "not representative of current capital structures among water utility distribution systems and is an inefficient use of capital." (*See* Direct Testimony of Emily Sears, CRRA, pp. 10-11, lines 16:6) http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/46256_1662_943530.PDF ;

OBJECTION: Data requests concerning the testimony of witnesses for adverse parties in another rate case in another state involving another company in a rate case that was settled are not materially calculated to lead to the discovery of admissible evidence in this rate case and that testimony speaks for itself and says what it says as a matter of public record in Texas.

3) Admit that the Texas PUC Staff recommends a cost of equity for Liberty Woodmark and Liberty Tall Timbers of 8.83% (See Direct Testimony of Emily Sears, CRRA, p. 7, line 10);

OBJECTION: Data requests concerning the testimony of witnesses for adverse parties in another rate case in another state involving another company in a rate case that was settled are not materially calculated to lead to the discovery of admissible evidence in this rate case and that testimony speaks for itself and says what it says as a matter of public record in Texas. Further, that Texas rate case is subject to a pending settlement and the parties in that rate case propose that the Texas PUC approve the settlement.

4) Admit that Office of Public Utility Counsel (OPUC) witness, Ms. Anjuli Winker, recommends a hypothetical capital structure of 50% debt / 50% equity. (*See* Direct Testimony of Anjuli Winker, p. 20, lines 1-6) http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/46256_1629_941282.PDF ; and

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OBJECTION: Data requests concerning the testimony of witnesses for adverse parties in another rate case in another state involving another company in a rate case that was settled are not materially calculated to lead to the discovery of admissible evidence in this rate case and that testimony speaks for itself and says what it says as a matter of public record in Texas.

5) Admit that Office of Public Utility Counsel (OPUC) recommends a cost of equity for Liberty Woodmark and Liberty Tall Timbers of 8.50% (*See* Direct Testimony of Anjuli Winker, p. 20, line 13).

OBJECTION: Data requests concerning the testimony of witnesses for adverse parties in another rate case in another state involving another company in a rate case that was settled are not materially calculated to lead to the discovery of admissible evidence in this rate case and that testimony speaks for itself and says what it says as a matter of public record in Texas. Further, that Texas rate case is subject to a pending settlement and the parties in that rate case propose that the Texas PUC approve the settlement.

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Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

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Avondale, AZ 85392

Company Response Number: 14.04

Q. Capital Structure – In Direct Testimony filed in the Liberty Woodmark and Liberty Tall Timbers rate filing with the Texas PUC (Docket No. 46256), Mr. Matthew Garlick states that "Liberty Utilities Co. ("Liberty Utilities") is a Delaware corporation that operates regulated gas, water, sewer and electric utilities in eleven states—Arizona, Arkansas, California, Georgia, Illinois, Iowa, Massachussetts, Missouri, Montana, New Hampshire and Texas." (See Garlick Direct, p. 5, lines 1-5) He then goes on to state that while Liberty Woodmark and Liberty Tall Timbers presently have capital structures of 100 percent equity, "[w]e are seeking to *standardize the capital structure of the Texas operating utilities at 70 percent equity and 30 percent debt in line with our utilities in other states*." (See Garlick Direct, p. 20, lines 7-9) http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/46256_2_909228.PDF

In light of the above, please respond to the following:

1) Admit that in a recent Liberty Utilities rate filing before the Arkansas Public Utility Commission (Arkansas PUC Docket No. 14-020-U), Liberty Utilities (Pine Bluff) Corp., a regulated water distribution service utility, **proposed** a capital structure consisting of 45% debt / 55% equity.

OBJECTION: This data request is not materially calculated to lead to the discovery of admissible evidence in this rate case. Additionally, RUCO is assuming facts not in evidence – to wit – that Mr. Garlick's referenced testimony was referring to the standardization of the capital structures of all affiliated companies under Liberty Utilities when Mr. Garlick was actually referring to standardization of the capital structures of the entities for which he is President, those located in Arizona and Texas. On that issue, RUCO misconstrues and misstates Mr. Garlick's testimony. On page 1 of his testimony in the Liberty Tall Timbers and Liberty Woodmark rate cases, Mr. Garlick stated "[o]n June 1, 2015, I became President of the Liberty Utilities regulated utilities in Arizona and Texas….I am responsible for Liberty Utilities' water and sewer operations in Texas and Arizona." Mr. Garlick doesn't have any knowledge or responsibility for the capital structures for any affiliated Liberty Utilities entities outside of those two states. Thus, Mr. Garlick's statement on page 20 of his Texas testimony that "[w]e are seeking to standardize the capital structure of the Texas operating utilities at 70 percent equity and 30 percent debt in line with our utilities in other states" refers to the recently approved capital structures of certain Arizona affiliates at 70 percent equity and 30 percent debt, including Liberty Black Mountain, Liberty Entrada Del Oro, Liberty Rio Rico and Liberty Bella Vista. Finally, the referenced filing of the affiliate in Arkansas speaks for itself and says what it says as a matter of public record in Arkansas.

2) Admit that the cost of capital witness proposing this 45% debt / 55% equity capital structure on behalf of Liberty Pine Bluff was Mr. Thomas J. Bourassa (*See* Bourassa Cost of Capital Direct, p. 4, lines 18-19) http://www.apscservices.info/pdf/14/14-020-u_32_1.pdf ;

OBJECTION: This data request is not materially calculated to lead to the discovery of admissible evidence in this rate case. The referenced filing of the affiliate in Arkansas, including testimony on cost of capital, speaks for itself and says what it says as a matter of public record in Arkansas.

3) Admit that Mr. Bourassa's proposed cost of equity for Liberty Pine Bluff was 10.5 percent (See Bourassa Cost of Capital Direct, pp. 3-4, lines 24:1), a figure 20 basis points **lower** than the 10.7 percent cost rate proposed by Mr. Bourassa in the instant docket when proposing a 30% debt / 70% equity capital structure for Liberty Litchfield Park;

OBJECTION: This data request is not materially calculated to lead to the discovery of admissible evidence in this rate case. The referenced filing of the affiliate in Arkansas, including testimony on cost of capital, speaks for itself and says what it says as a matter of public record in Arkansas.

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4) Admit that the Arkansas PUC Staff recommended a capital structure for Liberty Pine Bluff consisting of 46% long-term debt, 3% short-term debt, and 51% equity (*See* Direct Testimony of Robert Daniel, pp. 18-19) http://www.apscservices.info/pdf/14/14-020-U_61_1.pdf

OBJECTION: Data requests concerning the testimony of witnesses for adverse parties in another rate case involving another company that was settled in another state are not materially calculated to lead to the discovery of admissible evidence in this rate case and that testimony speaks for itself and says what it says as a matter of public record in Arkansas.

5) Admit that the Arkansas PUC Staff recommended a cost of equity of 9.35% for Liberty Pine Bluff (*See* Direct Testimony of Robert Daniel, p. 5, line 13);

OBJECTION: Data requests concerning the testimony of witnesses for adverse parties in another rate case involving another company that was settled in another state are not materially calculated to lead to the discovery of admissible evidence in this rate case and that testimony speaks for itself and says what it says as a matter of public record in Arkansas.

6) Admit that in a settlement agreement, Liberty Pine Bluff agreed to the Arkansas PUC Staff's recommended (i) capital structure (46% L-T debt, 3% S-T debt, and 51% equity) and (ii) cost of equity (9.35%), as detailed in the Surrebuttal Testimony filed by Mr. Robert Daniel on January 20, 2015 (*See* Settlement Testimony of Mr. Robert Booth, p. 3, lines 9-12) http://www.apscservices.info/pdf/14/14-020-u_106_1.pdf;

OBJECTION: Data requests concerning a settlement agreement in another rate case in another state are not materially calculated to lead to the discovery of admissible evidence in this rate case and that testimony speaks for itself and says what it says as a matter of public record in Arkansas.

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7) Admit that in a recent Liberty Utilities rate filing before the New Hampshire Public Utility Commission (New Hampshire PUC Docket No. DG 14-180), Liberty Utilities (EnergyNorth Natural Gas) Corp., a regulated natural gas distribution service utility, **proposed** a capital structure consisting of 45% debt / 55% equity (*See* Direct Testimony of Robert B. Hevert, p. 3, line 4-5) https://www.puc.nh.gov/regulatory/Docketbk/2014/14-180/INITIAL%20FILING%20-%20PETITION/14-180%202014-08-01%20ENGI%20DBA%20LIBERTY%20DTESTIMONY%20R%20HEVERT.PDF ;

OBJECTION: This data request is not materially calculated to lead to the discovery of admissible evidence in this rate case. The referenced filing of the affiliate in New Hampshire, including testimony on cost of capital, speaks for itself and says what it says as a matter of public record in New Hampshire.

8) Admit that in an earlier Liberty Utilities rate filing before the New Hampshire Public Utility Commission (New Hampshire PUC Docket No. DE 13-063), Liberty Utilities (Granite State Electric) Corp., a regulated electric distribution service utility, **proposed** a capital structure consisting of 45% debt / 55% equity (*See* Direct Testimony of Robert V. Hevert, p. 2, lines 16-17)
https://www.puc.nh.gov/regulatory/Docketbk/2013/13-063/INITIAL%20FILING%20-%20PETITION/13-063%202013-03-29%20GSEC%20DBA%20LIBERTY%20DIRECT%20TESTIMONY%20HEVERT%20PERM%20RATES.PDF ;

OBJECTION: This data request is not materially calculated to lead to the discovery of admissible evidence in this rate case. The referenced filing of the affiliate in New Hampshire, including testimony on cost of capital, speaks for itself and says what it says as a matter of public record in New Hampshire.

9) In light of the above, provide a detailed explanation as to why Liberty Litchfield Park ratepayers should be expected to pay rates based upon the

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Company's proposed 30% debt / 70% equity capital structure when Liberty Utilities proposes a 45% debt / 55% equity capital structure in other states;

OBJECTION: This data request is not materially calculated to lead to the discovery of admissible evidence in this rate case. For one thing, customers pay for utility service. Moreover, this rate case involves a utility operating in Arizona and the persons responsible for the filing of this rate case on behalf of the Company do not have any knowledge or information regarding the capital structures or costs of capital for any Liberty Utilities affiliates operating outside of Arizona and Texas.

10) Explain why Liberty Utilities is not seeking to "standardize" the 30% debt / 70% equity capital structure in New Hampshire and Arkansas;

OBJECTION: This data request is not materially calculated to lead to the discovery of admissible evidence in this rate case. This rate case involves a utility operating in Arizona and the persons responsible for the filing of this rate case on behalf of the Company do not have any knowledge of or information regarding the capital structures or costs of capital for any Liberty affiliates operating outside of Arizona and Texas.

RESPONSE: Without waiving its objection, the Company responds as follows. See response to RUCO 14.04(1) above.

11) Is standardization of a 30% debt / 70% equity capital structure in other states the basis of the Company's recommended capital structure in this Arizona docket, please explain?; and

OBJECTION: This data request is not materially calculated to lead to the discovery of admissible evidence in this rate case. This rate case involves a utility operating in Arizona and the persons responsible for the filing of this rate case on behalf of the Company do not have any knowledge of or information regarding the capital structures or costs of capital for any Liberty affiliates operating outside of Arizona and Texas.

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RESPONSE: Without waiving its objection, the Company responds as follows. No, see response to RUCO 14.04(1) above. Further, the Company's reasons for its proposed capital structure are explained in its application.

12) Admit that rates based upon the Company's proposed 30% debt / 70% equity capital structure would mean that Liberty Litchfield Park ratepayers would subsidize the investment returns for APUC's higher risk, non-regulated operations. If denied, please explain.

RESPONSE: Deny. The Company's proposed rates and capital structure are not premised on subsidizing returns for operations of unregulated affiliates within the APUC group of companies. There also isn't any evidence or facts supporting this assertion and this request assumes facts not in evidence. The Company explains its proposed 70/30 capital structure in its rate case application filing and associated testimony in this case. Liberty Litchfield Park's proposed rates are based on the Company's costs of service.

EXHIBIT JAC-E

LIBERTY UTILITIES (LITCHFIELD PARK WATER & SEWER) CORP.
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Respondent: Liberty Utilities (Litchfield Park Water & Sewer) Corp.

Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85392

Company Response Number: 15.01

Q. Capital Structure – On January 1, 2017, APUC completed the acquisition of Empire District Electric Company ("Empire"), a rate-regulated water, gas and electric utility serving 218,000 customers in Missouri, Arkansas, Oklahoma, and Kansas (See APUC 2016 Annual Report, p. 5). The Empire acquisition has necessitated regulatory filings by Liberty Utilities in at least two of those states (i.e., Missouri and Arkansas), and a review of the docket in those two jurisdictional states indicate that Mr. Peter Eichler, APUC Vice-President of Strategic Planning, filed direct written testimony discussing matters relating to the acquisition. In each docket, Mr. Eichler's pre-filed direct testimony states, among other things, the following:[1]

(i) Liberty Utilities (Central) Co. ("LU Central"), a wholly-owned subsidiary of Liberty Utilities, is the holding company formed to complete the acquisition of Empire, and upon close of the transaction Empire will become a wholly-owned subsidiary of LU Central;
(ii) The total purchase price paid by LU Central for Empire is $2.4 billion, which represents a $34 price for each share of outstanding Empire common stock;
(iii) The $34 share price represents a 21% premium over the closing market price of Empire stock on February 8, 2016;
(iv) LU Central will **not**, in any future rate proceeding, seek recovery of any of the premium paid for Empire common shares;
(v) LU Central will account for the 21% acquisition premium as, goodwill; and

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[1] *See* Direct Testimony of Peter Eichler (pp. 1-4; pp. 7-9), filed on behalf of Liberty Utilities (Central) Co., before the Missouri Public Service Commission (Docket No. EM-2016-0213) https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=EM-2016-0213&attach_id=2017004086; and
See Direct Testimony of Peter Eichler (pp. 2-5; pp. 9-10), filed on behalf of Liberty Utilities (Central) Co., before the Arkansas Public Service Commission (Docket No. 16-013-U) http://www.apscservices.info/pdf/16/16-013-U_8_1.pdf.

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(vi) LU Central will have on-going access to sufficient reasonably priced capital to be contributed to its operating subsidiaries, as evidenced by the fact that Liberty Utilities and LU Central plan to use "a reasonable and prudent investment grade capital structure," consisting of **55% equity and 45% debt**.

In light of the above, please admit or deny the following:

1) Admit that the Company's proposed 30% debt / 70% equity capital structure in the instant docket would mean that recovery of the acquisition premium paid by LU Central for Empire would, in part, effectively be recovered in rates charged to Liberty Litchfield Park ratepayers. If denied, please explain; and

2) Given that Empire does not operate in Arizona, please explain why Arizona ratepayers should be expected to pay, in rates, for the acquisition premium paid by LU Central when acquiring Empire.

OBJECTION: This data request assumes facts not in evidence because it has not been established that the Company's proposed revenue requirement includes any recovery of an acquisition premium related to the Empire transaction.

RESPONSE: Without waiving its objection, the Company denies this request for admission because it is not seeking to recover a portion of any acquisition premium related to the Empire transaction.