Oregon
Kate Brown, Governor

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July 87, 2017

Via Electronic Filing and US Mail

OREGON PUBLIC UTILITY COMMISSION
ATTENTION: FILING CENTER
PO BOX 1088
SALEM OR 97302-1088

RE: Docket No. UW 169–In the Matter of SUNRIVER WATER LLC, Request for a General Rate Revision.

Enclosed for filing is Staff Opening Testimony in UW 169, together with a Certificate of Service and UW 169 Service List.

- UW 169 Exhibit 100-104 Miller
- UW 169 Exhibit 200-203 Anderson and
- UW 169 Exhibit 300-307 Muldoon, where Exhibit 300 has confidential pages 14-16 and Exhibits 305 and 307 are both confidential.

Confidential pages and exhibits will be mailed to parties who have signed Protective Order no. 17-184.

/s/ Kay Barnes
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CERTIFICATE OF SERVICE

UW 169

I certify that I have, this day, served the foregoing document upon all parties of record in this proceeding by delivering a copy in person or by mailing a copy properly addressed with first class postage prepaid, or by electronic mail pursuant to OAR 860-001-0180, to the following parties or attorneys of parties.

Dated this 7th day of July, 2017 at Salem, Oregon

Kay Barnes

Kay Barnes
Public Utility Commission
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UW 169 SERVICE LIST

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CASE: UW 169
WITNESS: GREG MILLER

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 100

Opening Testimony

July 7, 2017

INTRODUCTION

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

A. My name is Greg Miller. I am a Utility Analyst in the Telecommunications and Water Division of the Utility Program for the Public Utility Commission of Oregon (Commission). My business address is 201 High Street SE, Suite 100, Salem, Oregon 97301.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. My Witness Qualification Statement is found in Exhibit Staff/101.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to describe the Public Utility Commission of Oregon Staff's (Staff) recommendations regarding Sunriver Water LLC's (Sunriver or Company) request for a general rate revision in Docket UW 169.

In my testimony I will address the following issues:

Q. WHO IS TESTIFYING IN THIS DOCKET?

A. I am testifying as the primary Staff witness in UW 169. Ms. Laurel Anderson will provide additional testimony in Staff/200 regarding details of the following issues:

Issue 1 ---- Staff's Analysis of Sunriver's Plant
Issue 2 ---- Removal of Test Well from CWIP
Issue 3 -----Accumulated Deferred Income Taxes
Issue 4 -----The Golf Courses, Revenue Requirement and Rates

Mr. Matt Muldoon will provide additional testimony in Staff/300 regarding cost of capital issues.

Q. DID YOU PREPARE EXHIBITS FOR THIS DOCKET?

A. Yes. I prepared Exhibit Staff/101, consisting of one page, Exhibit Staff/102, consisting of 24 pages, Exhibit Staff/103, consisting of 18 pages, and Exhibit Staff/104, consisting of five pages.

ISSUE 1: STAFF'S SUMMARY RECOMMENDATION

Q. What is Staff's summary recommendation?

A. Staff recommends a revenue requirement of $1,876,238, as compared to Sunriver's request of $2,144,339, resulting in an annual revenue increase of $156,371 or 9.09 percent above the Company's 2015 Test Year revenues, with a 6.51 percent rate of return on a rate base of $3,901,906. The calculation of Staff's revenue requirement is shown in Exhibit Staff/102.

ISSUE 2: SUNRIVER'S DESCRIPTION AND REGULATORY HISTORY

Q. Please describe Sunriver Water, LLC.

A. Sunriver is a rate and service regulated investor-owned water utility located in Sunriver, Oregon. The Company is organized as a limited liability company or LLC. The system was constructed in 1968 and began providing water service in 1969. Sunriver serves a community consisting of full and part-time residences, multi-family condominiums, a resort hotel, commercial areas, golf courses, and recreational facilities. The Company provides water service to approximately 4,375 residential/multi-family customers, 125 commercial customers, 112 irrigation customers, 40 flat rate customers, 29 private fire protection customers, and two golf courses.

Sunriver is owned by Sunriver Resort LP (Resort). The Resort is organized as a limited partnership and holds 100 percent of the equity interest of Sunriver. The Resort also holds 100 percent interest of Sunriver Environmental LLC, which is an unregulated wastewater utility.

Q. Please provide a summary of Sunriver's regulatory history.

A. Sunriver has been providing water service since 1969; however, it has only been a rate and service regulated water utility since 1983. The Company came under the Commission's regulatory authority when it began serving in excess of 500 customers. The Company's most recent general rate case was docketed as UW 160, which was completed in 2014. The Commission approved a revenue increase of 9.97 percent in UW 160.[1]

[1] Order No. 14-405, issued on November 19, 2014.

ISSUE 3: SUMMARY OF SUNRIVER'S GENERAL RATE FILING

Q. Please describe Sunriver's request for a general rate revision.

A. The Company filed its request for a general rate increase on February 16, 2017. Sunriver proposed an annual revenue increase of $424,471, resulting in total annual revenues of $2,144,339. Sunriver also proposed a 24.7 percent increase above 2015 test year revenues. As shown below in Table 1, the average residential customer using either a 5/8" or 3/4" line size would see an increase of 25.2 percent in their monthly bill.

Q. Why is the Company requesting the general rate increase?

A. Sunriver asserts that it requires a rate increase to cover increased operating expenses and inflation, include new capital expenditures in rate base, and add Construction Work in Progress (CWIP) to plant for the construction of a new test well at the Lake Penhollow reservoir site (Test Well). The most notable increase in operating expenses is an increase in management and rental fees, which are the subjects of two new affiliated interest (AI) agreements for which the Company is seeking ratemaking treatment. Additionally, Sunriver's property taxes have significantly increased.

Q. What test year period did the Company use in its filing?

A. The Company used the Test Year period January 1, 2015 through December 31, 2015. The Company also made a number of adjustments to its calendar year 2015 information to reflect changes in costs occurring outside of the Test Year. Examples include increases to wage and benefit expenses and the inclusion of 2016 plant additions. As I will discuss later in my testimony,

many of the adjustments I have proposed to the Company's filing relate to those adjustments to the 2015 information.

Q. Please describe why a Test Year is necessary.

A. The Commission is charged with setting rates at a level which will allow the utility a reasonable opportunity to earn its authorized rate of return during the period the rates will be in effect. Therefore, Staff's recommendation for rates must estimate both the costs and revenues that will be in effect during that period in order to determine an appropriate revenue requirement for the utility. In determining the revenue requirement appropriate for the rate period, a test year must be utilized as a basis for establishing rates. An historic test year typically involves the use of a past 12-month period (usually the 12-month period immediately preceding the rate case filing) with adjustments for items that are one-time events and those that are known and measurable in the future. A future test year is for a 12-month period that begins after the rate case is filed, and uses utility forecasting and budgeting to derive forward-looking revenues and expenses over a future 12-month period. In Oregon, water utilities have typically chosen to use an historic test year in Commission proceedings, as Sunriver has done in this case.

Q. Please describe the adjustments Staff believes are generally appropriate when an historic test year is used.

A. Staff generally believes it is appropriate to move items forward to reflect both the costs and revenues that will be in place during the rate period, provided those adjustments reflect changes that both 1) have either happened since the

test year or are deemed likely to occur and 2) are subject to reasonable approximation (collectively, 1 and 2 are referred to as known and measureable). Given that cases are typically filed in close proximity to the end of the historic test year, Staff believes it is reasonable to move costs forward for up to one year. Staff also believes it is appropriate to remove costs associated with items that occurred during the historic period but are not likely to reoccur during the rate period (non-recurring items).

Q. Are there issues that make the use of an historic test year more difficult in this case?

A. Yes. Sunriver has chosen to use an historic period (2015) that is almost two years removed from the rate effective date. Assuming that rates do not become effective until the end of the suspension period in this case—December 20, 2017—the costs reflected in a calendar year 2015 test year would be relatively stale at the point that rates would become effective. This means that it is more difficult for Staff to estimate costs for the rate-period.

Q. How has Staff structured its adjustments to reflect the historic test year in this case?

A. To address the relative staleness of Sunriver's historic test year, Staff's recommendation includes known and measurable changes through the entire calendar year 2016. Consistent with that structure, Staff has made the following adjustments:

1. Revenues – reflect actual 2016 customers and usage;

2. Expenses – reflect known and measureable changes for calendar year 2016. As an example, depreciation expense reflects 2016 calendar year expense; and
3. Rate Base – reflects plant additions through 2016.

Q. What are Sunriver's current rates and what rate increase has Sunriver proposed in this case?

A. Table 1 below reflects the change in the average customer's bill.

Table 1

			Current	Company Proposed	
	Cust. No.	Avg. Mo. Consumption per Cust. (1,000 Gal)	Avg. Mo Bill at Current Rates	Avg. Mo. Bill at Co. Proposed Rates	Increase From Current
Residential					
3/4" & 5/8"	3,737	5.16	$19.19	$24.02	25.15%
1"	373	11.71	$46.32	$57.97	25.14%
1 1/2"	2	72.7	$161.15	$201.69	25.16%
Commercial					
3/4" & 5/8"	46	6.42	$20.94	$26.21	25.15%
1"	38	20.86	$59.04	$73.89	25.15%
1 1/2"	10	26.77	$97.30	$121.77	25.15%
2"	24	84.85	$214.11	$267.95	25.15%
3"	4	150.3	$389.23	$487.12	25.15%
6"	3	205.3	$886.41	$1,109.23	25.14%
Multi-Family					
3/4" & 5/8"	263	3.38	$16.71	$20.91	25.14%
Irrigation					
3/4" & 5/8"	23	4.4	$19.15	$23.97	25.18%
1"	17	22.82	$65.60	$82.16	25.25%
1 1/2"	17	104.36	$219.30	$274.72	25.27%
2"	49	112.26	$268.79	$336.67	25.25%
3"	6	173.51	$448.50	$561.74	25.25%
Golf Course					
3"	2	5338.55	$3,890.38	$6,395.56	64.39%
Unmetered					
Any Size	40	-	$22.53	$28.19	25.12%
Private Fire					
2"	1	-	$5.66	$7.08	25.09%
3"	3	-	$10.60	$13.27	25.19%
4"	14	-	$17.67	$22.12	25.18%
6"	10	-	$35.35	$44.24	25.15%
8"	1	-	$56.56	$70.79	25.16%

ISSUE 4: STAFF'S REVIEW OF SUNRIVER'S FILING

Q. What issues did Staff investigate?

A. Staff's investigation and analysis of Sunriver's general rate filing included a comprehensive examination of the Company's revenues, expenses, proposed adjustments, rate spread and rate design, rate base, capital improvements, cost of capital, capacity, and quality of service. Specific issues included a thorough review of the recently approved AI contracts as well as the proposed new Test Well project.

Q. Please discuss Staff's review of Sunriver's expenses.

A. Staff examined Sunriver's expenses with consideration of the prudence and reasonableness of expenses and in accordance with the rules and statutes that apply to rate-regulated water companies. Staff adjusted several expense accounts by eliminating the expense, normalizing the expense, transferring expenses from one account to another, or amortizing over the appropriate periods. All of Staff's adjustments are shown in Exhibit Staff /102. The following is a brief explanation of the adjustments.

Salaries and Wages

Sunriver's test year wage expense as reported in its initial filing was $545,124, and its proposed expense for the rate period is $473,906. UW 169 – Sunriver Water LLC Testimony (Sunriver Testimony) at 13. Staff adjusted the Company's proposed wage increase of 3.0 percent down to 2.6 percent based upon the 2015/2016 compensation costs report from the Bureau of Labor and Statistics. Staff further adjusted the wages downward, removing average

capitalized labor costs of $11,266 for the three year period 2013-2015. The Company provided the capitalized labor figures as part of its response to Data Request (DR) 39. Staff/103, Miller/1. The results of Staff's review resulted in a downward adjustment of $13,399, bringing the total Salaries and Wages expense to $460,507. The $13,399 adjustment is broken down as follows:

Reduce wage increase from 3% to 2.6%	$ 2,133
Remove Capitalized Labor	11,266
Total	$13,399

O & M Materials/Supplies

Sunriver's actual 2015 O&M Materials/Supplies expense as reported in its initial filing was $11,063, and its proposed expense for the rate period is $11,284. Sunriver Testimony at 13. As part of Staff's analysis, an expense comparison was done between the current rate case and Sunriver's most recent general rate case, UW 160 (2014). Citing a 67 percent increase from UW 160, Staff issued DR 12 to the Company asking for a narrative explanation of the increase. In its response, the Company provided no narrative description. Staff/103, Miller/2. Based on the Company's response in DR 12, Staff concluded that the account was subject to significant yearly variation and chose to normalize this expense using a four year average based on the 2013, 2014, 2015, and 2016 annual report amounts filed with the Commission. *See* Staff/104, Miller/1-5. Adoption of this methodology resulted in a downward adjustment of $1,882, bringing the total O&M Materials/Supplies expense for the rate period to $9,402.

Repairs to Water Plant

Sunriver's actual 2015 Repairs to Water Plant expense as reported in its initial filing was $18,564, and its proposed expense for the rate period is $18,935. Sunriver Testimony at 13. Staff reviewed Repairs to Water Plant expense from UW 160, and calculated a 261 percent increase. Staff issued a data request to the Company asking for a narrative explanation of the increase since UW 160. In its response, the Company provided no narrative description. Staff/103, Miller/3. Based on the Company's response to Staff DR 13, Staff concluded that the account was subject to significant yearly variation and chose to normalize this expense using a four year average based on the 2013, 2014, 2015, and 2016 annual report amounts filed with the Commission. *See* Staff/104, Miller/1-5. The results of Staff's review resulted in a downward adjustment of $7,177, bringing the total Repairs to Water Plant expense for the rate period to $11,758.

Contract Services-Other

Sunriver's actual 2015 Contract Services-Other expense was $33,506, and its proposed expense for the rate period is $34,176. Sunriver Testimony at 13. In comparing the current expense to the approved UW 160 expense, Staff calculated a 277 percent increase. Staff issued a data request to the Company asking for a narrative explanation of the increase since UW 160. In its response, the Company provided no narrative description. Staff/103, Miller/4. Based on the Company's response to Staff DR 16, Staff concluded that the account was subject to significant yearly variation and chose to normalize this

expense using a four year average based on the 2013, 2014, 2015, and 2016 annual report amounts filed with the Commission. *See* Staff/104, Miller/1-5. The results of Staff's review resulted in a downward adjustment of $11,011, bringing the total Contract Services-Other expense to $23,165 for the rate period.

Contract Services–Legal

Sunriver's actual 2015 Contract Services-Legal expense was $15,778, and its proposed expense for the rate period is $16,094. Sunriver Testimony at 13. Based on a 311 percent increase in Legal compared to UW 160, Staff issued a data request to the Company asking for a narrative explanation. Staff/103, Miller/6. The Company's response to Staff DR 14 included an invoice breakdown of legal expenses incurred in 2015. Staff/103, Miller/7-16. Staff analyzed the invoice details and determined that $14,148 of the overall total legal expenses were unlikely to reoccur, as they were related to fees associated with the Company's AI filings (UI 355 and UI 378). The results of Staff's review resulted in a downward adjustment of $14,148, bringing the total Contract Services-Legal expense to $1,630 for the rate period.

Contract Services-Testing

Sunriver's actual 2015 Contract Services-Testing expense was $2,673, and its proposed expense for the rate period is $3,700. Sunriver Testimony at 13. Staff adjusted the Company proposed testing increase based on its analysis of the three-year forward looking tests to be performed, and the costs associated with the actual tests. The results of Staff's review resulted in a downward

adjustment of $222, bringing the total Contract Services-Testing expense to $3,478 for the rate period.

Small Tools

Sunriver's actual 2015 Small Tools expense was $5,442, and its proposed expense for the rate period is $5,551. Sunriver Testimony at 13. Based on a 667 percent increase in Small Tools compared to UW 160 in 2014, Staff issued a data request to the Company asking for a narrative explanation. In its response, the Company provided no narrative description. Staff/103, Miller/5. Based on the Company's response to Staff DR 17, Staff concluded that the account was subject to significant yearly variation and chose to normalize the Small Tools expenses using a four year average based on the 2013, 2014, 2015, and 2016 annual report amounts filed with the Commission. See Staff/104, Miller/1-5. The results of Staff's review resulted in a downward adjustment of $3,105, bringing the total Small Tools expense to $2,446 for the rate period.

Amortization of Rate Case

Sunriver's actual 2015 Amortization of Rate Case expense was $2,471, and its proposed expense for the rate period is $10,386, which represents a two year amortization cost. Sunriver Testimony at 13. The Company states that it intends to file a rate case every two years. Sunriver Testimony at 11. In Staff's analysis, if the Company intends to file a rate case every two years from when new rates go into effect, and the suspension period runs the full nine months, Staff believes that a three year amortization would be more appropriate. The

results of Staff's review resulted in a downward adjustment of $3,462, bringing the total Amortization of Rate Case expense to $6,924 for the rate period.

Training and Certification

Sunriver's actual 2015 Training and Certification expense was $4,914, and its proposed expense for the rate period is $5,012. Sunriver Testimony at 13. Staff made various adjustments to amortize certifications over applicable time periods, and disallowed certain transactions. For example, Staff amortized the water operating certificate renewals over the appropriate two year requirement period. Staff made a downward adjustment of $1,924, bringing the total Training and Certification expense to $3,088 for the rate period.

Miscellaneous Expense

Sunriver's actual 2015 Miscellaneous Expense was $5,716, and its proposed expense for the rate period is $5,830. Sunriver Testimony at 13. Staff made several adjustments which include correcting allocations, amortizing various certifications, renewals, and surveys over their applicable time periods, as well as disallowing certain transactions. For example, Staff amortized an Oregon Health Authority survey inspection over the appropriate five year requirement period. Staff made a downward adjustment of $2,737, bringing the total Miscellaneous Expense to $3,093 for the rate period.

Two percent inflation expense

The Company requested in this case to include a two percent increase for inflation on expense items. Staff recommends removing the overall proposed

two percent inflation expense increase because these amounts do not meet the known and measurable requirements articulated earlier in my testimony.

Q. Please discuss Staff's review of the Affiliated Interest contracts recently approved by the Commission.

A. In UI 355, Sunriver entered into two separate lease agreements with Sunriver Environmental LLC, an affiliated interest. More specifically, Lease 1 is for the North Reservoir Site and Lease 2 is for Shared Office, Shop, Storage, and Yard Space (Lease Agreements). In UI 378, Sunriver entered into a Management Services Agreement (Agreement) with Sunriver Resort Limited Partnership, also an affiliated interest. Staff reanalyzed the costs related to Sunriver's current AI contracts (approved in dockets UI 355 and UI 378), as part of its reasonableness review. Staff examined all financial aspects of the AI contracts, including the Company's costs, current market wage data, recent comparable property information as well as inflation-related provisions. In its analysis in UW 169, Staff found that customers could continue to be potentially harmed by not approving both Agreements as this could incite the affiliates to seek other uses of the properties as well as pursue external management services, which would result in higher costs for ratepayers. Staff also reviewed its proposed reductions from both AI dockets to determine if they were still appropriate, and concluded that they were. Because Sunriver's proposed ratemaking treatment incorporates these reductions, Staff finds the Company's proposal to be reasonable and consistent with Staff's previous recommendation

in both dockets. As such, Staff made no additional adjustments to the Contract Services-Management Fees or Rental of Building/Real Property expenses.

Q. Does Staff propose any adjustments to the Company's Test Year revenues?

A. Yes. In its initial filing, Sunriver listed test year Miscellaneous Revenues of $19,190, with a proposed amount of zero. Sunriver Testimony at 13. Staff issued a data request asking for an explanation of why the Company removed these revenues from its request in this case. The Company requested, in response to Staff DR 34, that the $19,190 be added back and included with final rate requirement determination. Staff/103, Miller/17-18. Staff made the appropriate adjustment, adding the $19,190 of Miscellaneous Revenues back into the Revenue Requirement.

Q. Please discuss Staff's review of Sunriver's proposed net plant.

A. The Company's test year total utility net plant was $4,698,928. Sunriver Testimony at 14. The Company's proposed net utility plant for the rate period is $4,802,063. Sunriver Testimony at 14. This includes a $191,203 increase in plant as CWIP for the Test Well. As discussed above, Staff is also recommending an adjustment to the Company's Plant, Accumulated Depreciation and Depreciation Expense. The details of those adjustments will be discussed in Ms. Anderson's testimony.

As shown below in Table 2, Staff proposes Gross Plant of $8,088,263 and Accumulated Depreciation of $3,473,348, resulting in a Net Plant of $4,614,915.

TABLE 2 – RECOMMENDED NET PLANT

	TEST YEAR	COMPANY PROPOSED	STAFF'S RECOMMENDED
UTILITY PLANT	$7,872,247	$8,286,854	$8,088,263
ACCUMULATED DEPRECIATION	$3,173,319	$3,484,791	$3,473,348
NET PLANT	$4,698,928	$4,802,063	$4,614,915

Q. Does the plant summary above reflect a Staff adjustment related to the Test Well?

A. Yes. As discussed more fully by Staff Witness Anderson in her testimony, Staff recommends removal of the Test Well proposed as Construction Work In Progress (CWIP) from recovery in this case.

Q. Does Staff propose additional adjustments to the Company's proposed rate base?

A. Yes. The Company's proposed rate base is $4,938,682. Sunriver Testimony at 14. In addition to the adjustments to the Net Plant components described above, Staff is proposing an Accumulated Deferred Income Tax (ADIT) reduction to rate base of $844,357. The rationale for and calculation of that adjustment are contained in Staff Witness Anderson's testimony. Staff's recommended rate base is $3,901,906, which includes the ADIT adjustment.

ISSUE 5: COST OF CAPITAL

Q. What Cost of Capital did the Company request in this case?

A. The Company requested an eight percent cost of capital based on a 10 percent cost of equity and a six percent cost of debt. The Company is proposing the same hypothetical capital structure (50 percent equity / 50 percent debt) stipulated to in its previous rate case, UW 160.

Q. What capital structure did Staff recommend?

A. As described by Staff Witness Muldoon, Staff agrees with the Company's proposed use of a hypothetical capital structure comprised of 50 percent debt and 50 percent equity. Staff believes this structure represents a reasonable outcome in line with capital structures employed by other water utilities and will result in a reasonable cost of capital to be borne by customers.

Q. Please summarize Staff's Cost of Capital recommendation in this proceeding.

A. As is described in detail in Mr. Muldoon's testimony, Staff is recommending the cost of capital shown below in Table 3.

TABLE 3 – RECOMMENDED COST OF CAPITAL

	Cost	Percentage	Weighted Cost
Debt	4.123%	50.0%	2.062%
Equity	8.9%	50.0%	4.45%
Total	N/A	100.0%	6.512%

ISSUE 6: RATE SPREAD AND RATE DESIGN

Q. What are the components of Staff's recommended rates?

A. Rates are comprised of a base rate that is charged regardless of water use and a commodity or usage rate that is charged per 1,000 gallons of water used. Compared to rates based on only commodity usage, this rate design relies less on the usage of water to maintain funds and ensures that there are adequate funds for the Company to operate during the winter months when there is generally lower water use. It also ensures that customers are paying for their own actual water used per month.

Staff's proposal for the commodity rate for the residential/commercial customers is $1.50 for each 1,000 gallons of water used. Base rates differ depending on the size of the meter. Larger meters will have increasingly higher base rates. The full rate charts are presented in my Exhibit 102.

Q. Please describe Staff's recommended rate design.

A. Staff recommends keeping the current rate class structure consistent with both the previous rate case, UW 160, and what is proposed by the Company in its initial filing. Under Staff's proposal, rates will reflect the American Water Works Associations factors for allocating costs according to meter size. The recommended rate design provides for relative uniformity in average bill increases among customer classes and ensures all customer classes pay their fair share.

Q. Please summarize Staff's adjustments to the Company's request in this case.

A. All the adjustments proposed by Staff can be found on the Adjustment Summary contained in my Exhibit 102.

Q. What are the effects of Staff's recommendation on the average customer bill?

A. The effects of Staff's proposed adjustments on the average customer's monthly bills are shown below:

1. Average residential bills would increase from $19.19 to $20.73, or 8.01 percent;
2. Average Multi-Family bills would increase from $16.71 to $18.05, or 8.01 percent;
3. Average commercial bills (1" meter) would increase from $59.04 to $63.77, or 8.01 percent;
4. Average irrigation bills (2" meter) would increase from $268.79 to $288.66, or 7.39 percent;
5. Flat-rate customer bills would increase from $22.53 to $24.33, or 7.99 percent; and
6. Golf course customer bills would change from a $2,235.43 base rate and a $0.31 per 1000 gallons commodity rate to a $3,601.16 base rate and a $0.36 per 1000 gallons commodity rate.

Q. Does that conclude your testimony?

A. Yes.

CASE: UW 169
WITNESS: GREG MILLER

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 101

Witness Qualifications Statement

July 7, 2017

WITNESS QUALIFICATION STATEMENT

NAME:	GREG MILLER
EMPLOYER:	PUBLIC UTIILTY COMMISSION OF OREGON
TITLE:	Utility Analyst, Telecommunications and Water Division.
ADDRESS:	201 High Street SE. Suite 100 Salem, OR. 97301
EDUCATION:	Bachelor of Science, Business/Finance, Oregon State University
EXPERIENCE:	Employed with the Oregon Public Utility Commission since 2013. I am currently a Water Utility Analyst for the Telecommunications and Water Division Section. Employed by Oregon Housing and Community Services as a Program Analyst from 2012 to 2013. Licensed Tax Preparer in the State of Oregon.

CASE: UW 169
WITNESS: GREG MILLER

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 102

Exhibits in Support
Of Opening Testimony

July 7, 2017

Sunriver Water LLC
Docket No. UW 169
Test Year: 2015

Staff/102
Miller/1

Revenue Requirement

		Column A	Column B	Column C	Column D	Column E		Column F	Column G
	REVENUES	**Test Year**	**Company Adjustments**	**Company Proposed Totals**	**Staff Adjustments to Company Totals**	**Staff Proposed Totals**		**Allocation to Non Golf Course**	**Allocation to Golf Course**
	Unmetered Water Sales	10,546	2,984	$ 13,530	$ (1,852)	$ 11,678		$ 11,678	$ -
	Residential Water Sales	1,054,284	282,629	$ 1,336,913	$ (179,118)	$ 1,157,795		$ 1,157,795	$ -
	Commercial Water Sales	162,200	44,271	$ 206,471	$ (31,050)	$ 175,421		$ 175,421	$ -
	Multiple Dwelling Units	52,742	14,469	$ 67,211	$ (10,246)	$ 56,965		$ 56,965	$ -
	Private Fire Protection	7,881	2,557	$ 10,438	$ (1,428)	$ 9,010		$ 9,010	$ -
	Irrigation	251,232	64,484	$ 315,716	$ (43,206)	$ 272,510		$ 272,510	$ -
	Golf Course	121,089	32,266	$ 153,355	$ (20,389)	$ 132,966		$ -	$ 132,966
	Miscellaneous Revenues	19,190	(19,190)	$ -	$ 19,190	$ 19,190		$ 19,190	$ -
	Cross Connection Control	40,353	-	$ 40,353	$ -	$ 40,353		$ 40,353	$ -
	Gains/Loss on Property Disposition	350	-	$ 350	$ -	$ 350		$ 350	$ -
	Total Revenue	**$ 1,719,867**	**$ 424,470**	**$ 2,144,337**	**$ (268,099)**	**$ 1,876,238**	*Calculated*	**$ 1,743,272**	**$ 132,966**
Acct .	**OPERATING EXPENSES**								
601	Salaries and Wages - Employees	545,124	(71,218)	$ 473,906	$ (13,399)	$ 460,507	3-factor	$ 429,157	$ 31,350
603	Salaries and Wages - Officers	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
604	Employee Pension & Benefits	123,600	12,273	$ 135,873	$ -	$ 135,873	3-factor	$ 126,623	$ 9,250
610	Purchased Water	-	-	$ -	$ -	$ -	meter	$ -	$ -
611	Telephone/Communications	7,701	154	$ 7,855	$ (154)	$ 7,701	meter	$ 7,699	$ 2
615	Purchased Power	66,929	1,339	$ 68,268	$ (1,339)	$ 66,929	direct	$ 58,254	$ 8,675
616	Fuel for Power Production	-	-	$ -	$ -	$ -	direct	$ -	$ -
617	Other Utilities	135	3	$ 138	$ (3)	$ 135	meter	$ 135	$ 0
618	Chemical / Treatment Expense	-	-	$ -	$ -	$ -	meter	$ -	$ -
619	Office Supplies	2,203	44	$ 2,247	$ (44)	$ 2,203	meter	$ 2,202	$ 1
619.1	Postage	22,800	456	$ 23,256	$ (456)	$ 22,800	meter	$ 22,794	$ 6
620	O&M Materials/Supplies	11,063	221	$ 11,284	$ (1,882)	$ 9,402	3-factor	$ 8,762	$ 640
621	Repairs to Water Plant	18,564	371	$ 18,935	$ (7,177)	$ 11,758	3-factor	$ 10,958	$ 800
631	Contract Svcs - Engineering	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
632	Contract Svcs - Accounting	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
633	Contract Svcs - Legal	15,778	316	$ 16,094	$ (14,464)	$ 1,630	3-factor	$ 1,519	$ 111
634	Contract Svcs - Management Fees	169,728	85,001	$ 254,729	$ -	$ 254,729	3-factor	$ 237,388	$ 17,341
635	Contract Svcs - Testing	2,673	1,027	$ 3,700	$ (222)	$ 3,478	direct	$ 3,478	$ -
636	Contract Svcs - Labor	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
637	Contract Svcs - Billing/Collection	8,658	173	$ 8,831	$ (173)	$ 8,658	meter	$ 8,656	$ 2
638	Contract Svcs - Meter Reading	-	-	$ -	$ -	$ -	meter	$ -	$ -
639	Contract Svcs - Other	33,506	670	$ 34,176	$ (11,011)	$ 23,165	3-factor	$ 21,588	$ 1,577
641	Rental of Building/Real Property	3,048	42,916	$ 45,964	$ -	$ 45,964	3-factor	$ 42,835	$ 3,129
642	Rental of Equipment	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
643	Small Tools	5,442	109	$ 5,551	$ (3,105)	$ 2,446	3-factor	$ 2,279	$ 167
648	Computer/Electronic Expenses	14,269	285	$ 14,554	$ (285)	$ 14,269	meter	$ 14,265	$ 4
650	Transportation	30,756	615	$ 31,371	$ (615)	$ 30,756	meter	$ 30,748	$ 8
656	Vehicle Insurance	25,155	2,516	$ 27,671	$ -	$ 27,671	meter	$ 27,664	$ 7
657	General Liability Insurance	-	-	$ -	$ -	$ -	meter	$ -	$ -
658	Workers' Comp Insurance	14,556	(1,946)	$ 12,610	$ -	$ 12,610	3-factor	$ 11,752	$ 858
659	Insurance - Other	-	-	$ -	$ -	$ -	meter	$ -	$ -
666	Amortz. of Rate Case	2,471	7,915	$ 10,386	$ (3,462)	$ 6,924	meter	$ 6,922	$ 2
667	Gross Revenue Fee (PUC)	5,160	1,273	$ 6,433	$ (804)	$ 5,629	*3-factor*	$ 5,246	$ 383
670	Bad Debt Expense	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
671	Cross Connection Control Program	-	-	$ -	$ -	$ -	meter	$ -	$ -
673	Training and Certification	4,914	98	$ 5,012	$ (1,924)	$ 3,088	3-factor	$ 2,878	$ 210
674	Consumer Confidence Report	-	-	$ -	$ -	$ -	meter	$ -	$ -
675	Miscellaneous Expense	5,716	114	$ 5,830	$ (2,737)	$ 3,093	3-factor	$ 2,882	$ 211
OE1	Other Expense 1	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
OE2	Other Expense 2	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
OE3	Other Expense 3	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
OE4	Other Expense 4	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
OE5	Other Expense 5	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
	TOTAL OPERATING EXPENSE	**$ 1,139,949**	**$ 84,725**	**$ 1,224,674**	**$ (63,256)**	**$ 1,161,418**		**$ 1,086,683**	**$ 74,734**
	OTHER REVENUE DEDUCTIONS								
403	Depreciation Expense	165,715	68,722	$ 234,437	$ (13,294)	$ 221,143	3-factor	$ 196,825	$ 24,318
406	Amort of Plant Acquisition Adjustment	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
407	Amortization Expense	-	-	$ -	$ -	$ -	3-factor	$ -	$ -
408.11	Property Tax	55,731	29,969	$ 85,700	$ -	$ 85,700	meter	$ 85,677	$ 23
408.12	Payroll Tax	50,657	1,520	$ 52,177	$ -	$ 52,177	3-factor	$ 48,625	$ 3,552
408.13	Other	-	-	$ -	$ -	$ -		$ -	$ -
409.10	Federal Income Tax	108,211	17,698	$ 125,909	$ (42,356)	$ 83,553	*Calculated*	$ 77,865	$ 5,688
409.11	Oregon Income Tax	22,642	3,705	$ 26,347	$ (8,173)	$ 18,174	*Calculated*	$ 16,937	$ 1,237
409.13	Extraordinary Items Income Tax	-	-	$ -	$ -	$ -		$ -	$ -
	TOTAL REVENUE DEDUCTIONS	**$ 1,542,905**	**$ 206,339**	**$ 1,749,244**	**$ (127,079)**	**$ 1,622,165**		**$ 1,512,613**	**$ 109,552**
	Net Operating Income	**$ 176,962**	**$ 218,131**	**$ 395,093**	**$ (141,020)**	**$ 254,073**		**$ 230,659**	**$ 23,413**
	UTILITY RATE BASE								
101	Utility Plant in Service	7,872,247	414,607	$ 8,286,854	$ (198,591)	$ 8,088,263		$ 7,284,853	$ 803,410
105	Construction Work in Progress	-	-	$ -	$ -	$ -		$ -	$ -
108	- Accumulated Depreciation of Plant	3,173,319	311,472	$ 3,484,791	$ (11,443)	$ 3,473,348		$ 3,080,757	$ 392,591
271	- Contributions in Aid of Construction	-	-	$ -	$ -	$ -		$ -	$ -
272	+ Accumulated Amortization of CIAC	-	-	$ -	$ -	$ -		$ -	$ -
281	- Accumulated Deferred Income Tax	-	-	$ -	$ 844,357	$ 844,357		$ 786,876	$ 57,481
	- Excess Capacity	-	-	$ -	$ -	$ -		$ -	$ -
	= NET RATE BASE INVESTMENT	**$ 4,698,928**	**$ 103,135**	**$ 4,802,063**	**$ (1,031,505)**	**$ 3,770,558**		**$ 3,417,220**	**$ 353,338**
	Plus: (working capital)								
151	Materials and Supplies Inventory	34,563	-	$ 34,563	$ -	$ 34,563		$ 34,563	$ -
	Working Cash (Total Op Exp /12)	94,996	7,060	$ 102,056	$ (5,271)	$ 96,785	*Calculated*	$ 90,557	$ 6,228
	TOTAL RATE BASE	**4,828,487**	**110,195**	**$ 4,938,682**	**$ (1,036,776)**	**$ 3,901,906**		**$ 3,542,340**	**$ 359,566**
	Rate of Return	3.66%	0.00%	8.00%	0.00%	6.51%		6.51%	6.51%

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Adjustment Summary

Acct.		Company Proposed Totals	Staff Adjustments to Company Totals	Staff Proposed Totals	Explanation of Adjustment
	REVENUES				
	Unmetered Water Sales	$ 13,530	$ (1,852)	$ 11,678	Revenue Sensitive Adjustment
	Residential Water Sales	$ 1,336,913	$ (179,118)	$ 1,157,795	Revenue Sensitive Adjustment
	Commercial Water Sales	$ 206,471	$ (31,050)	$ 175,421	Revenue Sensitive Adjustment
	Multiple Dwelling Units	$ 67,211	$ (10,246)	$ 56,965	Revenue Sensitive Adjustment
	Private Fire Protection	$ 10,438	$ (1,428)	$ 9,010	Revenue Sensitive Adjustment
	Irrigation	$ 315,716	$ (43,206)	$ 272,510	Revenue Sensitive Adjustment
	Golf Course	$ 153,355	$ (20,389)	$ 132,966	Revenue Sensitive Adjustment
	Miscellaneous Revenues	$ -	$ 19,190	$ 19,190	Added $19,190 back in
	Cross Connection Control	$ 40,353	$ -	$ 40,353	
	Gains/Loss on Property Disposition	$ 350	$ -	$ 350	
	Total Revenue	**$ 2,144,337**	**$ (268,099)**	**$ 1,876,238**	
Acct.	**OPERATING EXPENSES**				
601	Salaries and Wages - Employees	$ 473,906	$ (13,399)	$ 460,507	Adjusted to 2.6% based on BLS wage data/removed average capitalized labor $11,266
603	Salaries and Wages - Officers	$ -	$ -	$ -	
604	Employee Pension & Benefits	$ 135,873	$ -	$ 135,873	No Adjustment
610	Purchased Water	$ -	$ -	$ -	
611	Telephone/Communications	$ 7,855	$ (154)	$ 7,701	Removed 2% adjustment
615	Purchased Power	$ 68,268	$ (1,339)	$ 66,929	Removed 2% adjustment
616	Fuel for Power Production	$ -	$ -	$ -	
617	Other Utilities	$ 138	$ (3)	$ 135	Removed 2% adjustment
618	Chemical / Treatment Expense	$ -	$ -	$ -	
619	Office Supplies	$ 2,247	$ (44)	$ 2,203	Removed 2% adjustment
619.1	Postage	$ 23,256	$ (456)	$ 22,800	Removed 2% adjustment
620	O&M Materials/Supplies	$ 11,284	$ (1,882)	$ 9,402	Four year average / 2013-2016
621	Repairs to Water Plant	$ 18,935	$ (7,177)	$ 11,758	Four year average / 2013-2016
631	Contract Svcs - Engineering	$ -	$ -	$ -	
632	Contract Svcs - Accounting	$ -	$ -	$ -	
633	Contract Svcs - Legal	$ 16,094	$ (14,464)	$ 1,630	Excluded non-rucurring / Removed 2%
634	Contract Svcs - Management Fees	$ 254,729	$ -	$ 254,729	No Adjustment
635	Contract Svcs - Testing	$ 3,700	$ (222)	$ 3,478	Adjusted to forward-looking 3 year average
636	Contract Svcs - Labor	$ -	$ -	$ -	
637	Contract Svcs - Billing/Collection	$ 8,831	$ (173)	$ 8,658	Removed 2% adjustment
638	Contract Svcs - Meter Reading	$ -	$ -	$ -	
639	Contract Svcs - Other	$ 34,176	$ (11,011)	$ 23,165	Four year average / 2013-2016
641	Rental of Building/Real Property	$ 45,964	$ -	$ 45,964	No Adjustment
642	Rental of Equipment	$ -	$ -	$ -	
643	Small Tools	$ 5,551	$ (3,105)	$ 2,446	Four year average / 2013-2016
648	Computer/Electronic Expenses	$ 14,554	$ (285)	$ 14,269	Removed 2% adjustment
650	Transportation	$ 31,371	$ (615)	$ 30,756	Removed 2% adjustment
656	Vehicle Insurance	$ 27,671	$ -	$ 27,671	No Adjustment
657	General Liability Insurance	$ -	$ -	$ -	
658	Workers' Comp Insurance	$ 12,610	$ -	$ 12,610	
659	Insurance - Other	$ -	$ -	$ -	
666	Amortz. of Rate Case	$ 10,386	$ (3,462)	$ 6,924	Three year amortization
667	Gross Revenue Fee (PUC)	$ 6,433	$ (804)	$ 5,629	Revenue Sensitive Adjustment
670	Bad Debt Expense	$ -	$ -	$ -	
671	Cross Connection Control Program	$ -	$ -	$ -	
673	Training and Certification	$ 5,012	$ (1,924)	$ 3,088	Amortize certificates/Removed 2%
674	Consumer Confidence Report	$ -	$ -	$ -	
675	Miscellaneous Expense	$ 5,830	$ (2,737)	$ 3,093	Amortize renewals & survey/Removed 2%
OE1	Other Expense 1	$ -	$ -	$ -	
OE2	Other Expense 2	$ -	$ -	$ -	
OE3	Other Expense 3	$ -	$ -	$ -	
OE4	Other Expense 4	$ -	$ -	$ -	
OE5	Other Expense 5	$ -	$ -	$ -	
	TOTAL OPERATING EXPENSE	**$ 1,224,674**	**$ (63,256)**	**$ 1,161,418**	
	OTHER REVENUE DEDUCTIONS				
403	Depreciation Expense	$ 234,437	$ (13,294)	$ 221,143	Removed test well depreciation. Used 2016 depreciation instead of 2017
406	Amort of Plant Acquisition Adjustment	$ -	$ -	$ -	
407	Amortization Expense	$ -	$ -	$ -	
408.11	Property Tax	$ 85,700	$ -	$ 85,700	
408.12	Payroll Tax	$ 52,177	$ -	$ 52,177	
408.13	Other	$ -	$ -	$ -	
409.10	Federal Income Tax	$ 125,909	$ (42,356)	$ 83,553	
409.11	Oregon Income Tax	$ 26,347	$ (8,173)	$ 18,174	
409.13	Extraordinary Items Income Tax	$ -	$ -	$ -	
	TOTAL REVENUE DEDUCTIONS	**$ 1,749,244**	**$ (127,079)**	**$ 1,622,165**	
	Net Operating Income	**$ 395,093**	**$ (141,020)**	**$ 254,073**	
	UTILITY RATE BASE				
101	Utility Plant in Service	$ 8,286,854	$ (198,591)	$ 8,088,263	
105	Construction Work in Progress	$ -	$ -	$ -	
108	- Accumulated Depreciation of Plant	$ 3,484,791	$ (11,443)	$ 3,473,348	Removed test well depreciation. Used 2016 depreciation instead of 2017
271	- Contributions in Aid of Construction	$ -	$ -	$ -	
272	+ Accumulated Amortization of CIAC	$ -	$ -	$ -	
281	- Accumulated Deferred Income Tax	$ -	$ 844,357	$ 844,357	Related to the Company's use of accelerated depreciation for tax purposes.
	- Excess Capacity	$ -	$ -	$ -	
	= NET RATE BASE INVESTMENT	**$ 4,802,063**	**$ (1,031,505)**	**$ 3,770,558**	
	Plus: (working capital)				
151	Materials and Supplies Inventory	$ 34,563	$ -	$ 34,563	
	Working Cash (Total Op Exp /12)	$ 102,056	$ (5,271)	$ 96,785	
	TOTAL RATE BASE	**$ 4,938,682**	**$ (1,036,776)**	**$ 3,901,906**	
	Rate of Return	8.00%	0.00%	6.51%	

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Cost of Capital

	Amount	Cap Struct	Cost	Wtd. Cost	
Hypothetical Debt	1,950,953	50.00%	4.12%	2.06%	
	-	0.00%	0.00%	0.00%	
	-	0.00%	0.00%	0.00%	
Total Debt	**1,950,953**	**50.00%**		**2.06%**	
Hypothetical Equity	1,950,953	50.00%	8.90%	4.45%	
	-	0.00%	0.00%	0.00%	
	-	0.00%	0.00%	0.00%	
Total Equity	**1,950,953**	**50.00%**		**4.45%**	**Return on Equity (ROE)**
Total Debt + Equity	**3,901,906**	**100.00%**		**6.51%**	**Rate of Return (ROR)**

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Company Current and Proposed Rates

	Current Rates		Company Proposed Rates				Staff Proposed Rates			
	Current Base Rates	**Current Commodity Rates**	**Company Proposed Base Rates**	Increase from Current	**Company Proposed Commodity Rates**	Increase from Current	**Staff Proposed Base Rates**	Increase from Current	**Staff Proposed Commodity Rates**	Increase from Current
Residential, Commercial & Multi-Family										
3/4" & 5/8"	$ 12.02	$ 1.39	$ 15.04	25.12%	$ 1.74	25.18%	$ 12.98	8.00%	$ 1.50	8.02%
1"	$ 30.05	$ 1.39	$ 37.60	25.12%	$ 1.74	25.18%	$ 32.45	8.00%	$ 1.50	8.02%
1 1/2"	$ 60.10	$ 1.39	$ 75.20	25.12%	$ 1.74	25.18%	$ 64.91	8.00%	$ 1.50	8.02%
2"	$ 96.17	$ 1.39	$ 120.32	25.11%	$ 1.74	25.18%	$ 103.85	7.99%	$ 1.50	8.02%
3"	$ 180.31	$ 1.39	$ 225.60	25.12%	$ 1.74	25.18%	$ 194.73	8.00%	$ 1.50	8.02%
4"	$ 300.52	$ 1.39	$ 376.00	25.12%	$ 1.74	25.18%	$ 324.55	7.99%	$ 1.50	8.02%
6"	$ 601.04	$ 1.39	$ 752.00	25.12%	$ 1.74	25.18%	$ 649.09	7.99%	$ 1.50	8.02%
Irrigation										
3/4" & 5/8"	$ 12.55	$ 1.50	$ 15.70	25.10%	$ 1.88	25.33%	$ 13.55	8.00%	$ 1.61	7.03%
1"	$ 31.37	$ 1.50	$ 39.26	25.15%	$ 1.88	25.33%	$ 33.88	8.01%	$ 1.61	7.03%
1 1/2"	$ 62.75	$ 1.50	$ 78.51	25.12%	$ 1.88	25.33%	$ 67.77	8.00%	$ 1.61	7.03%
2"	$ 100.40	$ 1.50	$ 125.62	25.12%	$ 1.88	25.33%	$ 108.43	8.00%	$ 1.61	7.03%
3"	$ 188.24	$ 1.50	$ 235.54	25.13%	$ 1.88	25.33%	$ 203.31	8.00%	$ 1.61	7.03%
4"	None	None	$ 392.56	N/A	$ 1.88	N/A	$ 338.84	N/A	$ 1.61	N/A
6"	None	None	$ 785.13	N/A	$ 1.88	N/A	$ 677.68	N/A	$ 1.61	N/A
Golf Course										
3/4" & 5/8"	None	None	$ 276.89	N/A	$ 0.42	N/A	$ 240.08	N/A	$ 0.36	N/A
1"	None	None	$ 692.23	N/A	$ 0.42	N/A	$ 600.19	N/A	$ 0.36	N/A
1 1/2"	None	None	$ 1,384.46	N/A	$ 0.42	N/A	$ 1,200.39	N/A	$ 0.36	N/A
2"	None	None	$ 2,215.13	N/A	$ 0.42	N/A	$ 1,920.62	N/A	$ 0.36	N/A
3"	$ 2,235.43	$ 0.31	$ 4,153.37	85.80%	$ 0.42	35.48%	$ 3,601.16	61.09%	$ 0.36	17.17%
Unmetered										
Any Size	$ 22.53	None	$ 28.19	25.12%	None	N/A	$ 24.33	7.99%	None	N/A
Private Fire										
2"	$ 5.66	None	$ 7.08	25.09%	None	N/A	$ 6.11	7.95%	None	N/A
3"	$ 10.60	None	$ 13.27	25.19%	None	N/A	$ 11.46	8.08%	None	N/A
4"	$ 17.67	None	$ 22.12	25.18%	None	N/A	$ 19.09	8.06%	None	N/A
6"	$ 35.35	None	$ 44.24	25.15%	None	N/A	$ 38.19	8.03%	None	N/A
8"	$ 56.56	None	$ 70.79	25.16%	None	N/A	$ 61.10	8.03%	None	N/A

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Staff Proposed Average Bill Comparison

			Current	Company Proposed		Staff Proposed	
	Customers	Avg. Monthly Consumption per Customer (1,000 Gal)	Average Monthly Bill at **Current Rates**	Average Monthly Bill at **Company Proposed Rates**	Increase from Current	Average Monthly Bill at **Staff Proposed Rates**	Increase from Current
Residential							
3/4" & 5/8"	3,737	5.16	$ 19.19	$ 24.02	25.15%	$ 20.73	8.01%
1"	373	11.71	$ 46.32	$ 57.97	25.14%	$ 50.03	8.01%
1 1/2"	2	72.70	$ 161.15	$ 201.69	25.16%	$ 174.06	8.01%
Commercial							
3/4" & 5/8"	46	6.42	$ 20.94	$ 26.21	25.15%	$ 22.62	8.01%
1"	38	20.86	$ 59.04	$ 73.89	25.15%	$ 63.77	8.01%
1 1/2"	10	26.77	$ 97.30	$ 121.77	25.15%	$ 105.10	8.01%
2"	24	84.85	$ 214.11	$ 267.95	25.15%	$ 231.25	8.01%
3"	4	150.30	$ 389.23	$ 487.12	25.15%	$ 420.40	8.01%
6"	3	205.30	$ 886.41	$ 1,109.23	25.14%	$ 957.35	8.00%
Multi-Family							
3/4" & 5/8"	263	3.38	$ 16.71	$ 20.91	25.14%	$ 18.05	8.01%
Irrigation							
3/4" & 5/8"	23	4.40	$ 19.15	$ 23.97	25.18%	$ 20.62	7.66%
1"	17	22.82	$ 65.60	$ 82.16	25.25%	$ 70.52	7.50%
1 1/2"	17	104.36	$ 219.30	$ 274.72	25.27%	$ 235.32	7.31%
2"	49	112.26	$ 268.79	$ 336.67	25.25%	$ 288.66	7.39%
3"	6	173.51	$ 448.50	$ 561.74	25.25%	$ 481.87	7.44%
Golf Course							
3"	2	5,338.55	$ 3,890.38	$ 6,395.56	64.39%	$ 5,540.23	42.41%
Unmetered							
Any Size	40	-	$ 22.53	$ 28.19	25.12%	$ 24.33	7.99%
Private Fire							
2"	1	-	$ 5.66	$ 7.08	25.09%	$ 6.11	7.95%
3"	3	-	$ 10.60	$ 13.27	25.19%	$ 11.46	8.08%
4"	14	-	$ 17.67	$ 22.12	25.18%	$ 19.09	8.06%
6"	10	-	$ 35.35	$ 44.24	25.15%	$ 38.19	8.03%
8"	1	-	$ 56.56	$ 70.79	25.16%	$ 61.10	8.03%

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Invested Plant

		C	D		E	F	G	H	I		AJ	AK	AL	AM	AN	AO	AP	AQ	AR
Acct No.	Account Description	Date Acquired	Utility Plant Orig Cost		Less Golf Course Adj to Plant	Total Adj Plant	NARUC Asset Life	Annual Deprec	Final Month of Deprec	Before 2010	2010	2011	2012	2013	2014	2015	Accumu-lated Deprec. Ending 2015	Remain Plant Beg. 2016	Deprec Expense for 2016
303	**Land and Land Rights**				319	2,840	0	0		0	0	0	0	0	0	0	0	2,840	0
	Land and Land Rights	Jun 1970	3,159	89.89%	1,385	12,310	0	0		0	0	0	0	0	0	0	0	12,310	0
	Land and Land Rights	Jun 1970	13,695	89.89%	136	1,207	0	0		0	0	0	0	0	0	0	0	1,207	0
	Land and Land Rights	Jan 1994	1,343	89.89%	87	773	0	0		0	0	0	0	0	0	0	0	773	0
	Land and Land Rights (mistake last rate case = 0)	May 2010	860	89.89%	35	315	0	0		0	0	0	0	0	0	0	0	315	0
	T9729 Application (land)	Jul 2005	350	89.89%	457	4,067	0	0		0	0	0	0	0	0	0	0	4,067	0
	Water Rights Well #14	Jul 2006	4,524	89.89%	81	719	0	0		0	0	0	0	0	0	0	0	719	0
	OWRD Land Rights	Dec 2006	800	89.89%	406	3,614	0	0		0	0	0	0	0	0	0	0	3,614	0
	Water Rights	Dec 2007	4,020	89.89%	198	1,758	0	0		0	0	0	0	0	0	0	0	1,758	0
	Water Resevoir	Sep 2008	1,956	89.89%	1,230	10,940	0	0		0	0	0	0	0	0	0	0	10,940	0
	Water Rights	Nov 2008	12,170	89.89%	356	3,169	0	0		0	0	0	0	0	0	0	0	3,169	0
	Water Rights	Mar 2009	3,525	89.89%	297	2,637	0	0		0	0	0	0	0	0	0	0	2,637	0
	Water Resevoir	Mar 2009	2,934	89.89%	2,399	21,324	0	0		0	0	0	0	0	0	0	0	21,324	0
	Water Rights Amendment T8841	Nov 2011	23,723	89.89%	7,617	67,716	0	0		0	0	0	0	0	0	0	0	67,716	0
	Purchase ground water rights COID well 4	Nov 2013	75,333	89.89%	547	4,863	0	0		0	0	0	0	0	0	0	0	4,863	0
	COID Groundwater Rights	Jun 2014	5,410	89.89%	3,840	34,139	0	0		0	0	0	0	0	0	0	0	34,139	0
	Fidelity Water Rights	Jul 2014	37,979	89.89%	774	6,881	0	0		0	0	0	0	0	0	0	0	6,881	0
	Water Rights 2014 Carryover	Mar 2015	7,655	89.89%	3,205	28,495	0	0		0	0	0	0	0	0	0	0	28,495	0
304	**Structures and Improvements**				3,140	27,917	50	558	Sep 2019	22,473	558	558	558	558	558	558	25,823	2,094	558
	Structures and Improvements	Oct 1969	31,057	89.89%	492	4,370	35	125	Apr 2006	4,370	0	0	0	0	0	0	4,370	0	0
	Structures and Improvements	May 1971	4,861	89.89%	348	3,094	35	88	Jun 2006	3,094	0	0	0	0	0	0	3,094	0	0
	Structures and Improvements	Jun 1971	3,442	89.89%	1,895	16,852	35	481	Jun 2017	13,241	481	481	481	481	481	481	16,130	722	481
	#4 Well Building	Jul 1982	18,747	89.89%	589	5,237	35	150	Dec 2018	3,891	150	150	150	150	150	150	4,789	449	150
	Office Bldg	Jan 1984	5,827	89.89%	2,712	24,109	35	689	Dec 2022	15,212	689	689	689	689	689	689	19,345	4,764	689
	#1 Booster Bldg	Dec 1987	26,821	89.89%	4	37	35	1	Dec 2025	20	1	1	1	1	1	1	27	11	1
	Structures and Improvements	Dec 1990	41	89.89%	224	1,994	35	57	Nov 2027	978	57	57	57	57	57	57	1,320	674	57
	Concrete Retaining Wall	Nov 1992	2,218	89.89%	328	2,917	40	73	Aug 2044	395	73	73	73	73	73	73	833	2,084	73
	Tree Removal & Clean Up	Aug 2004	3,245	89.89%	2,698	23,982	20	1,199	Oct 2024	6,295	1,199	1,199	1,199	1,199	1,199	1,199	13,490	10,492	1,199
	Reservior Fences	Oct 2004	26,680	89.89%	95	845	40	21	Nov 2044	109	21	21	21	21	21	21	236	609	21
	Concrete Floor	Nov 2004	940	89.89%	41	364	10	36	Mar 2015	176	36	36	36	36	36	6	364	0	0
	Aluminum Floor Plate	Mar 2005	405	89.89%	468	4,165	35	119	Dec 2050	0	0	0	0	0	0	10	10	4,155	119
	Structures and Improvements	Dec 2015	4,633	89.89%	708	6,296	35	180	Dec 2050	0	0	0	0	0	0	15	15	6,281	180
	Well 9 Roof Replacement	Dec 2015	7,004	89.89%	875	7,775	35	222	Jul 2051	0	0	0	0	0	0	0	0	7,775	93

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	Invested Plant	C	D		E	F	G	H	I		AJ	AK	AL	AM	AN	AO	AP	AQ	AR
					Less Golf Course Adj to Plant	Total Adj Plant	NARUC Asset Life	Annual Deprec	Final Month of Deprec	Before 2010	2010	2011	2012	2013	2014	2015	Accumu-lated Deprec. Ending 2015	Remain Plant Beg. 2016	Deprec Expense for 2016
307	**Wells and Springs**				1,028	9,143	25	366	Nov 2006	9,143	0	0	0	0	0	0	9,143	0	0
	Well - GC 111	Dec 1981	10,171	89.89%	180	1,604	25	64	May 2009	1,604	0	0	0	0	0	0	1,604	0	0
	#8 well ties	Jun 1984	1,784	89.89%	989	8,788	25	352	Jul 2010	8,583	205	0	0	0	0	0	8,788	0	0
	Airport/skpark well ties	Aug 1985	9,777	89.89%	1,968	17,499	25	700	Nov 2013	14,757	700	700	700	642	0	0	17,499	0	0
	Well #9 30/17 FPV IV	Dec 1988	19,467	89.89%	657	5,840	25	234	Nov 2014	4,692	234	234	234	234	214	0	5,840	0	0
	Well #2 Upgrade	Dec 1989	6,497	89.89%	820	7,286	25	291	Nov 2014	5,853	291	291	291	291	267	0	7,286	0	0
	Airport Well 89	Dec 1989	8,106	89.89%	694	6,171	25	247	May 2019	3,847	247	247	247	247	247	247	5,328	843	247
	Water Maines/Well Tie	Jun 1994	6,865	89.89%	100,423	892,809	25	35,712	Jan 2032	104,161	35,712	35,712	35,712	35,712	35,712	35,712	318,435	574,374	35,712
	New Well - Reservoir Site Well #14	Feb 2007	993,232	89.89%	7,061	0	35	0	Dec 2031	0	0	0	0	0	0	0	0	0	0
100% GC	CW Well Additions	Jan 1997	7,061	0.00%	75,013	0	25	0	Jan 2020	0	0	0	0	0	0	0	0	0	0
100% GC	Crosswater Well structures & equipment	Feb 1995	75,013	0.00%	105,325	0	25	0	Feb 2020	0	0	0	0	0	0	0	0	0	0
100% GC	Crosswater Well equipment	Feb 1995	105,325	0.00%	2,835	25,200	25	1,008	Jul 2040	0	0	0	0	0	0	504	504	24,696	1,008
	Well & Booster SCADA Automation	Jul 2015	28,035	89.89%	1,798	15,983	25	639	Jul 2041	0	0	0	0	0	0	0	0	15,983	266
	Well 15 test well design/pt of appropriation transfer	Aug 2016	17,781	89.89%	**0**	0	25	0	Dec 2041	0	0	0	0	0	0	0	0	0	0
309	**Supply Main**				722	6,421	50	128	Nov 2037	2,836	128	128	128	128	128	128	3,606	2,814	128
310	**Power Generation Equipment**				1,456	12,941	35	370	Mar 2020	9,151	370	370	370	370	370	370	11,370	1,571	370
	#2 well aux power structure	Apr 1985	14,397	89.89%	3,048	27,098	30	903	Mar 2015	22,356	903	903	903	903	903	226	27,098	0	0
	#2 well aux power equip	Apr 1985	30,146	89.89%	4,747	42,206	30	1,407	Aug 2016	32,827	1,407	1,407	1,407	1,407	1,407	1,407	41,268	938	938
	Circle #9 Well Aux Power	Sep 1986	46,953	89.89%	7,399	65,783	35	1,880	Nov 2021	43,385	1,880	1,880	1,880	1,880	1,880	1,880	54,662	11,120	1,880
	Circle #9 Well Aux Power	Dec 1986	73,182	89.89%	136	1,213	30	40	Sep 2018	859	40	40	40	40	40	40	1,101	111	40
	Kubota Portable Generator	Oct 1988	1,349	89.89%	2,282	20,289	30	676	Sep 2018	14,371	676	676	676	676	676	676	18,429	1,860	676
	Booster #1 Generator	Oct 1988	22,571	89.89%	2,254	20,044	30	668	Oct 2022	11,469	668	668	668	668	668	668	15,478	4,565	668
	Fuel Tanks	Nov 1992	22,298	89.89%	101	902	30	30	Sep 2025	428	30	30	30	30	30	30	609	293	30
	Diesel Tank Cover	Oct 1995	1,003	89.89%	182	1,618	10	162	May 2013	1,065	162	162	162	67	0	0	1,618	0	0
	Bobcat Port Generator 5K watt	Jun 2003	1,800	89.89%	559	4,966	10	497	Nov 2014	2,525	497	497	497	497	455	0	4,966	0	0
	Kohler Generator (used)	Dec 2004	5,525	89.89%	8,565	76,146	30	2,538	Oct 2041	0	0	423	2,538	2,538	2,538	2,538	10,576	65,570	2,538
311	**Pumping Equipment**				1,868	16,605	20	830	May 1996	16,605	0	0	0	0	0	0	16,605	0	0
	Electric pumping equipment	Jun 1976	18,473	89.89%	79	699	20	35	May 1997	699	0	0	0	0	0	0	699	0	0
	Electric pumping equipment	Jun 1977	778	89.89%	107	951	20	48	Nov 1998	951	0	0	0	0	0	0	951	0	0
	Electric pumping equipment	Dec 1978	1,058	89.89%	1,728	15,367	20	768	Nov 1999	15,367	0	0	0	0	0	0	15,367	0	0
	Electric pumping equipment	Dec 1979	17,095	89.89%	321	2,857	20	143	Jun 2002	2,857	0	0	0	0	0	0	2,857	0	0
	High level booster station	Jul 1982	3,178	89.89%	50	444	20	22	Nov 2003	444	0	0	0	0	0	0	444	0	0
	2 EA GP pumps	Dec 1983	494	89.89%	1,606	14,276	20	714	Sep 2004	14,276	0	0	0	0	0	0	14,276	0	0
	High level booster station	Oct 1984	15,882	89.89%	5,301	47,125	20	2,356	Sep 2004	47,125	0	0	0	0	0	0	47,125	0	0
	High level booster #2 equi	Oct 1984	52,426	89.89%	1,202	10,684	20	534	Oct 2009	10,684	0	0	0	0	0	0	10,684	0	0
	Mink Lane Booster	Nov 1989	11,886	89.89%	313	2,778	20	139	May 2011	2,582	139	58	0	0	0	0	2,778	0	0
	Overflow system	Jun 1991	3,091	89.89%	37	333	20	17	Mar 2012	295	17	17	4	0	0	0	333	0	0
	Portable Water Pump	Apr 1992	370	89.89%	134	1,190	20	60	Jun 2015	863	60	60	60	60	60	30	1,190	0	0
	Pump	Jul 1995	1,324	89.89%	123	1,092	20	55	Aug 2018	619	55	55	55	55	55	55	947	146	55
	8 HP Pump	Sep 1998	1,215	89.89%	476	4,227	20	211	Apr 2022	1,621	211	211	211	211	211	211	2,889	1,339	211
	Pump Controllers	May 2002	4,703	89.89%	859	7,635	20	382	Nov 2022	2,704	382	382	382	382	382	382	4,995	2,641	382
	Water Booster PLC	Dec 2002	8,494	89.89%	3,499	31,103	20	1,555	May 2024	8,683	1,555	1,555	1,555	1,555	1,555	1,555	18,014	13,089	1,555
	Water Booster Station	Jun 2004	34,602	89.89%	549	4,880	20	244	Nov 2024	1,240	244	244	244	244	244	244	2,704	2,176	244
	Pump Wiring	Dec 2004	5,429	89.89%	682	6,062	20	303	Dec 2024	1,516	303	303	303	303	303	303	3,334	2,728	303

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	Invested Plant	C	D		E	F	G	H	I		AJ	AK	AL	AM	AN	AO	AP	AQ	AR
					Less Golf Course Adj to Plant	Total Adj Plant	NARUC Asset Life	Annual Deprec	Final Month of Deprec	Before 2010	2010	2011	2012	2013	2014	2015	Accumu-lated Deprec. Ending 2015	Remain Plant Beg. 2016	Deprec Expense for 2016
	Electric Pump Control WH&H	Jan 2005	6,744	89.89%	537	4,774	20	239	May 2029	139	239	239	239	239	239	239	1,571	3,203	239
	Well 14 Motor	Jun 2009	5,311	89.89%	1,452	12,913	20	646	Nov 2029	54	646	646	646	646	646	646	3,928	8,985	646
	Electric Pumping Equipment	Dec 2009	14,365	89.89%	2,465	21,918	20	1,096	Apr 2034	0	0	0	0	0	822	1,096	1,918	20,000	1,096
	Well 9 pump, pull, & replacement	Apr 2014	24,383	89.89%	1,109	9,860	20	493	Aug 2034	0	0	0	0	0	205	493	698	9,162	493
	Reservoir Building	Aug 2014	10,969	89.89%	577	5,132	20	257	Jul 2035	0	0	0	0	0	0	128	128	5,003	257
320	**Water Treatment Equipment**				0	7,010	20	351	Dec 2024	1,753	351	351	351	351	351	351	3,856	3,155	351
330	**Distribution Reservoir and Standpipes**				10,730	95,394	50	1,908	May 2020	75,520	1,908	1,908	1,908	1,908	1,908	1,908	86,968	8,426	1,908
	Distribution Reservoir and Standpipes	Jun 1970	106,124	89.89%	13,067	116,171	50	2,323	Jun 2026	77,835	2,323	2,323	2,323	2,323	2,323	2,323	91,775	24,396	2,323
	Distribution Reservoir and Standpipes	Jul 1976	129,238	89.89%	57	505	50	10	Aug 2033	266	10	10	10	10	10	10	327	178	10
	Floats for water servoir	Sep 1983	562	89.89%	378	3,364	50	67	Nov 2038	1,418	67	67	67	67	67	67	1,822	1,542	67
	Pressure Reducing Station	Dec 1988	3,742	89.89%	622	5,528	50	111	Jul 2046	1,483	111	111	111	111	111	111	2,147	3,381	111
	Paint 3 Reservoir Tanks	Aug 1996	6,150	89.89%	220	1,956	50	39	Nov 2047	473	39	39	39	39	39	39	707	1,249	39
	Water Reservoir Telemetry	Dec 1997	2,176	89.89%	277	2,460	50	49	Aug 2057	115	49	49	49	49	49	49	410	2,050	49
	Hydro Ranger	Sep 2007	2,737	89.89%	3,207	28,510	50	570	Jul 2064	0	0	0	0	0	238	570	808	27,702	570
	North Reservoir Planning	Aug 2014	31,717	89.89%	219,517	1,951,624	50	39,032	May 2065	0	0	0	0	0	0	22,769	22,769	1,928,855	39,032
	North Reservoir (CWIP 2,032,967) Actual 2015*	Jun 2015	2,171,141	89.89%	7,319	65,066	50	1,301	May 2064	0	0	0	0	0	759	1,301	2,060	63,006	1,301
	North Reservoir 2014	Jun 2014	72,385	89.89%	1,469	13,059	50	261	Jul 2066	0	0	0	0	0	0	0	0	13,059	109
331	**Transmission and Distribution Mains**				66	589	50	12	Sep 2034	297	12	12	12	12	12	12	368	221	12
	Airport/S	Oct 1984	655	89.89%	1,089	9,683	50	194	Nov 2036	4,470	194	194	194	194	194	194	5,632	4,051	194
	Airport/S Park Water Line	Dec 1986	10,772	89.89%	150	1,335	50	27	Jun 2037	601	27	27	27	27	27	27	761	574	27
	Pasture Water Line	Jul 1987	1,485	89.89%	1,665	14,799	50	296	Nov 2039	5,944	296	296	296	296	296	296	7,720	7,079	296
	Marina Quelah Tie	Dec 1989	16,464	89.89%	2,526	22,458	50	449	Dec 2039	8,983	449	449	449	449	449	449	11,678	10,780	449
	Busines Park Tie	Jan 1990	24,984	89.89%	267	2,376	50	48	Mar 2041	891	48	48	48	48	48	48	1,176	1,200	48
	6" Clay Valve	Apr 1991	2,643	89.89%	82	728	50	15	Nov 2043	234	15	15	15	15	15	15	322	407	15
	DEA Water Connection	Dec 1993	810	89.89%	1,285	11,420	50	228	Nov 2043	3,674	228	228	228	228	228	228	5,044	6,376	228
	ZAGT Water Connection	Dec 1993	12,705	89.89%	0	14,112	50	282	Nov 2043	4,539	282	282	282	282	282	282	6,233	7,879	282
	ZAGT Subdivision Water	Dec 1993	14,112	100.00%	0	10,145	50	203	Nov 2043	3,263	203	203	203	203	203	203	4,481	5,664	203
	ZAGT Water Distribution	Dec 1993	10,145	100.00%	0	8,469	50	169	Nov 2043	2,724	169	169	169	169	169	169	3,740	4,729	169
	ZAGT Subdivision Water	Dec 1993	8,469	100.00%	0	46,763	50	935	Feb 2044	14,808	935	935	935	935	935	935	20,420	26,343	935
	ZAGT Subdivision Water	Mar 1994	46,763	100.00%	0	4,447	50	89	Mar 2044	1,401	89	89	89	89	89	89	1,934	2,513	89
	ZAGT Subdivision Water	Apr 1994	4,447	100.00%	0	147,551	50	2,951	Mar 2044	46,479	2,951	2,951	2,951	2,951	2,951	2,951	64,185	83,366	2,951
	ZAGT Water Distribution	Apr 1994	147,551	100.00%	0	65,037	50	1,301	Apr 2044	20,378	1,301	1,301	1,301	1,301	1,301	1,301	28,183	36,854	1,301
	ZAGT Water Distribution	May 1994	65,037	100.00%	0	8,550	50	171	Feb 2044	2,708	171	171	171	171	171	171	3,734	4,817	171
	ZAGT Water Distribution	Mar 1994	8,550	100.00%	0	1,990	50	40	Jun 2044	617	40	40	40	40	40	40	856	1,134	40
	ZAGT Subdivision Water	Jul 1994	1,990	100.00%	2,642	23,487	50	470	Jul 2044	7,242	470	470	470	470	470	470	10,060	13,427	470
	ZAGT Water Connection Bus P	Aug 1994	26,129	89.89%	2,016	17,924	50	358	Aug 2044	5,497	358	358	358	358	358	358	7,648	10,276	358
	ZAGT Water Connection Bus P	Sep 1994	19,940	89.89%	0	11,105	50	222	Nov 2044	3,350	222	222	222	222	222	222	4,683	6,422	222
	Other Subdivision Water	Dec 1994	11,105	100.00%	252	2,243	50	45	Jan 2045	669	45	45	45	45	45	45	938	1,305	45
	ZAGT Water Connection	Feb 1995	2,495	89.89%	0	127,563	50	2,551	Nov 2045	35,930	2,551	2,551	2,551	2,551	2,551	2,551	51,238	76,325	2,551
	Water Distribution Phase III	Dec 1995	127,563	100.00%	488	4,334	50	87	Apr 2047	1,098	87	87	87	87	87	87	1,618	2,716	87
	Valve Delineators	May 1997	4,822	89.89%	24	212	50	4	Nov 2047	51	4	4	4	4	4	4	77	135	4
	Water Distribution Phase IV	Dec 1997	236	89.89%	677	6,017	50	120	Sep 2053	752	120	120	120	120	120	120	1,474	4,543	120
	Excavate/Install 12" Water Line	Oct 2003	6,694	89.89%	1,112	9,888	50	198	Jul 2054	1,071	198	198	198	198	198	198	2,258	7,630	198
	Install 12" Pipe	Aug 2004	11,000	89.89%	187	1,661	50	33	Nov 2054	169	33	33	33	33	33	33	368	1,293	33
	Eccentric Reducer & Parts	Dec 2004	1,848	89.89%	205	1,827	50	37	Aug 2057	85	37	37	37	37	37	37	304	1,522	37

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	Invested Plant	C	D		E Less Golf Course Adj to Plant	F Total Adj Plant	G NARUC Asset Life	H Annual Deprec	I Final Month of Deprec	Before 2010	AJ 2010	AK 2011	AL 2012	AM 2013	AN 2014	AO 2015	AP Accumu-lated Deprec. Ending 2015	AQ Remain Plant Beg. 2016	AR Deprec Expense for 2016
	Valve Delineators	Sep 2007	2,032	89.89%	2,300	20,452	50	409	Jan 2058	784	409	409	409	409	409	409	3,238	17,213	409
	Water Pipe Relocation Roundabout	Feb 2008	22,752	89.89%	688	6,120	50	122	Nov 2059	10	122	122	122	122	122	122	745	5,375	122
	Valve Delineators	Dec 2009	6,808	89.89%	0	1,032	50	21	Jul 2057	50	21	21	21	21	21	21	174	858	21
	Pipe to Woodlands	Aug 2007	1,032	100.00%	0	3,602	50	72	Sep 2061	0	0	18	72	72	72	72	306	3,296	72
	Crosswater Valve Boxes	Oct 2011	3,602	100.00%	0	14,032	50	281	Oct 2063	0	0	0	0	47	281	281	608	13,424	281
334	**Meters and Meter Installations**				0	1,580	20	79	Aug 1996	1,580	0	0	0	0	0	0	1,580	0	0
	1977 additions (meters)	Sep 1976	1,580	100.00%	0	62	20	3	Nov 1996	62	0	0	0	0	0	0	62	0	0
	Meter Installations	Dec 1976	62	100.00%	0	217	20	11	May 1997	217	0	0	0	0	0	0	217	0	0
	Meters	Jun 1977	217	100.00%	0	1,293	20	65	Nov 1999	1,293	0	0	0	0	0	0	1,293	0	0
	Meter Installations	Dec 1979	1,293	100.00%	0	31,934	20	1,597	Mar 2000	31,934	0	0	0	0	0	0	31,934	0	0
	Meters	Apr 1980	31,934	100.00%	0	13,097	20	655	Sep 2000	13,097	0	0	0	0	0	0	13,097	0	0
	Meters	Oct 1980	13,097	100.00%	0	7,939	20	397	Sep 2000	7,939	0	0	0	0	0	0	7,939	0	0
	Meter Installations	Oct 1980	7,939	100.00%	0	5,151	20	258	Jul 2001	5,151	0	0	0	0	0	0	5,151	0	0
	Meters	Aug 1981	5,151	100.00%	0	12,939	20	647	Jul 2001	12,939	0	0	0	0	0	0	12,939	0	0
	Meters	Aug 1981	12,939	100.00%	0	14,346	20	717	Jul 2001	14,346	0	0	0	0	0	0	14,346	0	0
	Meter Installations	Aug 1981	14,346	100.00%	0	28,921	20	1,446	Jul 2001	28,921	0	0	0	0	0	0	28,921	0	0
	Meter Installations	Aug 1981	28,921	100.00%	0	7,857	20	393	Jun 2002	7,857	0	0	0	0	0	0	7,857	0	0
	Meters	Jul 1982	7,857	100.00%	0	8,077	20	404	Oct 2002	8,077	0	0	0	0	0	0	8,077	0	0
	Meter Installations	Nov 1982	8,077	100.00%	0	5,378	20	269	May 2003	5,378	0	0	0	0	0	0	5,378	0	0
	1983 Meters	Jun 1983	5,378	100.00%	0	6,488	20	324	May 2003	6,488	0	0	0	0	0	0	6,488	0	0
	1983 Meter Installations	Jun 1983	6,488	100.00%	0	4,612	20	231	May 2004	4,612	0	0	0	0	0	0	4,612	0	0
	1984 Meters	Jun 1984	4,612	100.00%	0	6,051	20	303	Jun 2004	6,051	0	0	0	0	0	0	6,051	0	0
	1984 Meter Installations	Jul 1984	6,051	100.00%	0	5,130	20	257	Jun 2005	5,130	0	0	0	0	0	0	5,130	0	0
	1985 Meter	Jul 1985	5,130	100.00%	0	7,552	20	378	May 2005	7,552	0	0	0	0	0	0	7,552	0	0
	1985 Meter Installations	Jun 1985	7,552	100.00%	0	4,087	20	204	Nov 2006	4,087	0	0	0	0	0	0	4,087	0	0
	Metering Equipment	Dec 1986	4,087	100.00%	0	4,731	20	237	Nov 2006	4,731	0	0	0	0	0	0	4,731	0	0
	1986 Meter Installations	Dec 1986	4,731	100.00%	0	5,100	20	255	Nov 2007	5,100	0	0	0	0	0	0	5,100	0	0
	1987 Meters	Dec 1987	5,100	100.00%	0	7,352	20	368	Nov 2007	7,352	0	0	0	0	0	0	7,352	0	0
	1987 Meter Installation	Dec 1987	7,352	100.00%	0	3,483	20	174	Nov 2008	3,483	0	0	0	0	0	0	3,483	0	0
	1988 Meters	Dec 1988	3,483	100.00%	0	10,494	20	525	Nov 2008	10,494	0	0	0	0	0	0	10,494	0	0
	1988 Meter Installation	Dec 1988	10,494	100.00%	0	6,908	20	345	May 2009	6,908	0	0	0	0	0	0	6,908	0	0
	1989 Meters	Jun 1989	6,908	100.00%	0	17,169	20	858	May 2009	17,169	0	0	0	0	0	0	17,169	0	0
	1989 Meter Installation	Jun 1989	17,169	100.00%	0	6,790	20	340	Jan 2010	6,762	28	0	0	0	0	0	6,790	0	0
	1990 Meters	Feb 1990	6,790	100.00%	0	18,166	20	908	Nov 2010	17,333	833	0	0	0	0	0	18,166	0	0
	1990 Meter Installation	Dec 1990	18,166	100.00%	0	3,520	20	176	Feb 2011	3,315	176	29	0	0	0	0	3,520	0	0
	8" Flow Meter	Mar 1991	3,520	100.00%	0	13,614	20	681	Nov 2011	12,309	681	624	0	0	0	0	13,614	0	0
	1991 Meters	Dec 1991	13,614	100.00%	0	23,614	20	1,181	Nov 2011	21,351	1,181	1,082	0	0	0	0	23,614	0	0
	1991 Meter Installation	Dec 1991	23,614	100.00%	0	5,001	20	250	Nov 2012	4,272	250	250	229	0	0	0	5,001	0	0
	1992 Meters	Dec 1992	5,001	100.00%	0	15,008	20	750	Nov 2012	12,819	750	750	688	0	0	0	15,008	0	0
	1992 Meter Installation	Dec 1992	15,008	100.00%	0	4,885	20	244	Nov 2013	3,928	244	244	244	224	0	0	4,885	0	0
	1993 Meters	Dec 1993	4,885	100.00%	0	8,867	20	443	Nov 2013	7,131	443	443	443	406	0	0	8,867	0	0
	1993 Meters Installation	Dec 1993	8,867	100.00%	0	12,475	20	624	Nov 2014	9,408	624	624	624	624	572	0	12,475	0	0
	1994 Meters	Dec 1994	12,475	100.00%	0	6,132	20	307	Nov 2014	4,625	307	307	307	307	281	0	6,132	0	0
	1994 Meters Installation	Dec 1994	6,132	100.00%	0	19,184	20	959	Nov 2016	12,550	959	959	959	959	959	959	18,305	879	879
	1996 Meters	Dec 1996	19,184	100.00%	0	8,953	20	448	Nov 2016	5,857	448	448	448	448	448	448	8,543	410	410
	1996 Meters Instalation	Dec 1996	8,953	100.00%	0	14,461	20	723	Nov 2017	8,737	723	723	723	723	723	723	13,075	1,386	723
	1997 Meters	Dec 1997	14,461	100.00%	0	6,144	20	307	Nov 2017	3,712	307	307	307	307	307	307	5,555	589	307
	1997 Meter Installation	Dec 1997	6,144	100.00%	0	22,654	20	1,133	Nov 2019	11,421	1,133	1,133	1,133	1,133	1,133	1,133	18,218	4,436	1,133

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	Invested Plant	C	D		E Less Golf Course Adj to Plant	F Total Adj Plant	G NARUC Asset Life	H Annual Deprec	I Final Month of Deprec	Before 2010	AJ 2010	AK 2011	AL 2012	AM 2013	AN 2014	AO 2015	AP Accumu-lated Deprec. Ending 2015	AQ Remain Plant Beg. 2016	AR Deprec Expense for 2016
	1999 Meters	Dec 1999	22,654	100.00%	0	9,608	20	480	Nov 2019	4,844	480	480	480	480	480	480	7,726	1,882	480
	1999 Meter Installation	Dec 1999	9,608	100.00%	0	11,561	20	578	Nov 2020	5,251	578	578	578	578	578	578	8,719	2,842	578
	Meters	Dec 2000	11,561	100.00%	0	6,040	20	302	May 2021	2,592	302	302	302	302	302	302	4,404	1,636	302
	Water Meters	Jun 2001	6,040	100.00%	0	7,102	20	355	Sep 2022	2,574	355	355	355	355	355	355	4,705	2,397	355
	Meters	Oct 2002	7,102	100.00%	0	11,561	20	578	Nov 2022	4,095	578	578	578	578	578	578	7,563	3,998	578
	Meters	Dec 2002	11,561	100.00%	0	6,046	20	302	Sep 2023	1,889	302	302	302	302	302	302	3,703	2,343	302
	Meters	Oct 2003	6,046	100.00%	0	5,947	20	297	Nov 2024	1,512	297	297	297	297	297	297	3,296	2,651	297
	Meters	Dec 2004	5,947	100.00%	0	846	20	42	May 2025	194	42	42	42	42	42	42	448	398	42
	Flowmeter	Jun 2005	846	100.00%	0	5,814	20	291	Nov 2025	1,187	291	291	291	291	291	291	2,931	2,883	291
	Meters	Dec 2005	5,814	100.00%	0	3,216	20	161	Jun 2026	563	161	161	161	161	161	161	1,528	1,688	161
	Meter Installations	Jul 2006	3,216	100.00%	0	7,064	20	353	Jun 2026	1,236	353	353	353	353	353	353	3,355	3,709	353
	Meter Installations	Jul 2006	7,064	100.00%	0	8,235	20	412	Apr 2026	1,510	412	412	412	412	412	412	3,980	4,255	412
	Meters	May 2006	8,235	100.00%	0	32,152	20	1,608	Jun 2026	5,627	1,608	1,608	1,608	1,608	1,608	1,608	15,272	16,880	1,608
	Meters	Jul 2006	32,152	100.00%	0	71,193	20	3,560	Nov 2027	7,416	3,560	3,560	3,560	3,560	3,560	3,560	28,774	42,419	3,560
	Meters	Dec 2007	71,193	100.00%	0	80,371	20	4,019	Jun 2028	6,028	4,019	4,019	4,019	4,019	4,019	4,019	30,139	50,232	4,019
	Meters	Jul 2008	80,371	100.00%	0	47,422	20	2,371	Aug 2029	790	2,371	2,371	2,371	2,371	2,371	2,371	15,017	32,405	2,371
	Meter Installations	Sep 2009	47,422	100.00%	0	56,505	20	2,825	Jun 2030	0	1,413	2,825	2,825	2,825	2,825	2,825	15,539	40,966	2,825
	Meter Installation	Jul 2010	56,505	100.00%	0	28,062	20	1,403	Jun 2031	0	0	702	1,403	1,403	1,403	1,403	6,314	21,748	1,403
	Meters	Jul 2011	28,062	100.00%	0	4,867	20	243	Jun 2031	0	0	122	243	243	243	243	1,095	3,772	243
	Meter Installation	Jul 2011	4,867	100.00%	0	2,518	20	126	Sep 2032	0	0	0	31	126	126	126	409	2,109	126
	Meter Installation	Oct 2012	2,518	100.00%	0	18,348	20	917	Sep 2032	0	0	0	229	917	917	917	2,982	15,366	917
	Meters	Oct 2012	18,348	100.00%	0	8,741	20	437	May 2033	0	0	0	0	255	437	437	1,129	7,612	437
	Meter Installation	Jun 2013	8,741	100.00%	0	23,574	20	1,179	May 2033	0	0	0	0	688	1,179	1,179	3,045	20,529	1,179
	Meters	Jun 2013	23,574	100.00%	0	9,891	20	495	Jul 2034	0	0	0	0	0	247	495	742	9,149	495
	Meter Installation	Jul 2014	9,891	100.00%	0	24,041	20	1,202	Jul 2034	0	0	0	0	0	601	1,202	1,803	22,238	1,202
	Meters	Jul 2014	24,041	100.00%	0	15,166	20	758	Jun 2035	0	0	0	0	0	0	442	442	14,724	758
	Meter Installation	Jun 2015	15,166	100.00%	0	109,373	20	5,469	Jun 2035	0	0	0	0	0	0	3,190	3,190	106,183	5,469
	Meters	Jun 2015	109,373	100.00%	0	15,445	20	772	Jun 2036	0	0	0	0	0	0	0	0	15,445	386
	Meters	Jul 2016	15,445	100.00%	0	60,790	20	3,040	Jun 2036	0	0	0	0	0	0	0	0	60,790	1,520
335	**Hydrants**				0	535	35	15	Aug 2029	234	15	15	15	15	15	15	326	209	15
	Fire Hydrant Flow Meter	Sep 1994	535	100.00%	0	733	40	18	Feb 2045	89	18	18	18	18	18	18	199	534	18
	Hydrant Pump & Extendable Retriever	Mar 2005	733	100.00%	0	329	40	8	Jul 2048	12	8	8	8	8	8	8	61	268	8
	Hydrants	Aug 2008	329	100.00%	0	1,780	40	45	Jun 2050	0	22	45	45	45	45	45	245	1,535	45
	Hydrants	Jul 2010	1,780	100.00%	0	13,064	40	327	Oct 2051	0	0	54	327	327	327	327	1,361	11,703	327
	Hydrants	Nov 2011	13,064	100.00%	0	6,835	40	171	Apr 2056	0	0	0	0	0	0	0	0	6,835	114
336	**Cross Connection Control (utility owned)**				0	759	15	51	Mar 1998	759	0	0	0	0	0	0	759	0	0
	Test guage for backflow	Apr 1983	759	100.00%	0	775	15	52	Nov 2025	0	4	52	52	52	52	52	263	512	52
	Backflow Testing Gauge	Dec 2010	775	100.00%	0	985	15	66	Oct 2031	0	0	0	0	0	0	0	0	985	11
339	**Other Plant**				174	1,551	20	78	Jun 2016	1,047	78	78	78	78	78	78	1,512	39	39
	Magnetic Locator Mac-51B	Jul 1996	1,725	89.89%	0	2,750	30	92	Aug 2040	0	31	92	92	92	92	92	489	2,261	92
	Reservoir Fence Resurfacing	Sep 2010	2,750	100.00%	2,308	20,520	20	1,026	Nov 2031	0	0	85	1,026	1,026	1,026	1,026	4,189	16,330	1,026
	Water Master Plan	Dec 2011	22,828	89.89%	2,458	21,850	40	546	Dec 2052	0	0	0	0	546	546	546	1,639	20,212	546
	Water Mgmnt and Conservation plan update	Jan 2013	24,308	89.89%	2,528	22,472	30	749	Oct 2046	0	0	0	0	0	0	0	0	22,472	125

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	Invested Plant	C	D		E	F	G	H	I		AJ	AK	AL	AM	AN	AO	AP	AQ	AR
					Less Golf Course Adj to Plant	Total Adj Plant	NARUC Asset Life	Annual Deprec	Final Month of Deprec	Before 2010	2010	2011	2012	2013	2014	2015	Accumu-lated Deprec. Ending 2015	Remain Plant Beg. 2016	Deprec Expense for 2016
340	**Office Furniture and Equipment**				0	131	20	7	Jan 2006	131	0	0	0	0	0	0	131	0	0
	File Cabinet	Feb 1986	131	100.00%	0	1,334	20	67	Jan 2009	1,334	0	0	0	0	0	0	1,334	0	0
	2 Desks, 5 Chairs	Feb 1989	1,334	100.00%	0	1,700	20	85	Jan 2011	1,608	85	7	0	0	0	0	1,700	0	0
	Copy Machine	Feb 1991	1,700	100.00%	0	2,324	20	116	Nov 2020	1,055	116	116	116	116	116	116	1,753	571	116
341	**Transportation Equipment**				0	1,500	7	214	Dec 1980	1,500	0	0	0	0	0	0	1,500	0	0
	1974 Ford	Jan 1974	1,500	100.00%	0	2,400	7	343	Dec 1985	2,400	0	0	0	0	0	0	2,400	0	0
	1979 Ford	Jan 1979	2,400	100.00%	0	2,600	7	371	Oct 1989	2,600	0	0	0	0	0	0	2,600	0	0
	1980 Toyota	Nov 1982	2,600	100.00%	0	7,527	7	1,075	Jun 1992	7,527	0	0	0	0	0	0	7,527	0	0
	1983 GMC	Jul 1985	7,527	100.00%	0	2,147	7	307	Mar 1993	2,147	0	0	0	0	0	0	2,147	0	0
	Ford Couri	Apr 1986	2,147	100.00%	0	7,729	7	1,104	Feb 1993	7,729	0	0	0	0	0	0	7,729	0	0
	1986 Jeep Pickup	Mar 1986	7,729	100.00%	0	4,029	7	576	Feb 1993	4,029	0	0	0	0	0	0	4,029	0	0
	1984 Dodge Pickup	Mar 1986	4,029	100.00%	0	6,780	7	969	Mar 1995	6,780	0	0	0	0	0	0	6,780	0	0
	1988 Dodge Truck	Apr 1988	6,780	100.00%	0	11,835	7	1,691	Feb 1997	11,835	0	0	0	0	0	0	11,835	0	0
	Jeep Pickup	Mar 1990	11,835	100.00%	0	15,806	7	2,258	May 1997	15,806	0	0	0	0	0	0	15,806	0	0
	1983 GMC Dump Truck	Jun 1990	15,806	100.00%	0	236	7	34	Apr 1997	236	0	0	0	0	0	0	236	0	0
	Fertilizer Spreader	May 1990	236	100.00%	0	14,740	7	2,106	May 1997	14,740	0	0	0	0	0	0	14,740	0	0
	1990 Ford Ranger	Jun 1990	14,740	100.00%	0	5,200	7	743	Sep 2002	5,200	0	0	0	0	0	0	5,200	0	0
	Snow Plow	Oct 1995	5,200	100.00%	0	3,643	7	520	Jan 2004	3,643	0	0	0	0	0	0	3,643	0	0
	New Engine - Ford Ranger	Feb 1997	3,643	100.00%	0	23,497	7	3,357	Apr 2005	23,497	0	0	0	0	0	0	23,497	0	0
	Truck Qua Cab	May 1998	23,497	100.00%	0	20,243	7	2,892	May 2006	20,243	0	0	0	0	0	0	20,243	0	0
	1999 Ford Ranger	Jun 1999	20,243	100.00%	0	8,119	7	1,160	Jun 2006	8,119	0	0	0	0	0	0	8,119	0	0
	1994 Ford F150	Jul 1999	8,119	100.00%	1,260	11,205	7	1,601	Nov 2009	11,205	0	0	0	0	0	0	11,205	0	0
	Snow Plow	Dec 2002	12,465	89.89%	2,166	19,260	7	2,751	Mar 2010	18,572	688	0	0	0	0	0	19,260	0	0
	2003 Dodge Dakota (white)	Apr 2003	21,426	89.89%	2,600	23,119	7	3,303	Apr 2010	22,018	1,101	0	0	0	0	0	23,119	0	0
	2003 Dodge 1500 SLT (white)	May 2003	25,719	89.89%	2,271	20,192	7	2,885	Feb 2011	16,827	2,885	481	0	0	0	0	20,192	0	0
	2004 Ddakota 4X4	Mar 2004	22,463	89.89%	2,164	19,238	7	2,748	Mar 2012	13,054	2,748	2,748	687	0	0	0	19,238	0	0
	2005 Dodge Truck	Apr 2005	21,402	89.89%	2,515	22,362	7	3,195	Apr 2012	14,908	3,195	3,195	1,065	0	0	0	22,362	0	0
	Dodge Truck w/Canopy	May 2005	24,877	89.89%	3,732	33,177	7	4,740	May 2012	21,723	4,740	4,740	1,975	0	0	0	33,177	0	0
	International Dump Truck	Jun 2005	36,909	89.89%	2,308	20,523	7	2,932	Feb 2013	11,239	2,932	2,932	2,932	489	0	0	20,523	0	0
	2006 Dodge Dakota 4WD replaces 99 Ford Ranger	Mar 2006	22,831	89.89%	212	1,888	7	270	Feb 2013	1,034	270	270	270	45	0	0	1,888	0	0
	Pipe Rack for Truck	Mar 2006	2,100	89.89%	2,470	21,961	7	3,137	Apr 2014	8,366	3,137	3,137	3,137	3,137	1,046	0	21,961	0	0
	Truck Qua Cab 2007 (correct cost here but not golf)	May 2007	24,431	89.89%	1,053	9,365	7	1,338	May 2015	2,118	1,338	1,338	1,338	1,338	1,338	557	9,365	0	0
	Dodge Dakota Truck 2008 (correct cost,but not golf)	Jun 2008	10,418	89.89%	2,309	20,531	7	2,933	Feb 2013	11,243	2,933	2,933	2,933	489	0	0	20,531	0	0
	BOBCAT (mistake last rate case = 0)	Mar 2006	22,840	89.89%	1,272	11,312	7	1,616	May 2020	0	0	0	0	943	1,616	1,616	4,175	7,137	1,616
	2013 Kawasaki Utility Vehicle 75%	Jun 2013	12,584	89.89%	1,272	11,312	7	1,616	May 2020	0	0	0	0	943	1,616	1,616	4,175	7,137	1,616
	2014 Kawasaki Utility Vehicle 75%	Jun 2013	12,584	89.89%	3,611	32,102	7	4,586	Apr 2021	0	0	0	0	0	3,440	4,586	8,026	24,077	4,586
	2014 Toyota Tacoma	Apr 2014	35,713	89.89%	3,033	26,967	7	3,852	Oct 2023	0	0	0	0	0	0	0	0	26,967	585

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	Invested Plant	C	D		E	F	G	H	I		AJ	AK	AL	AM	AN	AO	AP	AQ	AR
					Less Golf Course Adj to Plant	Total Adj Plant	NARUC Asset Life	Annual Deprec	Final Month of Deprec	Before 2010	2010	2011	2012	2013	2014	2015	Accumu-lated Deprec. Ending 2015	Remain Plant Beg. 2016	Deprec Expense for 2016
343	**Tools, Shop, and Garage Equipment**				1	10	15	1	Nov 1991	10	0	0	0	0	0	0	10	0	0
	Tools, Shop	Dec 1976	11	89.89%	38	333	15	22	Dec 1990	333	0	0	0	0	0	0	333	0	0
	Tools, Shop	Jan 1976	371	89.89%	142	1,258	15	84	Dec 1992	1,258	0	0	0	0	0	0	1,258	0	0
	Tools, Shop	Jan 1978	1,400	89.89%	57	502	15	33	Dec 1994	502	0	0	0	0	0	0	502	0	0
	Tools, Shop	Jan 1980	559	89.89%	135	1,196	15	80	Jun 2001	1,196	0	0	0	0	0	0	1,196	0	0
	Wheeler Pipe Cutter	Jul 1986	1,331	89.89%	57	507	15	34	Jan 2003	507	0	0	0	0	0	0	507	0	0
	Lockers	Feb 1988	564	89.89%	157	1,393	15	93	May 2005	1,393	0	0	0	0	0	0	1,393	0	0
	Cable Locator	Jun 1990	1,550	89.89%	3,665	32,585	15	2,172	Nov 2006	32,585	0	0	0	0	0	0	32,585	0	0
	JD Backhoe	Dec 1991	36,250	89.89%	80	715	15	48	Oct 2020	199	48	48	48	48	48	48	484	230	48
	Tools - Double Shot Wrenches	Nov 2005	795	89.89%	452	4,023	15	268	Sep 2020	1,140	268	268	268	268	268	268	2,749	1,274	268
	High Pressure Washer	Oct 2005	4,475	89.89%	6,242	55,498	15	3,700	Mar 2021	13,874	3,700	3,700	3,700	3,700	3,700	3,700	36,073	19,424	3,700
	Backhoe	Apr 2006	61,740	89.89%	2,309	20,531	15	1,369	Mar 2021	5,133	1,369	1,369	1,369	1,369	1,369	1,369	13,345	7,186	1,369
	Skid Steer	Apr 2006	22,840	89.89%	767	6,823	15	455	Mar 2022	1,251	455	455	455	455	455	455	3,980	2,843	455
	Case Skidsteerer equipment	Apr 2007	7,590	89.89%	106	944	15	63	Apr 2021	231	63	63	63	63	63	63	608	336	63
	Pipe Rack	May 2006	1,050	89.89%	391	3,475	15	232	Nov 2021	714	232	232	232	232	232	232	2,104	1,371	232
	Snowblower	Dec 2006	3,866	89.89%	194	1,721	15	115	Jan 2027	0	0	0	105	115	115	115	449	1,272	115
	Gas Detector	Feb 2012	1,915	89.89%	215	1,908	15	127	Jan 2027	0	0	0	117	127	127	127	498	1,410	127
	Backflow Testing Guages	Feb 2012	2,123	89.89%	42	370	15	25	May 2028	0	0	0	0	14	25	25	64	307	25
	Storage Racks	Jun 2013	412	89.89%	464	4,121	15	275	Feb 2029	0	0	0	0	0	252	275	527	3,595	275
	Industrial SCBA (Resp Hazmat Cylinders	Feb 2014	4,585	89.89%	5,237	46,563	15	3,104	Apr 2029	0	0	0	0	0	2,328	3,104	5,432	41,130	3,104
	2014 Caterpillar 304E Mini Excavator	Apr 2014	51,800	89.89%	77	683	15	46	May 2029	0	0	0	0	0	30	46	76	607	46
	Gas Detector	May 2014	760	89.89%	4,876	43,354	15	2,890	Oct 2029	0	0	0	0	0	723	2,890	3,613	39,741	2,890
	Vacuum Evacuation Equip	Oct 2014	48,230	89.89%	675	5,998	15	400	Nov 2029	0	0	0	0	0	67	400	467	5,532	400
344	**Laboratory Equipment**				0	2,000	15	133	Dec 1992	2,000	0	0	0	0	0	0	2,000	0	0
345	**Power Operated Equipment**				0	727	10	73	Oct 1995	727	0	0	0	0	0	0	727	0	0
	Cut Off Saw	Nov 1985	727	100.00%	0	1,685	10	169	Dec 2000	1,685	0	0	0	0	0	0	1,685	0	0
	Jackhammer	Jan 1991	1,685	100.00%	86	764	10	76	Apr 2008	764	0	0	0	0	0	0	764	0	0
	Drill Press	May 1998	850	89.89%	138	1,222	10	122	May 2010	1,172	51	0	0	0	0	0	1,222	0	0

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Company Name: Sunriver Water
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	Invested Plant	C	D		E	F	G	H	I		AJ	AK	AL	AM	AN	AO	AP	AQ	AR
					Less Golf Course Adj to Plant	Total Adj Plant	NARUC Asset Life	Annual Deprec	Final Month of Deprec	Before 2010	2010	2011	2012	2013	2014	2015	Accumu-lated Deprec. Ending 2015	Remain Plant Beg. 2016	Deprec Expense for 2016
346	**Communication Equipment**				3	27	10	3	Dec 1985	27	0	0	0	0	0	0	27	0	0
	Telecommunication	Jan 1976	30	89.89%	51	449	10	45	Dec 1989	449	0	0	0	0	0	0	449	0	0
	Communication Equipment	Jan 1980	500	89.89%	138	1,224	10	122	Mar 1995	1,224	0	0	0	0	0	0	1,224	0	0
	Moxy Radio Base Sta	Apr 1985	1,362	89.89%	145	1,293	10	129	Mar 1995	1,293	0	0	0	0	0	0	1,293	0	0
	2 ea Moxy Radio Movile Radios	Apr 1985	1,438	89.89%	70	625	10	62	Mar 1998	625	0	0	0	0	0	0	625	0	0
	Phoenix Radio	Apr 1988	695	89.89%	76	674	10	67	Apr 1999	674	0	0	0	0	0	0	674	0	0
	Mobile Radio	May 1989	750	89.89%	76	674	10	67	Jun 1999	674	0	0	0	0	0	0	674	0	0
	Mobile Radio	Jul 1989	750	89.89%	121	1,077	10	108	Jul 2000	1,077	0	0	0	0	0	0	1,077	0	0
	2 Handheld Radios	Aug 1990	1,198	89.89%	513	4,559	10	456	Nov 2000	4,559	0	0	0	0	0	0	4,559	0	0
	Telemetering Equip	Dec 1990	5,072	89.89%	130	1,156	10	116	Jan 2002	1,156	0	0	0	0	0	0	1,156	0	0
	2 2-Way Radios	Feb 1992	1,286	89.89%	45	405	10	40	Nov 2003	405	0	0	0	0	0	0	405	0	0
	Cellular Phone	Dec 1993	450	89.89%	116	1,032	10	103	Jun 2004	1,032	0	0	0	0	0	0	1,032	0	0
	Mobile Radios	Jul 1994	1,148	89.89%	7,683	68,305	10	6,831	May 2014	38,137	6,831	6,831	6,831	6,831	2,846	0	68,305	0	0
	Woodland Fiber Optics Lablor & MRLS (didn't alloc)	Jun 2004	75,988	89.89%	1,491	13,260	10	1,326	Aug 2014	7,072	1,326	1,326	1,326	1,326	884	0	13,260	0	0
	Woodland Fiber Optic Switches & Ports (didn't alloc)	Sep 2004	14,751	89.89%	100	888	10	89	Apr 2016	326	89	89	89	89	89	89	859	30	30
	Computer Server Switch to Fiber Optic	May 2006	988	89.89%	2,078	18,479	10	1,848	Oct 2020	0	308	1,848	1,848	1,848	1,848	1,848	9,547	8,931	1,848
	GIS Mapping	Nov 2010	20,557	89.89%	762	6,776	10	678	Feb 2022	0	0	0	565	678	678	678	2,597	4,178	678
	GIS Mapping 75%	Mar 2012	7,538	89.89%	771	6,851	10	685	Oct 2022	0	0	0	114	685	685	685	2,170	4,682	685
	GIS Hardware/Software 75%	Nov 2012	7,622	89.89%	115	1,023	10	102	Dec 2024	0	0	0	0	0	9	102	111	912	102
	GIS Communication Software	Dec 2014	1,138	89.89%	163	1,454	10	145	Oct 2025	0	0	0	0	0	0	36	36	1,417	145
	GIS Communication Software & Hardware	Oct 2015	1,617	89.89%	506	4,494	10	449	Oct 2026	0	0	0	0	0	0	0	0	4,494	68
347	**Electronic/Computer Equipment**				0	2,410	5	482	Feb 1995	2,410	0	0	0	0	0	0	2,410	0	0
	Atmospheric Monitor	Mar 1990	2,410	100.00%	0	425	5	85	Jun 1995	425	0	0	0	0	0	0	425	0	0
	Panasonic Printer	Jul 1990	425	100.00%	0	1,140	5	228	Jun 1995	1,140	0	0	0	0	0	0	1,140	0	0
	Personal Computer	Jul 1990	1,140	100.00%	0	1,385	5	277	May 1997	1,385	0	0	0	0	0	0	1,385	0	0
	Fujitsu DL 5800 Printer	Jun 1992	1,385	100.00%	0	24,789	5	4,958	Jul 1999	24,789	0	0	0	0	0	0	24,789	0	0
	Computer Hardware	Aug 1994	24,789	100.00%	0	1,165	5	233	Jun 2001	1,165	0	0	0	0	0	0	1,165	0	0
	Pentium PC	Jul 1996	1,165	100.00%	0	1,800	5	360	Jun 2001	1,800	0	0	0	0	0	0	1,800	0	0
	File Server - Pentium 120	Jul 1996	1,800	100.00%	0	5,500	5	1,100	Jul 2001	5,500	0	0	0	0	0	0	5,500	0	0
	Genicom Line Printer	Aug 1996	5,500	100.00%	0	849	5	170	Sep 2001	849	0	0	0	0	0	0	849	0	0
	Fax Machine - Sharp	Oct 1996	849	100.00%	753	6,697	5	1,339	Oct 2002	6,697	0	0	0	0	0	0	6,697	0	0
	Softwear Upgrade	Nov 1997	7,450	89.89%	0	1,500	5	300	Dec 2002	1,500	0	0	0	0	0	0	1,500	0	0
	Custom Billing Software	Jan 1998	1,500	100.00%	245	2,180	5	436	May 2003	2,180	0	0	0	0	0	0	2,180	0	0
	Meter Reading Unit-Hand Held	Jun 1998	2,425	89.89%	180	1,596	5	319	Jun 2003	1,596	0	0	0	0	0	0	1,596	0	0
	Tape Drive (EXABYTE)	Jul 1998	1,776	89.89%	226	2,011	5	402	Nov 2003	2,011	0	0	0	0	0	0	2,011	0	0
	Computer Routers	Dec 1998	2,237	89.89%	471	4,184	5	837	Mar 2004	4,184	0	0	0	0	0	0	4,184	0	0
	3 Computer/1 Server	Apr 1999	4,655	89.89%	438	3,894	5	779	Dec 2005	3,894	0	0	0	0	0	0	3,894	0	0
	Computer	Jan 2001	4,332	89.89%	7,962	70,789	5	14,158	Oct 2006	70,789	0	0	0	0	0	0	70,789	0	0
	Telemetry Fiber & Conduit	Nov 2001	78,751	89.89%	471	4,186	5	837	Oct 2006	4,186	0	0	0	0	0	0	4,186	0	0
	Software Telemetry	Nov 2001	4,657	89.89%	386	3,432	5	686	Dec 2006	3,432	0	0	0	0	0	0	3,432	0	0
	Dell Server	Dec 2001	3,818	89.89%	1,011	8,988	5	1,798	Dec 2006	8,988	0	0	0	0	0	0	8,988	0	0
	Computer Software Tel	Jan 2002	9,999	89.89%	369	3,276	5	655	Feb 2007	3,276	0	0	0	0	0	0	3,276	0	0
	PCS, Servers, Computer	Mar 2002	3,645	89.89%	189	1,678	5	336	Aug 2007	1,678	0	0	0	0	0	0	1,678	0	0
	Atmospheric Monitor	Sep 2002	1,867	89.89%	1,386	12,323	5	2,465	Oct 2007	12,323	0	0	0	0	0	0	12,323	0	0
	Utility Star Platinum Softwear	Nov 2002	13,709	89.89%	342	3,045	5	609	Oct 2007	3,045	0	0	0	0	0	0	3,045	0	0
	Computer Software Billing	Nov 2002	3,387	89.89%	61	545	5	109	Nov 2007	545	0	0	0	0	0	0	545	0	0
	Laptop	Dec 2002	606	89.89%	302	2,684	5	537	Jul 2009	2,684	0	0	0	0	0	0	2,684	0	0
	HP Laserject Printer	Aug 2004	2,986	89.89%	186	1,651	5	330	Oct 2009	1,651	0	0	0	0	0	0	1,651	0	0
	Dell Precision 470 Desktop	Nov 2004	1,837	89.89%	980	8,717	5	1,743	Nov 2010	7,119	1,598	0	0	0	0	0	8,717	0	0
	Billing Software (UW 160 = $9697)	Dec 2005	9,697	89.89%	135	1,203	5	241	Feb 2011	922	241	40	0	0	0	0	1,203	0	0

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Company Name: Sunriver Water
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	E	F	G	H	I	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
Invested Plant	**Less Golf Course Adj to Plant**	**Total Adj Plant**	**NARUC Asset Life**	**Annual Deprec**	**Final Month of Deprec**	**Before 2010**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Accumu-lated Deprec. Ending 2015**	**Remain Plant Beg. 2016**	**Deprec Expense for 2016**
Computer Equipment	Mar 2006	1,338	89.89%	114	1,015	5	203	Aug 2011	677	203	135	0	0	0	0	0	1,015	0	0
Computer	Sep 2006	1,129	89.89%	59	521	5	104	Sep 2011	339	104	78	0	0	0	0	0	521	0	0
Fiber for Computer	Oct 2006	580	89.89%	802	7,130	5	1,426	Oct 2011	4,516	1,426	1,188	0	0	0	0	0	7,130	0	0
CUSI Software (UW 160 $7932)	Nov 2006	7,932	89.89%	1,141	10,140	5	2,028	Nov 2011	6,253	2,028	1,859	0	0	0	0	0	10,140	0	0
Fiber to Well 2	Dec 2006	11,281	89.89%	478	4,247	5	849	Dec 2011	2,548	849	849	0	0	0	0	0	4,247	0	0
Billing system software (UW 160 $4725)	Jan 2007	4,725	89.89%	97	860	5	172	Jan 2012	502	172	172	14	0	0	0	0	860	0	0
Computer Equipment (UW 160 $957)	Feb 2007	957	89.89%	138	1,225	5	245	Jan 2012	715	245	245	20	0	0	0	0	1,225	0	0
Video Camera	Feb 2007	1,363	89.89%	1,172	10,415	5	2,083	Aug 2012	4,861	2,083	2,083	1,389	0	0	0	0	10,415	0	0
Fiber to Well 2	Sep 2007	11,587	89.89%	86	766	5	153	Oct 2012	332	153	153	128	0	0	0	0	766	0	0
Software telemetry	Nov 2007	852	89.89%	528	4,694	5	939	Dec 2012	1,878	939	939	939	0	0	0	0	4,694	0	0
Computer Equipment (UW 160 $5222)	Jan 2008	5,222	89.89%	487	4,333	5	867	Jun 2013	1,300	867	867	867	433	0	0	0	4,333	0	0
Hand Held Meter Reading	Jul 2008	4,820	89.89%	306	2,720	5	544	Jun 2013	816	544	544	544	272	0	0	0	2,720	0	0
UPS Battery (UW 160 $3026)	Jul 2008	3,026	89.89%	4,097	36,422	5	7,284	Sep 2013	9,106	7,284	7,284	7,284	5,463	0	0	0	36,422	0	0
Zetron/Scada/Wonderware Upgrade	Oct 2008	40,519	89.89%	553	4,918	5	984	Sep 2013	1,229	984	984	984	738	0	0	0	4,918	0	0
Well 12 Telemetry	Oct 2008	5,471	89.89%	842	7,485	5	1,497	Nov 2013	1,622	1,497	1,497	1,497	1,372	0	0	0	7,485	0	0
Computer Equipment (UW 160 $8327)	Dec 2008	8,327	89.89%	4,070	36,181	5	7,236	May 2014	4,221	7,236	7,236	7,236	7,236	3,015	0	0	36,181	0	0
Zetron/Scada/Wonderware Upgrade	Jun 2009	40,251	89.89%	449	3,989	5	798	Aug 2014	266	798	798	798	798	532	0	0	3,989	0	0
Computer Equipment (UW 160 = $4438)	Sep 2009	4,438	89.89%	823	7,318	5	1,464	Mar 2016	0	0	1,098	1,464	1,464	1,464	1,464	6,952	366	366
CUSI payment processor 75%	Apr 2011	8,141	89.89%	436	3,877	5	775	Oct 2018	0	0	0	0	129	775	775	1,680	2,197	775
Software Telemetry 75%	Nov 2013	4,313	89.89%	359	3,196	5	639	Oct 2018	0	0	0	0	107	639	639	1,385	1,811	639
Computer Equipment 75%	Nov 2013	3,555	89.89%	354	3,146	5	629	Feb 2019	0	0	0	0	0	577	629	1,206	1,940	629
Software Telemetry	Feb 2014	3,500	89.89%	1,230	10,935	5	2,187	Jul 2019	0	0	0	0	0	1,094	2,187	3,281	7,655	2,187
PLC Monitoring System	Jul 2014	12,165	89.89%	1,168	10,382	5	2,076	Sep 2019	0	0	0	0	0	692	2,076	2,769	7,614	2,076
ESRI Small Util Term Enterprise License	Sep 2014	11,550	89.89%	125	1,116	5	223	Dec 2019	0	0	0	0	0	19	223	242	874	223
Computer Equipment	Dec 2014	1,241	89.89%	363	3,227	5	645	Dec 2019	0	0	0	0	0	54	645	699	2,528	645
Billing System Server	Dec 2014	3,590	89.89%	745	6,623	5	1,325	Dec 2020	0	0	0	0	0	0	110	110	6,513	1,325
Software Telemetry	Dec 2015	7,368	89.89%	1,011	8,989	5	1,798	Jul 2021	0	0	0	0	0	0	0	0	8,989	683
ESRI Small Utility Software	Aug 2016	10,000	89.89%	289	2,569	5	514	Jan 2021	0	0	0	0	0	0	0	0	2,569	430
Computer Equipment	Feb 2016	2,858	89.89%	1,086	9,656	5	1,931	Jul 2021	0	0	0	0	0	0	0	0	9,656	733

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Company Name: Sunriver Water
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	Invested Plant	C	D		E	F	G	H	I		AJ	AK	AL	AM	AN	AO	AP	AQ	AR
					Less Golf Course Adj to Plant	**Total Adj Plant**	**NARUC Asset Life**	**Annual Deprec**	**Final Month of Deprec**	**Before 2010**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Accumu-lated Deprec. Ending 2015**	**Remain Plant Beg. 2016**	**Deprec Expense for 2016**
348	**Miscellaneous Equipment**				406	3,611	10	361	Jul 1995	3,611	0	0	0	0	0	0	3,611	0	0
	911 Alarm System	Aug 1985	4,017	89.89%	0	3,495	10	350	Nov 1995	3,495	0	0	0	0	0	0	3,495	0	0
	As Built Mapping	Dec 1985	3,495	100.00%	0	849	10	85	Nov 1999	849	0	0	0	0	0	0	849	0	0
	Blue Print	Dec 1989	849	100.00%	0	1,224	10	122	Jun 2002	1,224	0	0	0	0	0	0	1,224	0	0
	Transit Level Tripod	Jul 1992	1,224	100.00%	0	1,028	10	103	Feb 1999	1,028	0	0	0	0	0	0	1,028	0	0
	4 Bravo PA	Mar 1989	1,028	100.00%	0	600	10	60	Nov 2003	600	0	0	0	0	0	0	600	0	0
	Water Cooler	Dec 1993	600	100.00%	0	3,233	10	323	Nov 2012	2,290	323	323	296	0	0	0	3,233	0	0
	Siemans Hydrorangers (2)	Dec 2002	3,233	100.00%	173	1,535	10	154	Jan 2013	1,062	154	154	154	13	0	0	1,535	0	0
	Schonstedt Locator	Feb 2003	1,708	89.89%	71	633	10	63	Jan 2013	438	63	63	63	5	0	0	633	0	0
	Schonstedt Locator	Feb 2003	704	89.89%	2,778	24,700	10	2,470	Nov 2019	206	2,470	2,470	2,470	2,470	2,470	2,470	15,026	9,674	2,470
	GSI Mapping (UW 160 $27,478) but correct on golf	Dec 2009	27,478	89.89%	2,814	25,018	10	2,502	Nov 2018	2,710	2,502	2,502	2,502	2,502	2,502	2,502	17,721	7,297	2,502
	GSI Mapping (UW 160 $27,832) but correct on golf	Dec 2008	27,832	89.89%	2,320	20,628	10	2,063	Nov 2020	0	172	2,063	2,063	2,063	2,063	2,063	10,486	10,142	2,063
	Missing (Used January 1, 2004 as acquired date)	Dec 2010	22,948	89.89%	191	1,702	10	170	Sep 2021	0	0	43	170	170	170	170	723	978	170
	Control lines fault locator	Oct 2011	1,893	89.89%	580	5,161	10	516	Oct 2023	0	0	0	0	86	516	516	1,118	4,042	516
	GIS Mapping 75%	Nov 2013	5,741	89.89%	282	2,508	10	251	Apr 2023	0	0	0	0	167	251	251	669	1,839	251
	Valve exercise machine 100%	May 2013	2,790	89.89%	383	3,409	10	341	Mar 2023	0	0	0	0	256	341	341	937	2,471	341
	Wire Feed welder 100%	Apr 2013	3,792	89.89%	1,062	9,438	10	944	Aug 2025	0	0	0	0	0	0	393	393	9,045	944
	GIS Mapping	Aug 2015	10,500	89.89%	1,490	13,249	10	1,325	Jan 2026	0	0	0	0	0	0	0	0	13,249	1,214
	GIS Trimbles	Feb 2016	14,739	89.89%		0	10	0		0	0	0	0	0	0	0	0	0	0
						0	10	0		0	0	0	0	0	0	0	0	0	0
					803,410	7,284,853		0		1,914,772	170,434	169,884	161,131	150,945	145,316	171,450	2,883,932	4,400,920	196,824
	TOTALS		8,088,263																

221,143

Original Plant In Service Cost	8,088,263
Less: Excess Capacity-Golf Course	803,410
"Used & Useful" Plant	7,284,853
Less Accum Depreciation	3,080,757
NET PLANT	4,204,096

2016 Depreciation Expense	196,824

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Invested Plant-Golf

Acct No.	Account Description	Date Acquired	Utility Plant Orig Cost		Less Excess Capacity Adj to Plant	Total Adj Plant	NARUC Asset Life	Annual Deprec	Final Month of Deprec	Before 2010	2010	2011	2012	2013	2014	2015	Accumu-lated Deprec. Ending 2015	Remain Plant Beg. 2016	Deprec Expense for 2016
		C	D		E	F	G	H	I	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	
301	**Organization**																		
302	**Franchises**																		
303	**Land and Land Rights**																		
	Land and Land Rights	Jun 1970	3,159	10.11%	2,840	319	0	0		0	0	0	0	0	0	0	0	319	0
	Land and Land Rights	Jun 1970	13,695	10.11%	12,310	1,385	0	0		0	0	0	0	0	0	0	0	1,385	0
	Land and Land Rights	Jan 1994	1,343	10.11%	1,207	136	0	0		0	0	0	0	0	0	0	0	136	0
	Land and Land Rights (mistake last rate case = 0)	May 2010	860	10.11%	773	87	0	0		0	0	0	0	0	0	0	0	87	0
	T9729 Application (land)	Jul 2005	350	10.11%	315	35	0	0		0	0	0	0	0	0	0	0	35	0
	Water Rights Well #14	Jul 2006	4,524	10.11%	4,067	457	0	0		0	0	0	0	0	0	0	0	457	0
	OWRD Land Rights	Dec 2006	800	10.11%	719	81	0	0		0	0	0	0	0	0	0	0	81	0
	Water Rights	Dec 2007	4,020	10.11%	3,614	406	0	0		0	0	0	0	0	0	0	0	406	0
	Water Resevoir	Sep 2008	1,956	10.11%	1,758	198	0	0		0	0	0	0	0	0	0	0	198	0
	Water Rights	Nov 2008	12,170	10.11%	10,940	1,230	0	0		0	0	0	0	0	0	0	0	1,230	0
	Water Rights	Mar 2009	3,525	10.11%	3,169	356	0	0		0	0	0	0	0	0	0	0	356	0
	Water Resevoir	Mar 2009	2,934	10.11%	2,637	297	0	0		0	0	0	0	0	0	0	0	297	0
	Water Rights Amendment T8841	Nov 2011	23,723	10.11%	21,324	2,399	0	0		0	0	0	0	0	0	0	0	2,399	0
	Purchase ground water rights COID well 4	Nov 2013	75,333	10.11%	67,716	7,617	0	0		0	0	0	0	0	0	0	0	7,617	0
	COID Groundwater Rights	Jun 2014	5,410	10.11%	4,863	547	0	0		0	0	0	0	0	0	0	0	547	0
	Fidelity Water Rights	Jul 2014	37,979	10.11%	34,139	3,840	0	0		0	0	0	0	0	0	0	0	3,840	0
	Water Rights 2014 Carryover	Mar 2015	7,655	10.11%	6,881	774	0	0		0	0	0	0	0	0	0	0	774	0
	Well 15 Groundwater Approp Mitigation Credits	Apr 2015	31,700	10.11%	28,495	3,205	0	0		0	0	0	0	0	0	0	0	3,205	0
304	**Structures and Improvements**																		
	Structures and Improvements	Oct 1969	31,057	10.11%	27,917	3,140	50	63	Sep 2019	2,528	63	63	63	63	63	63	2,905	236	63
	Structures and Improvements	May 1971	4,861	10.11%	4,370	492	35	14	Apr 2006	492	0	0	0	0	0	0	492	0	0
	Structures and Improvements	Jun 1971	3,442	10.11%	3,094	348	35	10	Jun 2006	348	0	0	0	0	0	0	348	0	0
	#4 Well Building	Jul 1982	18,747	10.11%	16,852	1,895	35	54	Jun 2017	1,489	54	54	54	54	54	54	1,814	81	54
	Office Bldg	Jan 1984	5,827	10.11%	5,237	589	35	17	Dec 2018	438	17	17	17	17	17	17	539	50	17
	#1 Booster Bldg	Dec 1987	26,821	10.11%	24,109	2,712	35	77	Dec 2022	1,711	77	77	77	77	77	77	2,176	536	77
	Structures and Improvements	Dec 1990	41	10.11%	37	4	35	0	Dec 2025	2	0	0	0	0	0	0	3	1	0
	Concrete Retaining Wall	Nov 1992	2,218	10.11%	1,994	224	35	6	Nov 2027	110	6	6	6	6	6	6	148	76	6
	Tree Removal & Clean Up	Aug 2004	3,245	10.11%	2,917	328	40	8	Aug 2044	44	8	8	8	8	8	8	94	234	8
	Reservior Fences	Oct 2004	26,680	10.11%	23,982	2,698	20	135	Oct 2024	708	135	135	135	135	135	135	1,517	1,180	135
	Concrete Floor	Nov 2004	940	10.11%	845	95	40	2	Nov 2044	12	2	2	2	2	2	2	27	69	2
	Aluminum Floor Plate	Mar 2005	405	10.11%	364	41	35	1	Mar 2040	6	1	1	1	1	1	1	13	28	1
	Structures and Improvements	Dec 2015	4,633	10.11%	4,165	468	35	13	Dec 2050	0	0	0	0	0	0	1	1	467	13
	Well 9 Roof Replacement	Dec 2015	7,004	10.11%	6,296	708	35	20	Dec 2050	0	0	0	0	0	0	2	2	706	20
	Water Tank Painting inside b/c of Rust	Aug 2016	8,650	10.11%	7,775	875	35	25	Jul 2051	0	0	0	0	0	0	0	0	875	10
305	**Collecting and Impounding Reservoirs**																		
306	**Lake, River and Other Intakes**																		
307	**Wells and Springs**																		
	Well - GC 111	Dec 1981	10,171	10.11%	9,143	1,028	25	41	Nov 2006	1,028	0	0	0	0	0	0	1,028	0	0
	#8 well ties	Jun 1984	1,784	10.11%	1,604	180	25	7	May 2009	180	0	0	0	0	0	0	180	0	0
	Airport/skpark well ties	Aug 1985	9,777	10.11%	8,788	989	25	40	Jul 2010	965	23	0	0	0	0	0	989	0	0

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Acct No.	Account Description	Date Acquired	Utility Plant Orig Cost		Less Excess Capacity Adj to Plant	Total Adj Plant	NARUC Asset Life	Annual Deprec	Final Month of Deprec	Before 2010	2010	2011	2012	2013	2014	2015	Accumu-lated Deprec. Ending 2015	Remain Plant Beg. 2016	Deprec Expense for 2016
	Well #9 30/17 FPV IV	Dec 1988	19,467	10.11%	17,499	1,968	25	79	Nov 2013	1,660	79	79	79	72	0	0	1,968	0	0
	Well #2 Upgrade	Dec 1989	6,497	10.11%	5,840	657	25	26	Nov 2014	528	26	26	26	26	24	0	657	0	0
	Airport Well 89	Dec 1989	8,106	10.11%	7,286	820	25	33	Nov 2014	658	33	33	33	33	30	0	820	0	0
	Water Maines/Well Tie	Jun 1994	6,865	10.11%	6,171	694	25	28	May 2019	433	28	28	28	28	28	28	599	95	28
	New Well - Reservoir Site Well #14	Feb 2007	993,232	10.11%	892,809	100,423	25	4,017	Jan 2032	11,716	4,017	4,017	4,017	4,017	4,017	4,017	35,817	64,605	4,017
100% GC	CW Well Additions	Jan 1997	7,061	100.00%	0	7,061	35	202	Dec 2031	2,623	202	202	202	202	202	202	3,833	3,228	202
100% GC	Crosswater Well structures & equipment	Feb 1995	75,013	100.00%	0	75,013	25	3,001	Jan 2020	44,758	3,001	3,001	3,001	3,001	3,001	3,001	62,761	12,252	3,001
100% GC	Crosswater Well equipment	Feb 1995	105,325	100.00%	0	105,325	25	4,213	Feb 2020	62,844	4,213	4,213	4,213	4,213	4,213	4,213	88,122	17,203	4,213
	Well & Booster SCADA Automation	Jul 2015	28,035	10.11%	25,200	2,835	25	113	Jul 2040	0	0	0	0	0	0	57	57	2,778	113
	Well 15 test well design/pt of appropriation transfer	Aug 2016	17,781	10.11%	15,983	1,798	25	72	Jul 2041	0	0	0	0	0	0	0	0	1,798	30
	Test Well Construction	**Jan 2017**	**0**	10.11%	**0**	0	25	0	Dec 2041	0	0	0	0	0	0	0	0	0	0
308	**Infiltration Galleries and Tunnels**																		
309	**Supply Main**																		
	12" Water Tie	Dec 1987	7,143	10.11%	6,421	722	50	14	Nov 2037	319	14	14	14	14	14	14	406	317	14
310	**Power Generation Equipment**																		
	#2 well aux power structure	Apr 1985	14,397	10.11%	12,941	1,456	35	42	Mar 2020	1,029	42	42	42	42	42	42	1,279	177	42
	#2 well aux power equip	Apr 1985	30,146	10.11%	27,098	3,048	30	102	Mar 2015	2,515	102	102	102	102	102	25	3,048	0	0
	Circle #9 Well Aux Power	Sep 1986	46,953	10.11%	42,206	4,747	30	158	Aug 2016	3,692	158	158	158	158	158	158	4,642	105	105
	Circle #9 Well Aux Power	Dec 1986	73,182	10.11%	65,783	7,399	35	211	Nov 2021	4,880	211	211	211	211	211	211	6,148	1,251	211
	Kubota Portable Generator	Oct 1988	1,349	10.11%	1,213	136	30	5	Sep 2018	97	5	5	5	5	5	5	124	13	5
	Booster #1 Generator	Oct 1988	22,571	10.11%	20,289	2,282	30	76	Sep 2018	1,616	76	76	76	76	76	76	2,073	209	76
	Fuel Tanks	Nov 1992	22,298	10.11%	20,044	2,254	30	75	Oct 2022	1,290	75	75	75	75	75	75	1,741	514	75
	Diesel Tank Cover	Oct 1995	1,003	10.11%	902	101	30	3	Sep 2025	48	3	3	3	3	3	3	68	33	3
	Bobcat Port Generator 5K watt	Jun 2003	1,800	10.11%	1,618	182	10	18	May 2013	120	18	18	18	8	0	0	182	0	0
	Kohler Generator (used)	Dec 2004	5,525	10.11%	4,966	559	10	56	Nov 2014	284	56	56	56	56	51	0	559	0	0
	Hi Level Booster #2	Nov 2011	84,711	10.11%	76,146	8,565	30	285	Oct 2041	0	0	48	285	285	285	285	1,190	7,375	285
311	**Pumping Equipment**																		
	Electric pumping equipment	Jun 1976	18,473	10.11%	16,605	1,868	20	93	May 1996	1,868	0	0	0	0	0	0	1,868	0	0
	Electric pumping equipment	Jun 1977	778	10.11%	699	79	20	4	May 1997	79	0	0	0	0	0	0	79	0	0
	Electric pumping equipment	Dec 1978	1,058	10.11%	951	107	20	5	Nov 1998	107	0	0	0	0	0	0	107	0	0
	Electric pumping equipment	Dec 1979	17,095	10.11%	15,367	1,728	20	86	Nov 1999	1,728	0	0	0	0	0	0	1,728	0	0
	High level booster station	Jul 1982	3,178	10.11%	2,857	321	20	16	Jun 2002	321	0	0	0	0	0	0	321	0	0
	2 EA GP pumps	Dec 1983	494	10.11%	444	50	20	2	Nov 2003	50	0	0	0	0	0	0	50	0	0
	High level booster station	Oct 1984	15,882	10.11%	14,276	1,606	20	80	Sep 2004	1,606	0	0	0	0	0	0	1,606	0	0
	High level booster #2 equi	Oct 1984	52,426	10.11%	47,125	5,301	20	265	Sep 2004	5,301	0	0	0	0	0	0	5,301	0	0
	Mink Lane Booster	Nov 1989	11,886	10.11%	10,684	1,202	20	60	Oct 2009	1,202	0	0	0	0	0	0	1,202	0	0
	Overflow system	Jun 1991	3,091	10.11%	2,778	313	20	16	May 2011	290	16	7	0	0	0	0	313	0	0
	Portable Water Pump	Apr 1992	370	10.11%	333	37	20	2	Mar 2012	33	2	2	0	0	0	0	37	0	0
	Pump	Jul 1995	1,324	10.11%	1,190	134	20	7	Jun 2015	97	7	7	7	7	7	3	134	0	0
	8 HP Pump	Sep 1998	1,215	10.11%	1,092	123	20	6	Aug 2018	70	6	6	6	6	6	6	106	16	6
	Pump Controllers	May 2002	4,703	10.11%	4,227	476	20	24	Apr 2022	182	24	24	24	24	24	24	325	151	24
	Water Booster PLC	Dec 2002	8,494	10.11%	7,635	859	20	43	Nov 2022	304	43	43	43	43	43	43	562	297	43
	Water Booster Station	Jun 2004	34,602	10.11%	31,103	3,499	20	175	May 2024	977	175	175	175	175	175	175	2,026	1,472	175
	Pump Wiring	Dec 2004	5,429	10.11%	4,880	549	20	27	Nov 2024	140	27	27	27	27	27	27	304	245	27
	Electric Pump Control WH&H	Jan 2005	6,744	10.11%	6,062	682	20	34	Dec 2024	170	34	34	34	34	34	34	375	307	34
	Well 14 Motor	Jun 2009	5,311	10.11%	4,774	537	20	27	May 2029	16	27	27	27	27	27	27	177	360	27

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	Electric Pumping Equipment	Dec 2009	14,365	10.11%	12,913	1,452	20	73	Nov 2029	6	73	73	73	73	73	73	442	1,011	73
	Well 9 pump, pull, & replacement	Apr 2014	24,383	10.11%	21,918	2,465	20	123	Apr 2034	0	0	0	0	0	92	123	216	2,250	123
	Reservoir Building	Aug 2014	10,969	10.11%	9,860	1,109	20	55	Aug 2034	0	0	0	0	0	23	55	79	1,030	55
	Well Motor Rebuild	Jul 2015	5,709	10.11%	5,132	577	20	29	Jul 2035	0	0	0	0	0	0	14	14	563	29
320	**Water Treatment Equipment**																		
	Chlorinator	Jan 2005	7,010	0.00%	7,010	0	20	0	Dec 2024	0	0	0	0	0	0	0	0	0	0
330	**Distribution Reservoir and Standpipes**																		
	Distribution Reservoir and Standpipes	Jun 1970	106,124	10.11%	95,394	10,730	50	215	May 2020	8,494	215	215	215	215	215	215	9,782	948	215
	Distribution Reservoir and Standpipes	Jul 1976	129,238	10.11%	116,171	13,067	50	261	Jun 2026	8,755	261	261	261	261	261	261	10,323	2,744	261
	Floats for water servoir	Sep 1983	562	10.11%	505	57	50	1	Aug 2033	30	1	1	1	1	1	1	37	20	1
	Pressure Reducing Station	Dec 1988	3,742	10.11%	3,364	378	50	8	Nov 2038	160	8	8	8	8	8	8	205	173	8
	Paint 3 Reservoir Tanks	Aug 1996	6,150	10.11%	5,528	622	50	12	Jul 2046	167	12	12	12	12	12	12	241	380	12
	Water Reservoir Telemetry	Dec 1997	2,176	10.11%	1,956	220	50	4	Nov 2047	53	4	4	4	4	4	4	80	140	4
	Hydro Ranger	Sep 2007	2,737	10.11%	2,460	277	50	6	Aug 2057	13	6	6	6	6	6	6	46	231	6
	North Reservoir Planning	Aug 2014	31,717	10.11%	28,510	3,207	50	64	Jul 2064	0	0	0	0	0	27	64	91	3,116	64
	North Reservoir (CWIP 2,032,967) Actual 2015*	Jun 2015	2,171,141	10.11%	1,951,624	219,517	50	4,390	May 2065	0	0	0	0	0	0	2,561	2,561	216,956	4,390
	North Reservoir 2014	Jun 2014	72,385	10.11%	65,066	7,319	50	146	May 2064	0	0	0	0	0	85	146	232	7,087	146
	2015 Carry Over: North Reservoir	Aug 2016	14,528	10.11%	13,059	1,469	50	29	Jul 2066	0	0	0	0	0	0	0	0	1,469	12
331	**Transmission and Distribution Mains**																		
	Airport/S	Oct 1984	655	10.11%	589	66	50	1	Sep 2034	33	1	1	1	1	1	1	41	25	1
	Airport/S Park Water Line	Dec 1986	10,772	10.11%	9,683	1,089	50	22	Nov 2036	503	22	22	22	22	22	22	634	456	22
	Pasture Water Line	Jul 1987	1,485	10.11%	1,335	150	50	3	Jun 2037	68	3	3	3	3	3	3	86	65	3
	Marina Quelah Tie	Dec 1989	16,464	10.11%	14,799	1,665	50	33	Nov 2039	669	33	33	33	33	33	33	868	796	33
	Busines Park Tie	Jan 1990	24,984	10.11%	22,458	2,526	50	51	Dec 2039	1,010	51	51	51	51	51	51	1,314	1,213	51
	6" Clay Valve	Apr 1991	2,643	10.11%	2,376	267	50	5	Mar 2041	100	5	5	5	5	5	5	132	135	5
	DEA Water Connection	Dec 1993	810	10.11%	728	82	50	2	Nov 2043	26	2	2	2	2	2	2	36	46	2
	ZAGT Water Connection	Dec 1993	12,705	10.11%	11,420	1,285	50	26	Nov 2043	413	26	26	26	26	26	26	567	717	26
	ZAGT Subdivision Water	Dec 1993	14,112	0.00%	14,112	0	50	0	Nov 2043	0	0	0	0	0	0	0	0	0	0
	ZAGT Water Distribution	Dec 1993	10,145	0.00%	10,145	0	50	0	Nov 2043	0	0	0	0	0	0	0	0	0	0
	ZAGT Subdivision Water	Dec 1993	8,469	0.00%	8,469	0	50	0	Nov 2043	0	0	0	0	0	0	0	0	0	0
	ZAGT Subdivision Water	Mar 1994	46,763	0.00%	46,763	0	50	0	Feb 2044	0	0	0	0	0	0	0	0	0	0
	ZAGT Subdivision Water	Apr 1994	4,447	0.00%	4,447	0	50	0	Mar 2044	0	0	0	0	0	0	0	0	0	0
	ZAGT Water Distribution	Apr 1994	147,551	0.00%	147,551	0	50	0	Mar 2044	0	0	0	0	0	0	0	0	0	0
	ZAGT Water Distribution	May 1994	65,037	0.00%	65,037	0	50	0	Apr 2044	0	0	0	0	0	0	0	0	0	0
	ZAGT Water Distribution	Mar 1994	8,550	0.00%	8,550	0	50	0	Feb 2044	0	0	0	0	0	0	0	0	0	0
	ZAGT Subdivision Water	Jul 1994	1,990	0.00%	1,990	0	50	0	Jun 2044	0	0	0	0	0	0	0	0	0	0
	ZAGT Water Connection Bus P	Aug 1994	26,129	10.11%	23,487	2,642	50	53	Jul 2044	815	53	53	53	53	53	53	1,132	1,510	53
	ZAGT Water Connection Bus P	Sep 1994	19,940	10.11%	17,924	2,016	50	40	Aug 2044	618	40	40	40	40	40	40	860	1,156	40
	Other Subdivision Water	Dec 1994	11,105	0.00%	11,105	0	50	0	Nov 2044	0	0	0	0	0	0	0	0	0	0
	ZAGT Water Connection	Feb 1995	2,495	10.11%	2,243	252	50	5	Jan 2045	75	5	5	5	5	5	5	106	147	5
	Water Distribution Phase III	Dec 1995	127,563	0.00%	127,563	0	50	0	Nov 2045	0	0	0	0	0	0	0	0	0	0
	Valve Delineators	May 1997	4,822	10.11%	4,334	488	50	10	Apr 2047	124	10	10	10	10	10	10	182	306	10
	Water Distribution Phase IV	Dec 1997	236	10.11%	212	24	50	0	Nov 2047	6	0	0	0	0	0	0	9	15	0
	Excavate/Install 12" Water Line	Oct 2003	6,694	10.11%	6,017	677	50	14	Sep 2053	85	14	14	14	14	14	14	166	511	14
	Install 12" Pipe	Aug 2004	11,000	10.11%	9,888	1,112	50	22	Jul 2054	120	22	22	22	22	22	22	254	858	22
	Eccentric Reducer & Parts	Dec 2004	1,848	10.11%	1,661	187	50	4	Nov 2054	19	4	4	4	4	4	4	41	145	4
	Valve Delineators	Sep 2007	2,032	10.11%	1,827	205	50	4	Aug 2057	10	4	4	4	4	4	4	34	171	4
	Water Pipe Relocation Roundabout	Feb 2008	22,752	10.11%	20,452	2,300	50	46	Jan 2058	88	46	46	46	46	46	46	364	1,936	46
	Valve Delineators	Dec 2009	6,808	10.11%	6,120	688	50	14	Nov 2059	1	14	14	14	14	14	14	84	605	14

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	Pipe to Woodlands	Aug 2007	1,032	0.00%	1,032	0	50	0	Jul 2057	0	0	0	0	0	0	0	0	0	0
	Crosswater Valve Boxes	Oct 2011	3,602	0.00%	3,602	0	50	0	Sep 2061	0	0	0	0	0	0	0	0	0	0
	Tennis Village Water Loop	Nov 2013	14,032	0.00%	14,032	0	50	0	Oct 2063	0	0	0	0	0	0	0	0	0	0
333	**Services**																		
334	**Meters and Meter Installations**																		
	1977 additions (meters)	Sep 1976	1,580	0.00%	1,580	0	20	0	Aug 1996	0	0	0	0	0	0	0	0	0	0
	Meter Installations	Dec 1976	62	0.00%	62	0	20	0	Nov 1996	0	0	0	0	0	0	0	0	0	0
	Meters	Jun 1977	217	0.00%	217	0	20	0	May 1997	0	0	0	0	0	0	0	0	0	0
	Meter Installations	Dec 1979	1,293	0.00%	1,293	0	20	0	Nov 1999	0	0	0	0	0	0	0	0	0	0
	Meters	Apr 1980	31,934	0.00%	31,934	0	20	0	Mar 2000	0	0	0	0	0	0	0	0	0	0
	Meters	Oct 1980	13,097	0.00%	13,097	0	20	0	Sep 2000	0	0	0	0	0	0	0	0	0	0
	Meter Installations	Oct 1980	7,939	0.00%	7,939	0	20	0	Sep 2000	0	0	0	0	0	0	0	0	0	0
	Meters	Aug 1981	5,151	0.00%	5,151	0	20	0	Jul 2001	0	0	0	0	0	0	0	0	0	0
	Meters	Aug 1981	12,939	0.00%	12,939	0	20	0	Jul 2001	0	0	0	0	0	0	0	0	0	0
	Meter Installations	Aug 1981	14,346	0.00%	14,346	0	20	0	Jul 2001	0	0	0	0	0	0	0	0	0	0
	Meter Installations	Aug 1981	28,921	0.00%	28,921	0	20	0	Jul 2001	0	0	0	0	0	0	0	0	0	0
	Meters	Jul 1982	7,857	0.00%	7,857	0	20	0	Jun 2002	0	0	0	0	0	0	0	0	0	0
	Meter Installations	Nov 1982	8,077	0.00%	8,077	0	20	0	Oct 2002	0	0	0	0	0	0	0	0	0	0
	1983 Meters	Jun 1983	5,378	0.00%	5,378	0	20	0	May 2003	0	0	0	0	0	0	0	0	0	0
	1983 Meter Installations	Jun 1983	6,488	0.00%	6,488	0	20	0	May 2003	0	0	0	0	0	0	0	0	0	0
	1984 Meters	Jun 1984	4,612	0.00%	4,612	0	20	0	May 2004	0	0	0	0	0	0	0	0	0	0
	1984 Meter Installations	Jul 1984	6,051	0.00%	6,051	0	20	0	Jun 2004	0	0	0	0	0	0	0	0	0	0
	1985 Meter	Jul 1985	5,130	0.00%	5,130	0	20	0	Jun 2005	0	0	0	0	0	0	0	0	0	0
	1985 Meter Installations	Jun 1985	7,552	0.00%	7,552	0	20	0	May 2005	0	0	0	0	0	0	0	0	0	0
	Metering Equipment	Dec 1986	4,087	0.00%	4,087	0	20	0	Nov 2006	0	0	0	0	0	0	0	0	0	0
	1986 Meter Installations	Dec 1986	4,731	0.00%	4,731	0	20	0	Nov 2006	0	0	0	0	0	0	0	0	0	0
	1987 Meters	Dec 1987	5,100	0.00%	5,100	0	20	0	Nov 2007	0	0	0	0	0	0	0	0	0	0
	1987 Meter Installation	Dec 1987	7,352	0.00%	7,352	0	20	0	Nov 2007	0	0	0	0	0	0	0	0	0	0
	1988 Meters	Dec 1988	3,483	0.00%	3,483	0	20	0	Nov 2008	0	0	0	0	0	0	0	0	0	0
	1988 Meter Installation	Dec 1988	10,494	0.00%	10,494	0	20	0	Nov 2008	0	0	0	0	0	0	0	0	0	0
	1989 Meters	Jun 1989	6,908	0.00%	6,908	0	20	0	May 2009	0	0	0	0	0	0	0	0	0	0
	1989 Meter Installation	Jun 1989	17,169	0.00%	17,169	0	20	0	May 2009	0	0	0	0	0	0	0	0	0	0
	1990 Meters	Feb 1990	6,790	0.00%	6,790	0	20	0	Jan 2010	0	0	0	0	0	0	0	0	0	0
	1990 Meter Installation	Dec 1990	18,166	0.00%	18,166	0	20	0	Nov 2010	0	0	0	0	0	0	0	0	0	0
	8" Flow Meter	Mar 1991	3,520	0.00%	3,520	0	20	0	Feb 2011	0	0	0	0	0	0	0	0	0	0
	1991 Meters	Dec 1991	13,614	0.00%	13,614	0	20	0	Nov 2011	0	0	0	0	0	0	0	0	0	0
	1991 Meter Installation	Dec 1991	23,614	0.00%	23,614	0	20	0	Nov 2011	0	0	0	0	0	0	0	0	0	0
	1992 Meters	Dec 1992	5,001	0.00%	5,001	0	20	0	Nov 2012	0	0	0	0	0	0	0	0	0	0
	1992 Meter Installation	Dec 1992	15,008	0.00%	15,008	0	20	0	Nov 2012	0	0	0	0	0	0	0	0	0	0
	1993 Meters	Dec 1993	4,885	0.00%	4,885	0	20	0	Nov 2013	0	0	0	0	0	0	0	0	0	0
	1993 Meters Installation	Dec 1993	8,867	0.00%	8,867	0	20	0	Nov 2013	0	0	0	0	0	0	0	0	0	0
	1994 Meters	Dec 1994	12,475	0.00%	12,475	0	20	0	Nov 2014	0	0	0	0	0	0	0	0	0	0
	1994 Meters Installation	Dec 1994	6,132	0.00%	6,132	0	20	0	Nov 2014	0	0	0	0	0	0	0	0	0	0
	1996 Meters	Dec 1996	19,184	0.00%	19,184	0	20	0	Nov 2016	0	0	0	0	0	0	0	0	0	0
	1996 Meters Instalation	Dec 1996	8,953	0.00%	8,953	0	20	0	Nov 2016	0	0	0	0	0	0	0	0	0	0
	1997 Meters	Dec 1997	14,461	0.00%	14,461	0	20	0	Nov 2017	0	0	0	0	0	0	0	0	0	0
	1997 Meter Installation	Dec 1997	6,144	0.00%	6,144	0	20	0	Nov 2017	0	0	0	0	0	0	0	0	0	0
	1999 Meters	Dec 1999	22,654	0.00%	22,654	0	20	0	Nov 2019	0	0	0	0	0	0	0	0	0	0
	1999 Meter Installation	Dec 1999	9,608	0.00%	9,608	0	20	0	Nov 2019	0	0	0	0	0	0	0	0	0	0

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	Meters	Dec 2000	11,561	0.00%	11,561	0	20	0	Nov 2020	0	0	0	0	0	0	0	0	0	0
	Water Meters	Jun 2001	6,040	0.00%	6,040	0	20	0	May 2021	0	0	0	0	0	0	0	0	0	0
	Meters	Oct 2002	7,102	0.00%	7,102	0	20	0	Sep 2022	0	0	0	0	0	0	0	0	0	0
	Meters	Dec 2002	11,561	0.00%	11,561	0	20	0	Nov 2022	0	0	0	0	0	0	0	0	0	0
	Meters	Oct 2003	6,046	0.00%	6,046	0	20	0	Sep 2023	0	0	0	0	0	0	0	0	0	0
	Meters	Dec 2004	5,947	0.00%	5,947	0	20	0	Nov 2024	0	0	0	0	0	0	0	0	0	0
	Flowmeter	Jun 2005	846	0.00%	846	0	20	0	May 2025	0	0	0	0	0	0	0	0	0	0
	Meters	Dec 2005	5,814	0.00%	5,814	0	20	0	Nov 2025	0	0	0	0	0	0	0	0	0	0
	Meter Installations	Jul 2006	3,216	0.00%	3,216	0	20	0	Jun 2026	0	0	0	0	0	0	0	0	0	0
	Meter Installations	Jul 2006	7,064	0.00%	7,064	0	20	0	Jun 2026	0	0	0	0	0	0	0	0	0	0
	Meters	May 2006	8,235	0.00%	8,235	0	20	0	Apr 2026	0	0	0	0	0	0	0	0	0	0
	Meters	Jul 2006	32,152	0.00%	32,152	0	20	0	Jun 2026	0	0	0	0	0	0	0	0	0	0
	Meters	Dec 2007	71,193	0.00%	71,193	0	20	0	Nov 2027	0	0	0	0	0	0	0	0	0	0
	Meters	Jul 2008	80,371	0.00%	80,371	0	20	0	Jun 2028	0	0	0	0	0	0	0	0	0	0
	Meter Installations	Sep 2009	47,422	0.00%	47,422	0	20	0	Aug 2029	0	0	0	0	0	0	0	0	0	0
	Meter Installation	Jul 2010	56,505	0.00%	56,505	0	20	0	Jun 2030	0	0	0	0	0	0	0	0	0	0
	Meters	Jul 2011	28,062	0.00%	28,062	0	20	0	Jun 2031	0	0	0	0	0	0	0	0	0	0
	Meter Installation	Jul 2011	4,867	0.00%	4,867	0	20	0	Jun 2031	0	0	0	0	0	0	0	0	0	0
	Meter Installation	Oct 2012	2,518	0.00%	2,518	0	20	0	Sep 2032	0	0	0	0	0	0	0	0	0	0
	Meters	Oct 2012	18,348	0.00%	18,348	0	20	0	Sep 2032	0	0	0	0	0	0	0	0	0	0
	Meter Installation	Jun 2013	8,741	0.00%	8,741	0	20	0	May 2033	0	0	0	0	0	0	0	0	0	0
	Meters	Jun 2013	23,574	0.00%	23,574	0	20	0	May 2033	0	0	0	0	0	0	0	0	0	0
	Meter Installation	Jul 2014	9,891	0.00%	9,891	0	20	0	Jul 2034	0	0	0	0	0	0	0	0	0	0
	Meters	Jul 2014	24,041	0.00%	24,041	0	20	0	Jul 2034	0	0	0	0	0	0	0	0	0	0
	Meter Installation	Jun 2015	15,166	0.00%	15,166	0	20	0	Jun 2035	0	0	0	0	0	0	0	0	0	0
	Meters	Jun 2015	109,373	0.00%	109,373	0	20	0	Jun 2035	0	0	0	0	0	0	0	0	0	0
	Meters	Jul 2016	15,445	0.00%	15,445	0	20	0	Jun 2036	0	0	0	0	0	0	0	0	0	0
	Meter Installation	Jul 2016	60,790	0.00%	60,790	0	20	0	Jun 2036	0	0	0	0	0	0	0	0	0	0
335	**Hydrants**																		
	Fire Hydrant Flow Meter	Sep 1994	535	0.00%	535	0	35	0	Aug 2029	0	0	0	0	0	0	0	0	0	0
	Hydrant Pump & Extendable Retriever	Mar 2005	733	0.00%	733	0	40	0	Feb 2045	0	0	0	0	0	0	0	0	0	0
	Hydrants	Aug 2008	329	0.00%	329	0	40	0	Jul 2048	0	0	0	0	0	0	0	0	0	0
	Hydrants	Jul 2010	1,780	0.00%	1,780	0	40	0	Jun 2050	0	0	0	0	0	0	0	0	0	0
	Hydrants	Nov 2011	13,064	0.00%	13,064	0	40	0	Oct 2051	0	0	0	0	0	0	0	0	0	0
	Hydrants	May 2016	6,835	0.00%	6,835	0	40	0	Apr 2056	0	0	0	0	0	0	0	0	0	0
336	**Cross Connection Control (utility owned)**																		
	Test guage for backflow	Apr 1983	759	0.00%	759	0	15	0	Mar 1998	0	0	0	0	0	0	0	0	0	0
	Backflow Testing Gauge	Dec 2010	775	0.00%	775	0	15	0	Nov 2025	0	0	0	0	0	0	0	0	0	0
	Backflow Testing Gauge	Nov 2016	985	0.00%	985	0	15	0	Oct 2031	0	0	0	0	0	0	0	0	0	0
339	**Other Plant**																		
	Magnetic Locator Mac-51B	Jul 1996	1,725	10.11%	1,551	174	20	9	Jun 2016	118	9	9	9	9	9	9	170	4	4
	Reservoir Fence Resurfacing	Sep 2010	2,750	0.00%	2,750	0	30	0	Aug 2040	0	0	0	0	0	0	0	0	0	0
	Water Master Plan	Dec 2011	22,828	10.11%	20,520	2,308	20	115	Nov 2031	0	0	10	115	115	115	115	471	1,837	115
	Water Mgmnt and Conservation plan update	Jan 2013	24,308	10.11%	21,850	2,458	40	61	Dec 2052	0	0	0	0	61	61	61	184	2,273	61
	Pressure Reducing Vaults	Nov 2016	25,000	10.11%	22,472	2,528	30	84	Oct 2046	0	0	0	0	0	0	0	0	2,528	14

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340	**Office Furniture and Equipment**																		
	File Cabinet	Feb 1986	131	0.00%	131	0	20	0	Jan 2006	0	0	0	0	0	0	0	0	0	0
	2 Desks, 5 Chairs	Feb 1989	1,334	0.00%	1,334	0	20	0	Jan 2009	0	0	0	0	0	0	0	0	0	0
	Copy Machine	Feb 1991	1,700	0.00%	1,700	0	20	0	Jan 2011	0	0	0	0	0	0	0	0	0	0
	Work Station	Dec 2000	2,324	0.00%	2,324	0	20	0	Nov 2020	0	0	0	0	0	0	0	0	0	0
341	**Transportation Equipment**																		
	1974 Ford	Jan 1974	1,500	0.00%	1,500	0	7	0	Dec 1980	0	0	0	0	0	0	0	0	0	0
	1979 Ford	Jan 1979	2,400	0.00%	2,400	0	7	0	Dec 1985	0	0	0	0	0	0	0	0	0	0
	1980 Toyota	Nov 1982	2,600	0.00%	2,600	0	7	0	Oct 1989	0	0	0	0	0	0	0	0	0	0
	1983 GMC	Jul 1985	7,527	0.00%	7,527	0	7	0	Jun 1992	0	0	0	0	0	0	0	0	0	0
	Ford Couri	Apr 1986	2,147	0.00%	2,147	0	7	0	Mar 1993	0	0	0	0	0	0	0	0	0	0
	1986 Jeep Pickup	Mar 1986	7,729	0.00%	7,729	0	7	0	Feb 1993	0	0	0	0	0	0	0	0	0	0
	1984 Dodge Pickup	Mar 1986	4,029	0.00%	4,029	0	7	0	Feb 1993	0	0	0	0	0	0	0	0	0	0
	1988 Dodge Truck	Apr 1988	6,780	0.00%	6,780	0	7	0	Mar 1995	0	0	0	0	0	0	0	0	0	0
	Jeep Pickup	Mar 1990	11,835	0.00%	11,835	0	7	0	Feb 1997	0	0	0	0	0	0	0	0	0	0
	1983 GMC Dump Truck	Jun 1990	15,806	0.00%	15,806	0	7	0	May 1997	0	0	0	0	0	0	0	0	0	0
	Fertilizer Spreader	May 1990	236	0.00%	236	0	7	0	Apr 1997	0	0	0	0	0	0	0	0	0	0
	1990 Ford Ranger	Jun 1990	14,740	0.00%	14,740	0	7	0	May 1997	0	0	0	0	0	0	0	0	0	0
	Snow Plow	Oct 1995	5,200	0.00%	5,200	0	7	0	Sep 2002	0	0	0	0	0	0	0	0	0	0
	New Engine - Ford Ranger	Feb 1997	3,643	0.00%	3,643	0	7	0	Jan 2004	0	0	0	0	0	0	0	0	0	0
	Truck Qua Cab	May 1998	23,497	0.00%	23,497	0	7	0	Apr 2005	0	0	0	0	0	0	0	0	0	0
	1999 Ford Ranger	Jun 1999	20,243	0.00%	20,243	0	7	0	May 2006	0	0	0	0	0	0	0	0	0	0
	1994 Ford F150	Jul 1999	8,119	0.00%	8,119	0	7	0	Jun 2006	0	0	0	0	0	0	0	0	0	0
	Snow Plow	Dec 2002	12,465	10.11%	11,205	1,260	7	180	Nov 2009	1,260	0	0	0	0	0	0	1,260	0	0
	2003 Dodge Dakota (white)	Apr 2003	21,426	10.11%	19,260	2,166	7	309	Mar 2010	2,089	77	0	0	0	0	0	2,166	0	0
	2003 Dodge 1500 SLT (white)	May 2003	25,719	10.11%	23,119	2,600	7	371	Apr 2010	2,477	124	0	0	0	0	0	2,600	0	0
	2004 Ddakota 4X4	Mar 2004	22,463	10.11%	20,192	2,271	7	324	Feb 2011	1,893	324	54	0	0	0	0	2,271	0	0
	2005 Dodge Truck	Apr 2005	21,402	10.11%	19,238	2,164	7	309	Mar 2012	1,468	309	309	77	0	0	0	2,164	0	0
	Dodge Truck w/Canopy	May 2005	24,877	10.11%	22,362	2,515	7	359	Apr 2012	1,677	359	359	120	0	0	0	2,515	0	0
	International Dump Truck	Jun 2005	36,909	10.11%	33,177	3,732	7	533	May 2012	2,443	533	533	222	0	0	0	3,732	0	0
	2006 Dodge Dakota 4WD replaces 99 Ford Ranger	Mar 2006	22,831	10.11%	20,523	2,308	7	330	Feb 2013	1,264	330	330	330	55	0	0	2,308	0	0
	Pipe Rack for Truck	Mar 2006	2,100	10.11%	1,888	212	7	30	Feb 2013	116	30	30	30	5	0	0	212	0	0
	Truck Qua Cab 2007 (correct cost here but not golf)	May 2007	24,431	10.11%	21,961	2,470	7	353	Apr 2014	941	353	353	353	353	118	0	2,470	0	0
	Dodge Dakota Truck 2008 (correct cost,but not golf)	Jun 2008	10,418	10.11%	9,365	1,053	7	150	May 2015	238	150	150	150	150	150	63	1,053	0	0
	BOBCAT (mistake last rate case = 0)	Mar 2006	22,840	10.11%	20,531	2,309	7	330	Feb 2013	1,265	330	330	330	55	0	0	2,309	0	0
	2013 Kawasaki Utility Vehicle 75%	Jun 2013	12,584	10.11%	11,312	1,272	7	182	May 2020	0	0	0	0	106	182	182	470	803	182
	2014 Kawasaki Utility Vehicle 75%	Jun 2013	12,584	10.11%	11,312	1,272	7	182	May 2020	0	0	0	0	106	182	182	470	803	182
	2014 Toyota Tacoma	Apr 2014	35,713	10.11%	32,102	3,611	7	516	Apr 2021	0	0	0	0	0	387	516	903	2,708	516
	Truck Replacement	Nov 2016	30,000	10.11%	26,967	3,033	7	433	Oct 2023	0	0	0	0	0	0	0	0	3,033	66
343	**Tools, Shop, and Garage Equipment**																		
	Tools, Shop	Dec 1976	11	10.11%	10	1	15	0	Nov 1991	1	0	0	0	0	0	0	1	0	0
	Tools, Shop	Jan 1976	371	10.11%	333	38	15	3	Dec 1990	38	0	0	0	0	0	0	38	0	0
	Tools, Shop	Jan 1978	1,400	10.11%	1,258	142	15	9	Dec 1992	142	0	0	0	0	0	0	142	0	0
	Tools, Shop	Jan 1980	559	10.11%	502	57	15	4	Dec 1994	57	0	0	0	0	0	0	57	0	0
	Wheeler Pipe Cutter	Jul 1986	1,331	10.11%	1,196	135	15	9	Jun 2001	135	0	0	0	0	0	0	135	0	0
	Lockers	Feb 1988	564	10.11%	507	57	15	4	Jan 2003	57	0	0	0	0	0	0	57	0	0
	Cable Locator	Jun 1990	1,550	10.11%	1,393	157	15	10	May 2005	157	0	0	0	0	0	0	157	0	0
	JD Backhoe	Dec 1991	36,250	10.11%	32,585	3,665	15	244	Nov 2006	3,665	0	0	0	0	0	0	3,665	0	0
	Tools - Double Shot Wrenches	Nov 2005	795	10.11%	715	80	15	5	Oct 2020	22	5	5	5	5	5	5	54	26	5

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	High Pressure Washer	Oct 2005	4,475	10.11%	4,023	452	15	30	Sep 2020	128	30	30	30	30	30	30	309	143	30
	Backhoe	Apr 2006	61,740	10.11%	55,498	6,242	15	416	Mar 2021	1,561	416	416	416	416	416	416	4,058	2,185	416
	Skid Steer	Apr 2006	22,840	10.11%	20,531	2,309	15	154	Mar 2021	577	154	154	154	154	154	154	1,501	808	154
	Case Skidsteerer equipment	Apr 2007	7,590	10.11%	6,823	767	15	51	Mar 2022	141	51	51	51	51	51	51	448	320	51
	Pipe Rack	May 2006	1,050	10.11%	944	106	15	7	Apr 2021	26	7	7	7	7	7	7	68	38	7
	Snowblower	Dec 2006	3,866	10.11%	3,475	391	15	26	Nov 2021	80	26	26	26	26	26	26	237	154	26
	Gas Detector	Feb 2012	1,915	10.11%	1,721	194	15	13	Jan 2027	0	0	0	12	13	13	13	51	143	13
	Backflow Testing Guages	Feb 2012	2,123	10.11%	1,908	215	15	14	Jan 2027	0	0	0	13	14	14	14	56	159	14
	Storage Racks	Jun 2013	412	10.11%	370	42	15	3	May 2028	0	0	0	0	2	3	3	7	34	3
	Industrial SCBA (Resp Hazmat Cylinders	Feb 2014	4,585	10.11%	4,121	464	15	31	Feb 2029	0	0	0	0	0	28	31	59	404	31
	2014 Caterpillar 304E Mini Excavator	Apr 2014	51,800	10.11%	46,563	5,237	15	349	Apr 2029	0	0	0	0	0	262	349	611	4,626	349
	Gas Detector	May 2014	760	10.11%	683	77	15	5	May 2029	0	0	0	0	0	3	5	9	68	5
	Vacuum Evacuation Equip	Oct 2014	48,230	10.11%	43,354	4,876	15	325	Oct 2029	0	0	0	0	0	81	325	406	4,470	325
	Bobcat Equipment	Nov 2014	6,673	10.11%	5,998	675	15	45	Nov 2029	0	0	0	0	0	7	45	52	622	45
344	**Laboratory Equipment**																		
	Lab Equipment	Jan 1978	2,000	0.00%	2,000	0	15	0	Dec 1992	0	0	0	0	0	0	0	0	0	0
345	**Power Operated Equipment**																		
	Cut Off Saw	Nov 1985	727	0.00%	727	0	10	0	Oct 1995	0	0	0	0	0	0	0	0	0	0
	Jackhammer	Jan 1991	1,685	0.00%	1,685	0	10	0	Dec 2000	0	0	0	0	0	0	0	0	0	0
	Drill Press	May 1998	850	10.11%	764	86	10	9	Apr 2008	86	0	0	0	0	0	0	86	0	0
	Jackhammer	Jun 2000	1,360	10.11%	1,222	138	10	14	May 2010	132	6	0	0	0	0	0	138	0	0
346	**Communication Equipment**																		
	Telecommunication	Jan 1976	30	10.11%	27	3	10	0	Dec 1985	3	0	0	0	0	0	0	3	0	0
	Communication Equipment	Jan 1980	500	10.11%	449	51	10	5	Dec 1989	51	0	0	0	0	0	0	51	0	0
	Moxy Radio Base Sta	Apr 1985	1,362	10.11%	1,224	138	10	14	Mar 1995	138	0	0	0	0	0	0	138	0	0
	2 ea Moxy Radio Movile Radios	Apr 1985	1,438	10.11%	1,293	145	10	15	Mar 1995	145	0	0	0	0	0	0	145	0	0
	Phoenix Radio	Apr 1988	695	10.11%	625	70	10	7	Mar 1998	70	0	0	0	0	0	0	70	0	0
	Mobile Radio	May 1989	750	10.11%	674	76	10	8	Apr 1999	76	0	0	0	0	0	0	76	0	0
	Mobile Radio	Jul 1989	750	10.11%	674	76	10	8	Jun 1999	76	0	0	0	0	0	0	76	0	0
	2 Handheld Radios	Aug 1990	1,198	10.11%	1,077	121	10	12	Jul 2000	121	0	0	0	0	0	0	121	0	0
	Telemetering Equip	Dec 1990	5,072	10.11%	4,559	513	10	51	Nov 2000	513	0	0	0	0	0	0	513	0	0
	2 2-Way Radios	Feb 1992	1,286	10.11%	1,156	130	10	13	Jan 2002	130	0	0	0	0	0	0	130	0	0
	Cellular Phone	Dec 1993	450	10.11%	405	45	10	5	Nov 2003	45	0	0	0	0	0	0	45	0	0
	Mobile Radios	Jul 1994	1,148	10.11%	1,032	116	10	12	Jun 2004	116	0	0	0	0	0	0	116	0	0
	Woodland Fiber Optics Lablor & MRLS (didn't alloc)	Jun 2004	75,988	10.11%	68,305	7,683	10	768	May 2014	4,290	768	768	768	768	320	0	7,683	0	0
	Woodland Fiber Optic Switches & Ports (didn't alloc)	Sep 2004	14,751	10.11%	13,260	1,491	10	149	Aug 2014	795	149	149	149	149	99	0	1,491	0	0
	Computer Server Switch to Fiber Optic	May 2006	988	10.11%	888	100	10	10	Apr 2016	37	10	10	10	10	10	10	97	3	3
	GIS Mapping	Nov 2010	20,557	10.11%	18,479	2,078	10	208	Oct 2020	0	35	208	208	208	208	208	1,074	1,005	208
	GIS Mapping 75%	Mar 2012	7,538	10.11%	6,776	762	10	76	Feb 2022	0	0	0	64	76	76	76	292	470	76
	GIS Hardware/Software 75%	Nov 2012	7,622	10.11%	6,851	771	10	77	Oct 2022	0	0	0	13	77	77	77	244	527	77
	GIS Communication Software	Dec 2014	1,138	10.11%	1,023	115	10	12	Dec 2024	0	0	0	0	0	1	12	12	103	12
	GIS Communication Software & Hardware	Oct 2015	1,617	10.11%	1,454	163	10	16	Oct 2025	0	0	0	0	0	0	4	4	159	16
	GIS communications Software and Hardware	Nov 2016	5,000	10.11%	4,494	506	10	51	Oct 2026	0	0	0	0	0	0	0	0	506	8

Docket # UW 169
Test Year: 2015

Invested Plant-Golf

	C	D		E	F	G	H	I	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
Acct No.	Account Description	Date Acquired	Utility Plant Orig Cost		Less Excess Capacity Adj to Plant	Total Adj Plant	NARUC Asset Life	Annual Deprec	Final Month of Deprec	Before 2010	2010	2011	2012	2013	2014	2015	Accumu-lated Deprec. Ending 2015	Remain Plant Beg. 2016	Deprec Expense for 2016
347	**Electronic/Computer Equipment**																		
	Atmospheric Monitor	Mar 1990	2,410	0.00%	2,410	0	5	0	Feb 1995	0	0	0	0	0	0	0	0	0	0
	Panasonic Printer	Jul 1990	425	0.00%	425	0	5	0	Jun 1995	0	0	0	0	0	0	0	0	0	0
	Personal Computer	Jul 1990	1,140	0.00%	1,140	0	5	0	Jun 1995	0	0	0	0	0	0	0	0	0	0
	Fujitsu DL 5800 Printer	Jun 1992	1,385	0.00%	1,385	0	5	0	May 1997	0	0	0	0	0	0	0	0	0	0
	Computer Hardware	Aug 1994	24,789	0.00%	24,789	0	5	0	Jul 1999	0	0	0	0	0	0	0	0	0	0
	Pentium PC	Jul 1996	1,165	0.00%	1,165	0	5	0	Jun 2001	0	0	0	0	0	0	0	0	0	0
	File Server - Pentium 120	Jul 1996	1,800	0.00%	1,800	0	5	0	Jun 2001	0	0	0	0	0	0	0	0	0	0
	Genicom Line Printer	Aug 1996	5,500	0.00%	5,500	0	5	0	Jul 2001	0	0	0	0	0	0	0	0	0	0
	Fax Machine - Sharp	Oct 1996	849	0.00%	849	0	5	0	Sep 2001	0	0	0	0	0	0	0	0	0	0
	Softwear Upgrade	Nov 1997	7,450	10.11%	6,697	753	5	151	Oct 2002	753	0	0	0	0	0	0	753	0	0
	Custom Billing Software	Jan 1998	1,500	0.00%	1,500	0	5	0	Dec 2002	0	0	0	0	0	0	0	0	0	0
	Meter Reading Unit-Hand Held	Jun 1998	2,425	10.11%	2,180	245	5	49	May 2003	245	0	0	0	0	0	0	245	0	0
	Tape Drive (EXABYTE)	Jul 1998	1,776	10.11%	1,596	180	5	36	Jun 2003	180	0	0	0	0	0	0	180	0	0
	Computer Routers	Dec 1998	2,237	10.11%	2,011	226	5	45	Nov 2003	226	0	0	0	0	0	0	226	0	0
	3 Computer/1 Server	Apr 1999	4,655	10.11%	4,184	471	5	94	Mar 2004	471	0	0	0	0	0	0	471	0	0
	Computer	Jan 2001	4,332	10.11%	3,894	438	5	88	Dec 2005	438	0	0	0	0	0	0	438	0	0
	Telemetry Fiber & Conduit	Nov 2001	78,751	10.11%	70,789	7,962	5	1,592	Oct 2006	7,962	0	0	0	0	0	0	7,962	0	0
	Software Telemetry	Nov 2001	4,657	10.11%	4,186	471	5	94	Oct 2006	471	0	0	0	0	0	0	471	0	0
	Dell Server	Dec 2001	3,818	10.11%	3,432	386	5	77	Dec 2006	386	0	0	0	0	0	0	386	0	0
	Computer Software Tel	Jan 2002	9,999	10.11%	8,988	1,011	5	202	Dec 2006	1,011	0	0	0	0	0	0	1,011	0	0
	PCS, Servers, Computer	Mar 2002	3,645	10.11%	3,276	369	5	74	Feb 2007	369	0	0	0	0	0	0	369	0	0
	Atmospheric Monitor	Sep 2002	1,867	10.11%	1,678	189	5	38	Aug 2007	189	0	0	0	0	0	0	189	0	0
	Utility Star Platinum Softwear	Nov 2002	13,709	10.11%	12,323	1,386	5	277	Oct 2007	1,386	0	0	0	0	0	0	1,386	0	0
	Computer Software Billing	Nov 2002	3,387	10.11%	3,045	342	5	68	Oct 2007	342	0	0	0	0	0	0	342	0	0
	Laptop	Dec 2002	606	10.11%	545	61	5	12	Nov 2007	61	0	0	0	0	0	0	61	0	0
	HP Laserject Printer	Aug 2004	2,986	10.11%	2,684	302	5	60	Jul 2009	302	0	0	0	0	0	0	302	0	0
	Dell Precision 470 Desktop	Nov 2004	1,837	10.11%	1,651	186	5	37	Oct 2009	186	0	0	0	0	0	0	186	0	0
	Billing Software (UW 160 = $9697)	Dec 2005	9,697	10.11%	8,717	980	5	196	Nov 2010	801	180	0	0	0	0	0	980	0	0
	Computer Equipment	Mar 2006	1,338	10.11%	1,203	135	5	27	Feb 2011	104	27	5	0	0	0	0	135	0	0
	Computer	Sep 2006	1,129	10.11%	1,015	114	5	23	Aug 2011	76	23	15	0	0	0	0	114	0	0
	Fiber for Computer	Oct 2006	580	10.11%	521	59	5	12	Sep 2011	38	12	9	0	0	0	0	59	0	0
	CUSI Software (UW 160 $7932)	Nov 2006	7,932	10.11%	7,130	802	5	160	Oct 2011	508	160	134	0	0	0	0	802	0	0
	Fiber to Well 2	Dec 2006	11,281	10.11%	10,140	1,141	5	228	Nov 2011	703	228	209	0	0	0	0	1,141	0	0
	Billing system software (UW 160 $4725)	Jan 2007	4,725	10.11%	4,247	478	5	96	Dec 2011	287	96	96	0	0	0	0	478	0	0
	Computer Equipment (UW 160 $957)	Feb 2007	957	10.11%	860	97	5	19	Jan 2012	56	19	19	2	0	0	0	97	0	0
	Video Camera	Feb 2007	1,363	10.11%	1,225	138	5	28	Jan 2012	80	28	28	2	0	0	0	138	0	0
	Fiber to Well 2	Sep 2007	11,587	10.11%	10,415	1,172	5	234	Aug 2012	547	234	234	156	0	0	0	1,172	0	0
	Software telemetry	Nov 2007	852	10.11%	766	86	5	17	Oct 2012	37	17	17	14	0	0	0	86	0	0
	Computer Equipment (UW 160 $5222)	Jan 2008	5,222	10.11%	4,694	528	5	106	Dec 2012	211	106	106	106	0	0	0	528	0	0
	Hand Held Meter Reading	Jul 2008	4,820	10.11%	4,333	487	5	97	Jun 2013	146	97	97	97	49	0	0	487	0	0
	UPS Battery (UW 160 $3026)	Jul 2008	3,026	10.11%	2,720	306	5	61	Jun 2013	92	61	61	61	31	0	0	306	0	0
	Zetron/Scada/Wonderware Upgrade	Oct 2008	40,519	10.11%	36,422	4,097	5	819	Sep 2013	1,024	819	819	819	615	0	0	4,097	0	0
	Well 12 Telemetry	Oct 2008	5,471	10.11%	4,918	553	5	111	Sep 2013	138	111	111	111	83	0	0	553	0	0
	Computer Equipment (UW 160 $8327)	Dec 2008	8,327	10.11%	7,485	842	5	168	Nov 2013	182	168	168	168	154	0	0	842	0	0
	Zetron/Scada/Wonderware Upgrade	Jun 2009	40,251	10.11%	36,181	4,070	5	814	May 2014	475	814	814	814	814	339	0	4,070	0	0
	Computer Equipment (UW 160 = $4438)	Sep 2009	4,438	10.11%	3,989	449	5	90	Aug 2014	30	90	90	90	90	60	0	449	0	0
	CUSI payment processor 75%	Apr 2011	8,141	10.11%	7,318	823	5	165	Mar 2016	0	0	123	165	165	165	165	782	41	41
	Software Telemetry 75%	Nov 2013	4,313	10.11%	3,877	436	5	87	Oct 2018	0	0	0	0	15	87	87	189	247	87
	Computer Equipment 75%	Nov 2013	3,555	10.11%	3,196	359	5	72	Oct 2018	0	0	0	0	12	72	72	156	204	72

Docket # UW 169
Test Year: 2015

Invested Plant-Golf

	C	D		E	F	G	H	I	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
Acct No.	Account Description	Date Acquired	Utility Plant Orig Cost		Less Excess Capacity Adj to Plant	Total Adj Plant	NARUC Asset Life	Annual Deprec	Final Month of Deprec	Before 2010	2010	2011	2012	2013	2014	2015	Accumu-lated Deprec. Ending 2015	Remain Plant Beg. 2016	Deprec Expense for 2016
	Software Telemetry	Feb 2014	3,500	10.11%	3,146	354	5	71	Feb 2019	0	0	0	0	0	65	71	136	218	71
	PLC Monitoring System	Jul 2014	12,165	10.11%	10,935	1,230	5	246	Jul 2019	0	0	0	0	0	123	246	369	861	246
	ESRI Small Util Term Enterprise License	Sep 2014	11,550	10.11%	10,382	1,168	5	234	Sep 2019	0	0	0	0	0	78	234	311	856	234
	Computer Equipment	Dec 2014	1,241	10.11%	1,116	125	5	25	Dec 2019	0	0	0	0	0	2	25	27	98	25
	Billing System Server	Dec 2014	3,590	10.11%	3,227	363	5	73	Dec 2019	0	0	0	0	0	6	73	79	284	73
	Software Telemetry	Dec 2015	7,368	10.11%	6,623	745	5	149	Dec 2020	0	0	0	0	0	0	12	12	733	149
	ESRI Small Utility Software	Aug 2016	10,000	10.11%	8,989	1,011	5	202	Jul 2021	0	0	0	0	0	0	0	0	1,011	77
	Computer Equipment	Feb 2016	2,858	10.11%	2,569	289	5	58	Jan 2021	0	0	0	0	0	0	0	0	289	48
	Software Telemetry	Aug 2016	10,742	10.11%	9,656	1,086	5	217	Jul 2021	0	0	0	0	0	0	0	0	1,086	83
348	**Miscellaneous Equipment**																		
	911 Alarm System	Aug 1985	4,017	10.11%	3,611	406	10	41	Jul 1995	406	0	0	0	0	0	0	406	0	0
	As Built Mapping	Dec 1985	3,495	0.00%	3,495	0	10	0	Nov 1995	0	0	0	0	0	0	0	0	0	0
	Blue Print	Dec 1989	849	0.00%	849	0	10	0	Nov 1999	0	0	0	0	0	0	0	0	0	0
	Transit Level Tripod	Jul 1992	1,224	0.00%	1,224	0	10	0	Jun 2002	0	0	0	0	0	0	0	0	0	0
	4 Bravo PA	Mar 1989	1,028	0.00%	1,028	0	10	0	Feb 1999	0	0	0	0	0	0	0	0	0	0
	Water Cooler	Dec 1993	600	0.00%	600	0	10	0	Nov 2003	0	0	0	0	0	0	0	0	0	0
	Siemans Hydrorangers (2)	Dec 2002	3,233	0.00%	3,233	0	10	0	Nov 2012	0	0	0	0	0	0	0	0	0	0
	Schonstedt Locator	Feb 2003	1,708	10.11%	1,535	173	10	17	Jan 2013	119	17	17	17	1	0	0	173	0	0
	Schonstedt Locator	Feb 2003	704	10.11%	633	71	10	7	Jan 2013	49	7	7	7	1	0	0	71	0	0
	GSI Mapping (UW 160 $27,478) but correct on golf	Dec 2009	27,478	10.11%	24,700	2,778	10	278	Nov 2019	23	278	278	278	278	278	278	1,690	1,088	278
	GSI Mapping (UW 160 $27,832) but correct on golf	Dec 2008	27,832	10.11%	25,018	2,814	10	281	Nov 2018	305	281	281	281	281	281	281	1,993	821	281
	Missing (Used January 1, 2004 as acquired date)	Dec 2010	22,948	10.11%	20,628	2,320	10	232	Nov 2020	0	19	232	232	232	232	232	1,179	1,141	232
	Control lines fault locator	Oct 2011	1,893	10.11%	1,702	191	10	19	Sep 2021	0	0	5	19	19	19	19	81	110	19
	GIS Mapping 75%	Nov 2013	5,741	10.11%	5,161	580	10	58	Oct 2023	0	0	0	0	10	58	58	126	455	58
	Valve exercise machine 100%	May 2013	2,790	10.11%	2,508	282	10	28	Apr 2023	0	0	0	0	19	28	28	75	207	28
	Wire Feed welder 100%	Apr 2013	3,792	10.11%	3,409	383	10	38	Mar 2023	0	0	0	0	29	38	38	105	278	38
	GIS Mapping	Aug 2015	10,500	10.11%	9,438	1,062	10	106	Aug 2025	0	0	0	0	0	0	44	44	1,017	106
	GIS Trimbles	Feb 2016	14,739	10.11%	13,249	1,490	10	149	Jan 2026	0	0	0	0	0	0	0	0	1,490	136
						0	10	0		0	0	0	0	0	0	0	0	0	0
						0	10	0		0	0	0	0	0	0	0	0	0	0
	TOTALS		8,088,263		7,284,853	803,410		0		240,447	22,520	22,323	21,389	20,187	19,436	21,971	368,273	435,137	24,318

Original Plant In Service Cost	8,088,263
Less: Excess Capacity-Golf Course	7,284,853
"Used & Useful" Plant	803,410
Less Accum Depreciation	392,591
NET PLANT	410,819

2016 Depreciation Expense	24,318

CASE: UW 169
WITNESS: GREG MILLER

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 103

Exhibits in Support
Of Opening Testimony

July 7, 2017

Public Utility Commission
201 High Street Suite 100
Salem, OR 97301
Mailing Address
PO Box 1088
Salem, OR 97308-1088

Sunriver Water LLC
PO Box 369
Sunriver, OR 97707

Docket No.	Staff Request Nos.
UW 169	DR 24-40

39. For each of the years 2013, 2014 and 2015, how much labor associated with employee wages has Sunriver Water capitalized as part of its capital projects.

Answer to request number DR 39

This response is prepared by Thomas Samwel, Director of Finance. To the best of my knowledge, the only labor capitalized for all projects of Sunriver Water LLC are recorded as meter installation. All other projects are fully completed by outside vendors. Therefore, the following capitalized labor amounts and projects (some of which are provided in DR 22 and DR 38) are listed below:

2013 Meter Installation	8,741
2014 Meter Installation	9,891
2015 Meter Installation	15,166

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Docket No.	Staff Request Nos.
UW 169	DR 12

Please provide a narrative explanation of the increases/decreases for the following operating expenses since the last rate case, UW 160 in 2014:

12. #620 O&M/Supplies +67%

Response to request number DR 12

UW160 in 2014 was based on the 2013 test year. The current rate case UW 169 is based on the test year of 2015. Here are the yearly final figures for PUC Account 620, O&M/Supplies between the two test years:

2013	2015
6,842	11,063

Sunriver Water LLC uses a different chart of accounts than the PUC for internal reporting but converts internal reporting to PUC account numbers for rate applications. The following pages consist of the account(s) and related general ledger detail report for the expenses that make up the 2015 figures listed above. Following the General ledger detail report are copies of supporting documents for each expense.

5023-689-7720-0000	141
5023-689-8170-0000	80
5023-689-8360-0000	2,899
5023-694-8200-0000	1,682
5023-696-7090-0000	61
5023-698-7520-0000	6,200
Total	11,063

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Docket No.	Staff Request Nos.
UW 169	DR 13

Please provide a narrative explanation of the increases/decreases for the following operating expenses since the last rate case, UW 160 in 2014:

13. #621 Repairs to Water Plant +261%

Response to request number DR 13

UW160 in 2014 was based on the 2013 test year. The current rate case UW 169 is based on the test year of 2015. Here are the yearly final figures for PUC Account 620, O&M/Supplies between the two test years:

2013	2015
9,015	18,564

Sunriver Water LLC uses a different chart of accounts than the PUC for internal reporting but converts internal reporting to PUC account numbers for rate applications. The following pages consist of the account(s) and related general ledger detail report for the expenses that make up the 2015 figures listed above. Following the General ledger detail report are copies of supporting documents for each expense.

5023-689-7350-0000	199
5023-693-7350-0000	927
5023-694-7350-0000	2,212
5023-698-7350-0000	5,705
5023-698-7350-4960	5
5023-698-7350-6059	2,160
5023-698-7350-8227	7,356
Total	18,564

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Docket No.	Staff Request Nos.
UW 169	DR 16

Please provide a narrative explanation of the increases/decreases for the following operating expenses since the last rate case, UW 160 in 2014:

16. #638 Contract Svcs-Elec/Mechanical +277%

Response to request number DR 16

UW160 in 2014 was based on the 2013 test year. The current rate case UW 169 is based on the test year of 2015. Here are the yearly final figures for PUC Account 638, Contract Svs – Elec/Mechanical, between the two test years:

2013	2015
13,951	33,506

Sunriver Water LLC uses a different chart of accounts than the PUC for internal reporting but converts internal reporting to PUC account numbers for rate applications. The following pages consist of the account(s) and related general ledger detail report for the expenses that make up the 2015 figures listed above. Following the General ledger detail report are copies of supporting documents for each expense.

5023-689-7160-0000	16,045
5023-694-7160-0000	3,997
5023-694-7300-0000	9,542
5023-696-7300-0000	40
5023-698-7160-0000	1,724
5023-699-7160-0000	2,158
Total	33,506

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Docket No.	Staff Request Nos.
UW 169	DR 17

Please provide a narrative explanation of the increases/decreases for the following operating expenses since the last rate case, UW 160 in 2014:

17. #643 Small Tools +667%

Response to request number DR 17

UW160 in 2014 was based on the 2013 test year. The current rate case UW 169 is based on the test year of 2015. Here are the yearly final figures for PUC Account 643, Small tools between the two test years:

2013	2015
1,974	5,442

Sunriver Water LLC uses a different chart of accounts than the PUC for internal reporting but converts internal reporting to PUC account numbers for rate applications. The following pages consist of the account(s) and related general ledger detail report for the expenses that make up the 2015 figures listed above. Following the General ledger detail report are copies of supporting documents for each expense.

5023-689-7390-0000	389
5023-691-7390-0000	400
5023-694-7390-0000	71
5023-696-7390-0000	7
5023-698-7390-0000	4,000
5023-698-7390-8440	577
Total	5,442

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Sunriver Water LLC
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Docket No.	Staff Request Nos.
UW 169	DR 14

Please provide a narrative explanation of the increases/decreases for the following operating expenses since the last rate case, UW 160 in 2014:

14. #633 Legal +311%

Response to request number DR 14

UW160 in 2014 was based on the 2013 test year. The current rate case UW 169 is based on the test year of 2015. Here are the yearly final figures for PUC Account 633, legal between the two test years:

2013	2015
3,257	15,778

Sunriver Water LLC uses a different chart of accounts than the PUC for internal reporting but converts internal reporting to PUC account numbers for rate applications. The following pages consist of the account(s) and related general ledger detail report for the expenses that make up the 2015 figures listed above. Following the General ledger detail report are copies of supporting documents for each expense.

5023-689-7680-0000	15,778
Total	15,778

Summary of 2015 Sunriver Legal Expenses

	Invoice	Staff Adjustment	Final
March	$ 3,330		$ 3,330
April	$ 750		$ 750
May	$ 1,770		$ 1,770
June	$ 1,170	$ (330)	$ 840
July	$ 1,620		$ 1,620
August	$ 2,603		$ 2,603
September	$ 1,615		$ 1,615
October	$ 1,920	$ (300)	$ 1,620
TOTAL	**$ 14,778**	**$ (630)**	**$ 14,148**

RADLER WHITE PARKS ALEXANDER LLP
ATTORNEYS AT LAW

Staff/103
Miller/8

ACCOUNTING MONTH	
ACCOUNT #	AMOUNT
5023-489-7680-000	$3330.00
TOTAL	$3330.00

INVOICE APPROVED BY/DATE
GM 4/27/15

Portland Office
111 SW Columbia St, Suite 1100
Portland, Oregon 97201
Telephone (971) 634-0200
Fax: (971) 634-0222

Bend Office
P.O. Box 2007
Bend, Oregon 97709
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Sunriver Resort Limited Partnership
P.O. Box 3609
Sunriver, OR 97707

Statement Date: 03/31/2015
Client/Matter No. 1152.021
Statement No. 7257
Page No. 1

MATTER: **Sunriver Water** ← Greg per Steve

Professional Services Rendered Through 03/31/2015

			Rate	Hours	
03/02/2015	SPH	Draft and revise leases for AI application. Revise filing application. Legal research regarding authority of PUC to disregard existing AI Management Agreement. Email with client regarding same.	300.00	6.60	1,980.00
03/09/2015	SPH	Review and research related to PUC response to AI application. Begin drafting response letter to PUC.	300.00	2.20	660.00
03/11/2015	SPH	Prepare for and legal research related to response to PUC regarding AI contracts. Participate in conference call regarding same.	300.00	1.50	450.00
03/23/2015	SPH	Email correspondence with PUC staff regarding IA application.	300.00	0.30	90.00
03/26/2015	SPH	Review email and petition to intervene in AI agreement filing by SROA. Email correspondence with Mr. Runner and O'Shea regarding same.	300.00	0.50	150.00
		Total For Current Services Rendered		11.10	3,330.00

Fee Summary

Timekeeper	Hours	Rate	Total
Steven P. Hultberg	11.10	$300.00	$3,330.00

Total Current Work	3,330.00
Previous Balance	~~$2,250.00~~ PAID

Please remit payment to: Radler White Parks & Alexander LLP, 111 SW Columbia Street, Suite 1100, Portland, OR 97201
Any sums that are not paid within thirty (30) days of the statement date bear interest at the rate of nine percent (9%) per annum until paid.
FEIN: 45-4651837

RADLER WHITE PARKS ALEXANDER LLP
ATTORNEYS AT LAW

Portland Office
111 SW Columbia St, Suite 1100
Portland, Oregon 97201
Telephone (971) 634-0200
Fax: (971) 634-0222

ACCOUNTING MONTH MAY 2015
ACCOUNT # 5023-689-7680-0000 AMOUNT
TOTAL 7,50.00
INVOICE APPROVED BY/DATE GM 5/26/15

Bend Office
P.O. Box 2007
Bend, Oregon 97709
Telephone (541) 585-3697
Fax: (541) 585-3698

Sunriver Resort Limited Partnership
P.O. Box 3609
Sunriver, OR 97707

Statement Date: 04/30/2015
Client/Matter No. 1152.021
Statement No. 7310
Page No. 1

MATTER: **Sunriver Water**

Professional Services Rendered Through 04/30/2015

			Rate	Hours	
04/14/2015	SPH	Telephone conference with Mr. Jones regarding affiliated interest application. Review administrative rules and statute regarding standard for PUC review. Email correspondence with Mr. Runner and Mr. O'Shea regarding same.	300.00	0.80	240.00
04/29/2015	SPH	Telephone conference with Mr. Jones regarding PUC and AI contracts. Review SROA comments to AI request.	300.00	0.40	120.00
04/30/2015	SPH	Review and analyze SROA comments to AI application. Telephone conference with Mr. O'Shea regarding same.	300.00	1.30	390.00
		Total For Current Services Rendered		2.50	750.00

Fee Summary

Timekeeper	Hours	Rate	Total
Steven P. Hultberg	2.50	$300.00	$750.00

Total Current Work	750.00
Previous Balance	$5,580.00

Payments

04/01/2015	Payment - #7097	-2,250.00
	Balance Due-Excludes Payments Received After Statement Date	$4,080.00

Please remit payment to: Radler White Parks & Alexander LLP, 111 SW Columbia Street, Suite 1100, Portland, OR 97201
Any sums that are not paid within thirty (30) days of the statement date bear interest at the rate of nine percent (9%) per annum until paid.
FEIN: 45-4651837

RADLER WHITE PARKS ALEXANDER LLP
ATTORNEYS AT LAW

Staff/103
Miller/10

ACCOUNTING MONTH June 2015

ACCOUNT #	AMOUNT
5023·689·7680·0000	2520.00
TOTAL	2520.00

INVOICE APPROVED BY/DATE
GM 6/17/15

Portland Office
111 SW Columbia St, Suite 1100
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Fax: (541) 585-3698

Sunriver Resort Limited Partnership
P.O. Box 3609
Sunriver, OR 97707

Statement Date: 05/31/2015
Client/Matter No. 1152.021
Statement No. 7771
Page No. 1

MATTER: **Sunriver Water**

Sunriver water PUC

Professional Services Rendered Through 05/31/2015

			Rate	Hours	
05/01/2015	SPH	Review, analyze and email regarding SROA letter to PUC regarding motion to reconsider. Review PUC rules regarding ability to file motion for reconsideration.	300.00	0.30	90.00
05/18/2015	SPH	Telephone conference with Mr. Jones regarding PUC meeting regarding affiliated interest contracts. Email correspondence with Mr. Samwell regarding same.	300.00	0.80	240.00
05/19/2015	SPH	Email correspondence with Mr. Jones regarding PUC meeting. Email correspondence with client regarding same.	300.00	0.30	90.00
05/20/2015	SPH	Review PUC orders regarding SROA motions. Email correspondence with Mr. Jones regarding filing deadline.	300.00	0.30	90.00
05/28/2015	SPH	Emails regarding PUC meeting.	300.00	0.20	60.00
05/29/2015	SPH	Prepare for and participate in conference with PUC staff.	300.00	4.00	1,200.00
		Total For Current Services Rendered		5.90	1,770.00

Fee Summary

Timekeeper	Hours	Rate	Total
Steven P. Hultberg	5.90	$300.00	$1,770.00

Total Current Work	1,770.00
Previous Balance	$4,080.00

Please remit payment to: Radler White Parks & Alexander LLP, 111 SW Columbia Street, Suite 1100, Portland, OR 97201
Any sums that are not paid within thirty (30) days of the statement date bear interest at the rate of nine percent (9%) per annum until paid.
FEIN: 45-4651837

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ACCOUNTING MONTH AUG. 2015
ACCOUNT # AMOUNT
5023·689·7680·0000
TOTAL 1170.00
INVOICE APPROVED BY/DATE
GM 7/31/15

Bend Office
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Bend, Oregon 97709
Telephone (541) 585-3697
Fax: (541) 585-3698

Sunriver Resort Limited Partnership
P.O. Box 3609
Sunriver, OR 97707

Statement Date: 06/30/2015
Client/Matter No. 1152.021
Statement No. 7925
Page No. 1

MATTER: **Sunriver Water** – GM

Professional Services Rendered Through 06/30/2015

			Rate	Hours	
06/05/2015	SPH	Email correspondence with Mr. Samwell regarding rate case and AI contract. Revise package to PUC.	300.00	1.10	330.00
06/10/2015	SPH	Prepare waiver amendment with data request response. Follow up email with Mr. Samwell regarding same.	300.00	1.80	540.00
06/11/2015	SPH	Prepare materials for PUC filing. Email correspondence with Mr. Samwell regarding same.	300.00	0.60	180.00
06/18/2015	SPH	Review PUC request for additional filing. Begin additional filing materials.	300.00	0.40	120.00
		Total For Current Services Rendered		3.90	1,170.00

Fee Summary

Timekeeper	Hours	Rate	Total
Steven P. Hultberg	3.90	$300.00	$1,170.00

Total Current Work	1,170.00
Previous Balance	$2,520.00

Payments

06/08/2015	Payment - #7196	-750.00
	Balance Due-Excludes Payments Received After Statement Date	$2,940.00

Please remit payment to: Radler White Parks & Alexander LLP, 111 SW Columbia Street, Suite 1100, Portland, OR 97201
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FEIN: 45-4651837

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Sunriver Resort Limited Partnership
P.O. Box 3609
Sunriver, OR 97707

ACCOUNTING MONTH SEPT. 2015
ACCOUNT # AMOUNT
5023·689·7680·0000
TOTAL 1620.00
INVOICE APPROVED BY/DATE
GM 9/2/15

Statement Date: 07/31/2015
Client/Matter No. 1152.021
Statement No. 8366
Page No. 1

MATTER: **Sunriver Water**

Professional Services Rendered Through 07/31/2015

			Rate	Hours	
07/15/2015	SPH	Review and revise draft PUC memo. Email correspondence regarding same.	300.00	0.60	180.00
07/28/2015	SPH	Review and respond to email from Mr. Samwell regarding affiliated interest contract. Legal research regarding history of management agreement.	300.00	2.60	780.00
07/29/2015	SPH	Legal research regarding IA contract for management agreement.	300.00	2.20	660.00
		Total For Current Services Rendered		5.40	1,620.00

Fee Summary

Timekeeper	Hours	Rate	Total
Steven P. Hultberg	5.40	$300.00	$1,620.00

Total Current Work	1,620.00
Previous Balance	$2,940.00

Payments

07/08/2015	Payment from Trust Account	-1,770.00
	Balance Due-Excludes Payments Received After Statement Date	$2,790.00

Aged Due Amounts

0-30	31-60	61-90	91-120	121-180	181+
1,620.00	1,170.00	0.00	0.00	0.00	0.00

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Sunriver Resort Limited Partnership
P.O. Box 3609
Sunriver, OR 97707

Statement Date: 08/31/2015
Client/Matter No. 1152.021
Statement No. 8415
Page No. 1

MATTER: **Sunriver Water** ← PUC Rate Case for Steve

Professional Services Rendered Through 08/31/2015

			Rate	Hours	
08/03/2015	SPH	Email correspondence with Mr. Runner regarding AI application and PUC response.	300.00	0.30	90.00
08/04/2015	SPH	Draft response language to PUC regarding affiliated interest agreement.	300.00	0.30	90.00
08/06/2015	SPH	Review and respond to correspondence to PUC regarding AI contract.	300.00	0.20	60.00
08/07/2015	SPH	Review PUC draft staff report. Email correspondence with Mr. Samwell regarding same.	300.00	0.30	90.00
08/13/2015	SPH	Legal research related to UI 355 regarding transfer of Sunriver Utilities assets.	300.00	2.70	810.00
	SEZ	Obtain copies of PUC orders and related documents. Emails with S. Hultberg regarding same.	275.00	0.30	82.50
08/14/2015	SPH	Research and assemble documentation in preparation for PUC hearing on AI agreement. Telephone conference with Mr. Newton regarding	300.00	2.50	750.00
08/17/2015	SPH	Email correspondence with Mr. O'Shea regarding PUC hearing.	300.00	0.30	90.00
08/18/2015	SPH	Email correspondence with client regarding SROA position. Follow up email regarding same.	300.00	0.30	90.00

RADLER WHITE PARKS ALEXANDER LLP
ATTORNEYS AT LAW

Sunriver Resort Limited Partnership

Statement Date: 08/31/2015
Client/Matter No. 1152.021
Statement No. 8415

Matter: Sunriver Water

			Rate	Hours	
08/19/2015	SPH	Review PUC updated memorandum regarding AI contract. Email correspondence with Mr. Runner regarding same. Email correspondence with Mr. Runner and Mr. Samwell regarding management agreement AI.	300.00	0.70	210.00
08/21/2015	SPH	Telephone conference with Mr. Newton regarding affiliated interest agreement and Sunriver Water issues. Review SROA letter to PUC.	300.00	0.80	240.00
		Total For Current Services Rendered		8.70	2,602.50

Fee Summary

Timekeeper	Hours	Rate	Total
Steven P. Hultberg	8.40	$300.00	$2,520.00
Susan E. Zimmerman	0.30	275.00	82.50

Total Current Work	2,602.50
Previous Balance	$2,790.00

Payments

08/14/2015	Payment - #7276	-1,170.00
	Balance Due-Excludes Payments Received After Statement Date	$4,222.50

Aged Due Amounts

0-30	31-60	61-90	91-120	121-180	181+
2,602.50	1,620.00	0.00	0.00	0.00	0.00

ACCOUNTING MONTH SEPT. 2015
ACCOUNT # AMOUNT
5623-689-7680-0000
TOTAL 2602.50
INVOICE APPROVED BY/DATE
JM 9/23/15

Please remit payment to: Radler White Parks & Alexander LLP, 111 SW Columbia Street, Suite 1100, Portland, OR 97201
Any sums that are not paid within thirty (30) days of the statement date bear interest at the rate of nine percent (9%) per annum until paid.
FEIN: 45-4651837

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Sunriver Resort Limited Partnership
P.O. Box 3609
Sunriver, OR 97707

ACCOUNTING/MONTH NOV. 2015
ACCOUNT # AMOUNT
5023·689·7680·0000
TOTAL 1615.00
INVOICE APPROVED BY/DATE
GM 11/3/15

Statement Date: 09/30/2015
Client/Matter No. 1152.021
Statement No. 8842
Page No. 1

MATTER: **Sunriver Water**

Professional Services Rendered Through 09/30/2015

			Rate	Hours	
09/01/2015	SPH	Additional legal research regarding AI management contract. Review PUC orders and applications in prior IA management agreement approvals.	300.00	1.60	480.00
	SEZ	Obtain copies of additional PUC orders and related documents from the Oregon PUC for S. Hultberg.	275.00	0.20	55.00
09/02/2015	SPH	Review past AI agreements and PUC approvals.	300.00	0.40	120.00
09/18/2015	SPH	Draft and revise management agreement and AI application. Email correspondence with Mr. Samwell regarding same.	300.00	3.20	960.00
		Total For Current Services Rendered		5.40	1,615.00

Fee Summary

Timekeeper	Hours	Rate	Total
Steven P. Hultberg	5.20	$300.00	$1,560.00
Susan E. Zimmerman	0.20	275.00	55.00

Total Current Work		1,615.00
Previous Balance		$4,222.50

Payments

09/18/2015	Payment - #7332	9·2·15	-1,620.00 ✓

Balance Due-Excludes Payments Received After Statement Date $4,217.50

Please remit payment to: Radler White Parks & Alexander LLP, 111 SW Columbia Street, Suite 1100, Portland, OR 97201
Any sums that are not paid within thirty (30) days of the statement date bear interest at the rate of nine percent (9%) per annum until paid.
FEIN: 45-4651837

RADLER WHITE PARKS ALEXANDER LLP
ATTORNEYS AT LAW

Staff/103
Miller/16

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Fax: (541) 585-3698

Sunriver Resort Limited Partnership
P.O. Box 3609
Sunriver, OR 97707

ACCOUNTING/MONTH Nov. 2015
ACCOUNT # 5023-689-7680-0000 AMOUNT
TOTAL 1920.-
INVOICE APPROVED BY/DATE
GM 11/23/15

Statement Date: 10/31/2015
Client/Matter No. 1152.021
Statement No. 8918
Page No. 1

MATTER: **Sunriver Water**

Professional Services Rendered Through 10/31/2015

			Rate	Hours	
10/02/2015	SPH	Prepare for and conference with Mr. Samwell regarding IA management agreement. Follow up research regarding prior AI and management agreements.	300.00	1.60	480.00
10/05/2015	SPH	Email correspondence with Mr. Samwell regarding follow up discussions with PUC. Draft and revise updated management contract and AI application.	300.00	2.20	660.00
10/06/2015	SPH	Revise management agreement. Email correspondence with Mr. Samwell regarding same.	300.00	1.00	300.00
10/12/2015	SPH	Telephone conference with Mr. Samwell regarding AI and management agreement. Research regarding Avion and Roats.	300.00	0.80	240.00
10/28/2015	SPH	Prepare for and participate in PUC conference call regarding AI agreement.	300.00	0.80	240.00
		Total For Current Services Rendered		6.40	1,920.00

Fee Summary

Timekeeper	Hours	Rate	Total
Steven P. Hultberg	6.40	$300.00	$1,920.00

Total Current Work	1,920.00
Previous Balance	$4,217.50

Please remit payment to: Radler White Parks & Alexander LLP, 111 SW Columbia Street, Suite 1100, Portland, OR 97201
Any sums that are not paid within thirty (30) days of the statement date bear interest at the rate of nine percent (9%) per annum until paid.
FEIN: 45-4651837

Public Utility Commission
201 High Street Suite 100
Salem, OR 97301
Mailing Address
PO Box 1088
Salem, OR 97308-1088

Sunriver Water LLC
PO Box 369
Sunriver, OR 97707

Docket No.	Staff Request Nos.
UW 169	DR 24-40

34. Please explain the source of the $59,893 contained in 'Other than Water Sales' Revenue.

    a. Are there expenses associated with these revenues in the application?

    b. Please explain why Sunriver has removed these revenues from its application?

Answer to request number DR 34

On the following page is a clip of where this $59,893 lives on the application:

The $59,893 is comprised of the following;

$19,190	Misc income
$40,353	Cross connection control revenue
$350	Gain on sale of assets

The Misc Income revenue amount of $19,190 in the 2015 test year is made up of the following categories of revenue:

$7,570	Inventory part sales
$1,797	New connection fees
$9,535	Disconnect and reconnect fees
$288	Mail meters memo Billing

Of the total $59,893 per DR 34, only $19,190 detailed above was removed from the application.

Question B of DR 34; our answer is that KWillis consulting completed the application and it is unknown at this time why the $19,190 was removed from the test year as an adjustment.

Our best guess to question A. of DR 34 is that yes there are various expenses related to these revenues. If PUC staff confirms that this revenue should be included in proposed revenues,

Sunriver water would request to have these amounts added back and be included with the final rate requirement determination.

REVENUES	2015 Test Year Actuals	Utility Proposed Adjustments	Utility Proposed Results
Unmetered Water Sales	$ 10,546	$ 2,984	$ 13,531
Residential Water Sales	$ 1,054,284	$ 282,629	$ 1,336,913
Commercial Water Sales	$ 162,200	$ 44,271	$ 206,472

Mutiple Dwelling Units	$ 52,742	$ 14,469	$ 67,211
Private Fire Protection	$ 7,881	$ 2,557	$ 10,438
Irrigation	$ 251,232	$ 64,484	$ 315,716
Golf Course	$ 121,089	$ 32,266	$ 153,355
Misc Revenue	$ 19,190	$ (19,190)	$ -
Cross Connection Control Revenue	$ 40,353		$ 40,353
Gains/Loss Property Disposition Rev	$ 350		$ 350
TOTAL REVENUE	**$ 1,719,868**	**$ 424,471**	**$ 2,144,339**

CASE: UW 169
WITNESS: GREG MILLER

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 104

Exhibits in Support
Of Opening Testimony

July 7, 2017

Summary of Four-Year Averages from Sunriver Annual Reports

	2013	2014	2015	2016	Average
O&M Materials/Supplies	$ 6,842	$ 6,583	$ 11,063	$ 13,120	**$ 9,402**
Repairs to Water Plant	$ 9,015	$ 8,774	$ 18,564	$ 10,677	**$ 11,758**
Contract Services - Other	$ 13,951	$ 10,549	$ 33,506	$ 34,654	**$ 23,165**
Small Tools	$ 1,974	$ 1,545	$ 5,442	$ 823	**$ 2,446**

Sunriver Water LLC
2013 Annual Report of Operations

Act #		Expense amount	
601	Salaries and Wages - employees	$	463,539
603	Salaries and Wages – officers, directors, and majority stockholders		
604	Employee Pensions & Benefits	$	162,503
610	Purchased Water		
611	Telephone/Communications	$	5,721
615	Purchased Power	$	69,155
616	Fuel for Power Production	$	115
617	Utilities - Other (garbage, natural gas)		
618	Chemicals & testing		
619	Office Supplies (excluding postage)	$	2,115
619.1	Postage	$	22,364
620	Materials & Supplies (O&M)	$	6,842
621	Repairs of Water Plant	$	9,015
631	Contractual Services - engineering		
632	Contractual Services - accounting	$	20,000
633	Contractual Services - legal	$	3,257
634	Contractual Services - management	$	166,060
635	Contractual Services – testing / sampling	$	2,022
636	Contractual Services – labor		
637	Contractual Services - billing/collections	$	8,056
638	Contractual Services - meter reading		
639	Contractual Services - other	$	13,951
641	Rental of Building / Real Property	$	33,600
642	Rental of Equipment		
643	Small Tools	$	1,974
648	Computer and electronic Expenses	$	56,335
650	Transportation Expenses	$	38,306
656	Insurance - Vehicle		
657	Insurance – General Liability	$	23,877
658	Insurance – Workman's Compensation	$	14,557
659	Insurance – Other		
660	Public Relation / Advertising Expense		
666	Amortization of Rate Case Expense	$	2,225
667	Regulatory Commission Fee (Gross Rev Fee)	$	3,673
668	Conservation Expense		
670	Bad Debt Expense		
671.1	Cross Connection Control Program Expense		
671.2	Cross Connection Testing & Maintenance Services	$	5,739
673	Training & Certification Expense		
674	Consumer Confidence Report	$	4,575
675	Miscellaneous Expense		
	TOTAL	$	1,139,576

Sunriver Water LLC
2014 Annual Report of Operations

Act #		Expense amount	
601	Salaries and Wages - employees	$	455,163
603	Salaries and Wages – officers, directors, and majority stockholders		
604	Employee Pensions & Benefits	$	147,101
610	Purchased Water		
611	Telephone/Communications	$	7,841
615	Purchased Power	$	74,922
616	Fuel for Power Production	$	161
617	Utilities - Other (garbage, natural gas)		
618	Chemicals & testing	$	196
619	Office Supplies (excluding postage)	$	1,709
619.1	Postage	$	26,352
620	Materials & Supplies (O&M)	$	6,583
621	Repairs of Water Plant	$	8,774
631	Contractual Services - engineering		
632	Contractual Services - accounting	$	-
633	Contractual Services - legal	$	3,180
634	Contractual Services - management	$	166,401
635	Contractual Services – testing / sampling	$	1,817
636	Contractual Services – labor		
637	Contractual Services - billing/collections	$	8,700
638	Contractual Services - meter reading		
639	Contractual Services - other	$	10,549
641	Rental of Building / Real Property	$	33,600
642	Rental of Equipment		
643	Small Tools	$	1,545
648	Computer and electronic Expenses	$	13,956
650	Transportation Expenses	$	31,857
656	Insurance - Vehicle		
657	Insurance – General Liability	$	28,264
658	Insurance – Workman's Compensation	$	17,331
659	Insurance – Other		
660	Public Relation / Advertising Expense		
666	Amortization of Rate Case Expense	$	39,368
667	Regulatory Commission Fee (Gross Rev Fee)	$	3,769
668	Conservation Expense		
670	Bad Debt Expense		
671.1	Cross Connection Control Program Expense		
671.2	Cross Connection Testing & Maintenance Services		
673	Training & Certification Expense	$	916
674	Consumer Confidence Report		
675	Miscellaneous Expense	$	3,983
	TOTAL	$	1,094,038

Sunriver Water LLC
2015 Annual Report of Operations

Act #		Expense amount	
601	Salaries and Wages - employees	$	521,653
603	Salaries and Wages – officers, directors, and majority stockholders		
604	Employee Pensions & Benefits	$	161,434
610	Purchased Water		
611	Telephone/Communications		
615	Purchased Power	$	66,929
616	Fuel for Power Production	$	135
617	Utilities - Other (garbage, natural gas)	$	7,701
618	Chemicals & testing		
619	Office Supplies (excluding postage)	$	2,203
619.1	Postage	$	22,800
620	Materials & Supplies (O&M)	$	11,063
621	Repairs of Water Plant	$	18,564
631	Contractual Services - engineering	$	-
632	Contractual Services - accounting	$	-
633	Contractual Services - legal	$	15,778
634	Contractual Services - management	$	169,728
635	Contractual Services – testing / sampling	$	2,673
636	Contractual Services – labor		
637	Contractual Services - billing/collections	$	8,658
638	Contractual Services - meter reading		
639	Contractual Services - other	$	33,506
641	Rental of Building / Real Property	$	3,048
642	Rental of Equipment		
643	Small Tools	$	5,442
648	Computer and electronic Expenses	$	14,269
650	Transportation Expenses	$	30,756
656	Insurance - Vehicle		
657	Insurance – General Liability	$	25,155
658	Insurance – Workman's Compensation	$	22,051
659	Insurance – Other		
660	Public Relation / Advertising Expense		
666	Amortization of Rate Case Expense	$	2,471
667	Regulatory Commission Fee (Gross Rev Fee)	$	3,532
668	Conservation Expense		
670	Bad Debt Expense		
671.1	Cross Connection Control Program Expense		
671.2	Cross Connection Testing & Maintenance Services		
673	Training & Certification Expense	$	4,914
674	Consumer Confidence Report		
675	Miscellaneous Expense	$	5,716
	TOTAL	$	1,160,179

Sunriver Water LLC
2016 Annual Report of Operations

Act #		Expense amount	
601	Salaries and Wages - employees	$	487,647
603	Salaries and Wages – officers, directors, and majority stockholders		
604	Employee Pensions & Benefits	$	164,325
610	Purchased Water		
611	Telephone/Communications		
615	Purchased Power	$	71,797
616	Fuel for Power Production	$	105
617	Utilities - Other (garbage, natural gas)	$	7,743
618	Chemicals & testing		
619	Office Supplies (excluding postage)	$	2,568
619.1	Postage	$	23,153
620	Materials & Supplies (O&M)	$	13,120
621	Repairs of Water Plant	$	10,677
631	Contractual Services - engineering		
632	Contractual Services - accounting		
633	Contractual Services - legal	$	2,518
634	Contractual Services - management	$	174,819
635	Contractual Services – testing / sampling	$	396
636	Contractual Services – labor		
637	Contractual Services - billing/collections	$	9,484
638	Contractual Services - meter reading		
639	Contractual Services - other	$	34,654
641	Rental of Building / Real Property	$	45,960
642	Rental of Equipment		
643	Small Tools	$	823
648	Computer and electronic Expenses	$	15,178
650	Transportation Expenses	$	35,057
656	Insurance - Vehicle		
657	Insurance – General Liability	$	25,947
658	Insurance – Workman's Compensation	$	22,362
659	Insurance – Other		
660	Public Relation / Advertising Expense		
666	Amortization of Rate Case Expense	$	3,125
667	Regulatory Commission Fee (Gross Rev Fee)	$	4,623
668	Conservation Expense		
670	Bad Debt Expense		
671.1	Cross Connection Control Program Expense		
671.2	Cross Connection Testing & Maintenance Services		
673	Training & Certification Expense	$	3,599
674	Consumer Confidence Report		
675	Miscellaneous Expense	$	5,409
	TOTAL	$	1,165,089

CASE: UW 169
WITNESS: LAUREL ANDERSON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 200

Opening Testimony

July 7, 2017

INTRODUCTION

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

A. My name is Laurel Anderson. I am a Utility Analyst in the Telecommunications and Water Division of the Utility Program for the Public Utility Commission of Oregon (OPUC or Commission). My business address is 201 High Street SE, Suite 100, Salem, Oregon 97301.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. My Witness Qualification Statement is found in Exhibit Staff/201.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to describe the Public Utility Commission of Oregon Staff's (Staff) recommendation regarding certain components, as listed below, of Sunriver Water, LLC's (Sunriver or Company) request for a general rate revision in Docket UW 169.

Q. WHO IS TESTIFYING IN THIS DOCKET?

A. I am testifying as a Staff witness in UW 169. Mr. Greg Miller is providing summary testimony in this docket in Staff /100. His testimony also incorporates the recommendations I make in my testimony.

Q. DID YOU PREPARE EXHIBITS FOR THIS DOCKET?

A. Yes. I prepared Exhibit Staff/201, consisting of one page, and Exhibit Staff/202, consisting of 3 pages.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. My testimony is organized as follows:

ISSUE 1

STAFF'S ANALYSIS OF SUNRIVER'S PLANT

Q. DID STAFF ANALYZE SUNRIVER'S PLANT SCHEDULE AND DEPRECIATION EXPENSE?

A. Yes, my review of Plant and Depreciation Expense was part of Staff's comprehensive examination of the Company's case as described in Mr. Miller's testimony. As part of my review I examined the plant schedules provided by the Company and issued a number of data requests regarding additions made since the Company's last general rate case – docket UW 160. In addition to removal of the Test Well, which I will describe later in my testimony, I am recommending the following two changes to Sunriver's Plant, Accumulated Depreciation, and Depreciation Expense;

1. Correction of the allocation of plant shared by Sunriver Water and Sunriver Environmental, LLC (Environmental); and
2. Adjusting Depreciation Expense to Calendar year 2016.

Q PLEASE DESCRIBE THE ADJUSTMENT YOU MADE TO THE ALLOCATION OF THE PLANT SHARED BY THE COMPANY AND SUNRIVER ENVIRONMENTAL.

A. I began by comparing the Plant Schedule submitted for UW 169 to the final Plant Schedule included in UW 160. The allocation of several assets that are shared with Environmental did not agree to the allocation adopted in UW 160. I adjusted the allocation to reflect the UW 160 allocation rather than the UW 147 allocation reflected in Sunriver's filing, which appears to be the basis of the Company's request. This resulted in an adjustment of ($7,389) to Plant, ($2,219) to Accumulated Depreciation, and a total net plant adjustment of ($5,170). This also resulted in an increase in Depreciation Expense of $1,486.

Q. PLEASE DESCRIBE THE ADJUSTMENT YOU MADE TO THE COMPANY'S DEPRECIATION EXPENSE AND ITS IMPACT ON THE ACCUMULATED DEPRECIATION OF PLANT.

A. Sunriver's filing reflects Depreciation Expense calculated for the year 2017 and Accumulated Depreciation as of December 31, 2016. Consistent with adjusting the Company's filed test year forward to include calendar year 2016, as described by Staff Witness Miller, I adjusted the 2016 Depreciation Expense to reflect the level of expense the Company experienced during calendar year 2016. That adjustment resulted in a decrease in Depreciation Expense of $7,132 and a decrease in Accumulated Depreciation, and corresponding increase in net plant, of $1,576.

Q. PLEASE SUMMARIZE THE ADJUSTMENTS YOU HAVE MADE TO THE COMPANY'S DEPECIATION EXPENSE.

A. My recommendation regarding Sunriver's Depreciation Expense is summarized below:

Depreciation Expense -- As Filed	$234,347
Water/Environmental Plant Allocation	1,486
Test Year Adjustment	(7,132)
Remove Test Well	(7,648)
Depreciation Expense – As Adjusted	$221,143

Q. PLEASE SUMMARIZE THE ADJUSTMENTS YOU HAVE MADE TO SUNRIVER'S NET PLANT.

A. My recommendations regarding Sunriver's Plant and Accumulated Depreciation are summarized below:

Gross Plant	
Gross Plant -- As Filed	$8,826,854
Water/Environmental Plant Allocation	(7,389)
Remove Test Well	(191,203)
Gross Plant – As Adjusted	$8,088,262
Accumulated Depreciation	
Accumulated Depreciation -- As Filed	$3,484,791
Water/Environmental Plant Allocation	(2,219)
Test Year Adjustment	(1,576)
Remove Test Well	(7,648)
Accumulated Depreciation – As Adjusted	$3,473,348

ISSUE 2

REMOVAL OF TEST WELL FROM CONSTRUCTION WORK IN PROGRESS (CWIP)

Q. DID SUNRIVER REQUEST PLANT BE ADDED AS CONSTRUCTION WORK IN PROCESS?

A. Yes. In its Application, Sunriver requested $191,203 in CWIP for a test well to be constructed at the Lake Penhollow reservoir site (Test Well).

Q. HAS THE COMMISSION ALLOWED THE COLLECTION OF CWIP IN RATES?

A. Yes. Pursuant to ORS 757.355(2), the Commission has allowed CWIP to be included in rates in other cases.

OAR 860-036-2390 sets forth the requirements for inclusion in rates:

> The Public Utility Commission (PUC) may approve the cost of a specific capital improvement project into rates if: (a) The capital improvement project is under construction; (b) The water utility uses the additional revenues solely for the purpose of completing the capital improvement project; (c) The water utility demonstrates that it is in the public interest to provide funding for the capital improvement through rates; and (d) The costs are approved by the Commission.

Although the Commission has granted CWIP treatment for past projects, it is determined on a case by case basis. In this case, the Company has not presented evidence that demonstrates to Staff that the inclusion of the Test Well in CWIP is in the public interest.

Q WHAT IS YOUR RECOMMENDATION REGARDING REFLECTION OF THE TEST WELL IN RATES THROUGH CWIP IN UW 169?

A. I recommend the Test Well costs not be included in rates in this case for three reasons.

First, the Company has not presented evidence that demonstrates to Staff that the inclusion of the Test Well in CWIP is in the public interest in accordance with OAR 860-036-2390.

Second, the expenditure does not represent an unusually significant expenditure for the Company that is deserving of CWIP treatment, which Staff views as outside the normal ratemaking process. The Company has over $8,000,000 in gross plant. The Test Well expenditure is less than 2.5 percent of the Company's current gross plant. In sharp contrast, the more than $2 million North Reservoir Project, for which the Commission allowed CWIP treatment in UW 160, represented an approximately 40 percent addition to the Company's approximately $5 million in gross plant prior to that project. The Test Well can be addressed outside of CWIP through the normal ratemaking process when the Company files a rate case which includes the Test Well in plant.

Third, the timing of the Test Well appears to be relatively far into the future and uncertain. The Company's filing indicated the Test Well would be added in 2017: (Application Testimony, p.19);

> Sunriver plans to construct the test well in 2017 near the new north reservoir site.

However, according to the Company's data response on the topic, construction of the Test Well now appears to be more likely to occur in 2018 (Exhibit Staff/202, Anderson/1). According to the Company:

> We are prepared to move forward with the construction of the test well in 2018 once CWIP is approved through the current rate case.

Q. IS STAFF MAKING ANY RECOMMENDATIONS REGARDING THE PRUDENCE OF THE TEST WELL AS PART OF ITS RECOMMENDATION AGAINST INCLUSION OF THE TEST WELL IN RATES THROUGH CWIP?

A. No. Staff is making no recommendation regarding the prudence of the Test Well at this time. I believe the prudence determination for the Test Well is most appropriately made in a rate case filed after the Company has completed the Test Well and it is included in plant.

Q. PLEASE PROVIDE THE IMPACTS OF YOUR THE RECOMMENDED REMOVAL OF THE TEST WELL CWIP ON THE COMPANY'S RESULTS.

A. Staff adjusted Plant down by ($191,203), removed the related Depreciation Expense of ($7,648), and reduced Accumulated Depreciation by ($7,648).

ISSUE 3

DEFERRED TAX AND ADJUSTMENT TO RATE BASE

Q. PLEASE EXPLAIN THE BASIS FOR A DEFERRED TAX ADJUSTMENT TO THE RATE BASE.

A. The Internal Revenue Code (IRC) and Oregon law allow businesses certain tax incentives, which cannot be passed through immediately to ratepayers. The most notable example is the timing difference associated with accelerated

depreciation on plant investment. For tax filings, utilities calculate income tax liability using accelerated depreciation as a deduction. For book (i.e., regulatory and financial reporting) purposes, businesses must use "straight-line" depreciation to determine depreciation expense and to calculate income taxes. The difference in income taxes calculated using the two methods is the utility's "deferred tax," which represents the utility's tax liability in future periods. IRC regulations require utilities to use normalization accounting for calculating income taxes in setting rates. In order to match the benefits of the plant with the taxes associated with plant, regulators should not immediately flow through to customers, through rates, the higher tax deduction (the amount greater than provided by spreading the tax benefits of depreciation evenly over the life of the asset) from accelerated depreciation. The result is that, for most depreciable assets, actual taxes paid are lower in the earlier years of an asset's life than is calculated for financial statement and ratemaking purposes. This timing difference turns around in the later years of an asset's life so that book depreciation is greater that accelerated depreciation, and actual tax liability is higher than taxes calculated for ratemaking purposes. The total tax deduction over the life of the asset is generally the same as for the financial statement and the ratemaking calculation.

While the utility enjoys, courtesy of the tax code, the "interest-free loan" from accelerated depreciation in the early years of the utility's investment, customers benefit because the taxes that customers pay earlier than the utility

are subtracted from the utility's rate base, thereby reducing the amount included in rates for return on investment. The interest free loan may also reduce the utility's need for capital, which will reduce its projected return on investment and, therefore, its rates.

Q. HOW DID STAFF CALCULATE THE ACCUMULATED DEFERRED INCOME TAX RATE BASE REDUCTION?

A. The Accumulated Deferred Income Tax rate base reduction was calculated by comparing the total accumulated depreciation for tax purposes to the total book depreciation recorded by the company and applying the effective State and Federal corporate tax rates to the difference. The amount calculated is $844,357 of Accumulated Deferred Income Tax. This amount is then subtracted from the rate base before a return on rate base is calculated.

ISSUE 4

THE GOLF COURSES REVENUE REQUIREMENT AND RATES

Q. PLEASE DESCRIBE THE GOLF COURSES THAT RECEIVE WATER SERVICE FROM SUNRIVER.

A. Sunriver provides water service to two golf courses, Crosswater and Caldera Springs, through two separate meters. Sunriver charges for that water at pursuant to its tariffs. Each meter is considered a customer for ratemaking purposes. The golf courses are irrigated from a combination of water from the main Sunriver water system and a separate irrigation system. The majority of the golf courses' water is supplied by the irrigation system.

Q. PLEASE EXPLAIN WHY THERE IS A SEPARATE REVENUE REQUIREMENT FOR THE GOLF COURSES.

A. The separation of the revenue requirement for the golf courses was established in UW 118. At that time, Sunriver removed Well No. 12 as a water source from the main system and solely dedicated it for non-potable usage for the golf courses due to its undesirable green tint. Staff continued to separate the golf courses' revenue requirement in UW 160. Staff separates the revenues, expenses, and plant associated with the golf courses from the revenue requirement borne by other customers. Staff used this separation to establish the golf courses' own cost of service and revenue requirement in order to avoid cross-subsidization.

Q. PLEASE SUMMARIZE STAFF'S RECOMMENDATION REGARDING THE GOLF COURSE RATES.

A. Staffs recommended golf course rates are shown below in Table 1.

TABLE 1 – SUNRIVER'S CURRENT AND PROPOSED RATES

CUSTOMER CLASS	METER SIZE	SUNRIVER PROPOSED BASE RATE	SUNRIVER PROPOSED COMMODITY RATE	STAFF PROPOSED BASE RATE	STAFF PROPOSED COMMODITY RATE
GC	3"	$4,153.37	$.42 per 1000 gals	$3,601.16	$.363 per 1000 gals

Q. DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes.

CASE: UW 169
WITNESS: LAUREL ANDERSON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 201

Witness Qualifications Statement

July 7, 2017

WITNESS QUALIFICATIONS STATEMENT

NAME: Laurel Anderson, CPA

EMPLOYER: PUBLIC UTILITY COMMISSION OF OREGON

TITLE: Utility Analyst,
Telecommunications and Water Division

ADDRESS: 201 High Street SE, Suite 100
Salem, OR 97301

EDUCATION: Certified Public Accountant

Bachelor of Science, Business, Accounting
Montana College of Mineral Science and Technology

Bachelor of Science, Agriculture, Animal Science
Montana State University

EXPERIENCE: Oregon Public Utility Commission since May 2007
Budget Analyst – May 2007 to July 2013
Utility Analyst – August 2013 to Present

Oregon Department of Human Services
Budget Analyst-May 2005 to May 2007
Oregon Employment Department
Employment Tax Auditor—October 2003 to April 2005

LaCie, Limited
Senior Corporate Accountant
Oxford Molecular Group
Business Segment Accountant

Fifteen years of Public Accounting experience including income tax, small business accounting, and municipal auditing

CASE: UW 169
WITNESS: LAUREL ANDERSON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 202

Exhibits in Support
Of Opening Testimony

July 7, 2017

Public Utility Commission
201 High Street Suite 100
Salem, OR 97301
Mailing Address
PO Box 1088
Salem, OR 97308-1088

Sunriver Water LLC
PO Box 369
Sunriver, OR 97707

Docket No.	Staff Request Nos.
UW 169	DR 41-43

Answer to request number DR 42

The attached Technical Memorandum from Parametrix (which was attached with the original rate request submittal and is attached again) explains the reasons, rationale and public interest for undertaking the requested test well. As indicated, this is a "Phase 1" of eventual replacement of existing Sunriver Water Well #2 that is over 70 years old and is likely to fail in the near future. Rather than construct a replacement well adjacent to the existing well site, there are numerous advantages and efficiencies of building the replacement well adjacent to the newly built north reservoir. So doing will reduce pumping costs and increase pressure stability in the northern portions of Sunriver.

Sunriver Water has already advanced this concept to the point of transferring water rights to allow the north reservoir site to be a Point of Appropriate for existing Sunriver Water water rights. We have also had a preliminary design of the test well prepared and priced and have incorporated an appropriate location for the well in the design of the North Reservoir project. We are prepared to move forward with the construction of the test well in 2018 once CWIP is approved through the current rate case. It should be noted that even when approved as CWIP, the entire cost of the construction will be borne by the owners of Sunriver Water and the recovery of this investment through depreciation, which is not included in the current rate case, will extend over a period of 25 years. The funding generated by this CWIP will be used solely as repayment for the construction of the test well, and per the PUC process, the portion of the user rates associated with this well will be adjusted in each future rate case as the undepreciated value of the test well is adjusted downward each year over the coming 25 years. If for some reason this test well were not to be constructed in the coming year, the PUC would require Sunriver Water to reimburse rate payers for CWIP funds raised but not utilized.

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

595 SW BLUFF DRIVE, SUITE B | BEND, OR 97702 | P 541.508.7710

TECHNICAL MEMORANDUM

DATE: April 19, 2016

TO: Steve Runner

FROM: Jim Frost, PE

SUBJECT: North Reservoir Site
Purpose of Proposed Test Well

CC:

Water Rights and Pumping Capacity

Our current wells have a combined domestic pumping capacity of 5265 gpm as compared to the SRWLLC water rights of 6492 gpm (includes 1750 gpm for up to 1.7 million gallons from the partially mitigated new well allowed under Permit 17460). The ultimate water demand at buildout with CSA is 4238 gpm. These numbers exclude the Well 12 irrigation well. When all domestic wells function at 100% we have sufficient well capacity to supply the system. However, if one of our wells malfunctions for a period of time, we do not enough well redundancy and may not be able to pump enough water to meet demands until such time as the defective well could be repaired. How serious of a problem this is depends on the time of the year that a well operation problem could happen, the seriousness of the problem, and how fast the problem could be corrected and the well put back on line. Generally, typical well problems can be resolved and the well returned to operation in a few hours, or a few days, or maybe up to 2 or 3 weeks, depending on the nature of the problem.

Need for a Backup Well

However, of particular concern to SRWLLC is Well 2, with its 1540 gpm capacity. Well 2 was built as part of Camp Abbot in 1943 and in 1986 the pump became stuck in the well casing. Eventually, that pump will wear out and if the pump cannot be forcibly extracted, the well will be rendered unusable. In that case, replacement of Well 2 could take 12 to 24 months, depending on permitting, design and construction of a new well. Without Well 2, our available system pumping capacity drops to 3725 gpm. This is still higher capacity than our current peak demand and would likely not be exceeded until the year 2021 at current demand growth rates, but with zero system redundancy.

Production Well

To provide redundancy and reliability to the SRWLLC water system, a new high production well with a pumping capacity of 2000 gallons per minute or more, at a cost estimated at $1.2 million, is recommended in the year 2021. At present, we have permitting in place to allow such a well to be built, within the next 5 years, adjacent to Well 14 at the south reservoir site. It is preferable to spread out our wells to draw from different areas within the SRWLLC service area and would be highly desirable to build a new well next to the new north reservoir tank at Lake Penhollow. This location would allow the well to pump directly into the north reservoir tank (and future added tank there) in a very economical way, maintaining highly reliable and steady gravity flow to the SRWLLC system. SRWLLC is in the process of seeking permission to transfer our current new well location from the south reservoir site to the north reservoir site. The production well includes a 30' by 40' building, large automatic transfer generator, full control and telemetry system, paved access and parking, fencing for long term operation. Similar to Well 9 and 14.

Interim Test Well

To avoid the risk of being forced into immediate action in the case of a Well 2 failure and defer the cost of the production well, construction of a test well is advised. This test well would be constructed at the Lake Penhollow reservoir site and would provide good hydro-geographic data of the water producing capacity at that location, and would give assurances that a future full capacity well could be successfully and more quickly built in that location in the future. In the interim, the test well could be equipped with a small permanent pump that would allow this well to constantly pump 200 to 550 gpm into the north reservoir, providing the SRWLLC system with a bit more capacity and redundancy, mitigating to some degree the effects of the risk of a Well 2 failure and deferring the $1.2 million production well expenditure until 2026. The test well consists of a submersible pump, flowmeter, basic telemetry and control panel, with no building or backup generator. It is a very basic economical interim system similar to a typical residential well. It would be located in the existing fenced reservoir enclosure. The test well project and budget should be included in the next rate case and PUC approval gained prior to construction, meaning that this capital expenditure would not take place until 2017.

Test Well Sizing:

A 200 gpm well construction cost is $150,000.

A 550 gpm well construction cost is $191,000.

Given the relatively low cost of producing an extra 350 gpm for $41,000 differential cost, we recommend the 550 gpm Test Well. This provides better back up in case Well 2 goes down and longer deferral of the production well cost.

CASE: UW 169
WITNESS: LAUREL ANDERSON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 203

Exhibits in Support
Of Opening Testimony

July 7, 2017

Sunriver Water, LLC

	Plant	Section 179	Accum Depreciation (includes 179 Expense	2016 Depreciation Expense	Total Accumulated Depreciation
Total Plant UW 169	8,088,263		3,473,348	221,143	3,694,491
Disposed truck from tax Schedule	-24,431		-24,431		-24,431
Adjusted for disposal not shown on Book Depr Schedule	8,063,832		3,448,917	221,143	3,670,060
Plant from Tax Depreciation Schedule	8,996,989	2,104,895	5,506,387	351,625	5,858,012
Difference Tax vs Book	908,726	2,104,895	2,033,039	130,482	2,163,521

State Tax effective rate 6.6%	142,792
Federal Tax effective rate 32.427%	701,565
Total Adjustment to rate base	844,357

CASE: UW 169
WITNESS: MATT MULDOON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 300

Opening Testimony

REDACTED
July 7, 2017

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

A. My name is Matt Muldoon. I am a Senior Economist for the Public Utility Commission of Oregon (Commission or OPUC). My business address is: 201 High Street SE, Suite 100, Salem, OR 97301.

Q. Please describe your educational background and work experience.

A. My educational background and work experience are set forth in my Witness Qualification Statement, which is provided as Exhibit Staff/301.

Q. What is the purpose of your testimony?

A. My testimony is in support of Staff analyst Greg Miller's Issue 5 regarding:

<u>Cost of Capital</u>

1. Capital Structure;
2. Cost of Common Equity, also known as Return on Equity (ROE);
3. Cost of Long-Term (LT) Debt;

Mr. Miller applies other considerations to my findings and makes summary recommendations to the Commission in Exhibit Staff/100.

Q. What are your findings?

A. I recommend a 50 percent equity and 50 percent LT Debt Capital Structure, a mid-point ROE of 8.9 percent within a range of reasonable ROEs of 8.8 to 9.0 percent, and a 4.123 percent Cost of LT Debt. This generates an overall authorized Rate of Return (ROR) of 6.512 percent.

Q. Did you prepare a table showing the overall Cost of Capital (CoC) resulting from your analysis?

A. Yes, the following table summarizes that information.

Table 1

Staff Proposed – UW 169		Direct Testimony	
Component	**Percent of Total**	**Cost**	**Weighted Average**
Long Term Debt	**50.0%**	**4.123%**	2.062%
Preferred Stock	0.00%		0.000%
Common Stock	**50.0%**	**8.9%**	4.450%
	100.00%		**6.512%**

Please see Staff/100 Miller/19 for Staff's integration of these findings.

Q. How is your testimony organized?

A. My testimony is organized as follows:

Q. Did you prepare exhibits in support of your opening testimony?

A. Yes. I prepared the following exhibits:

Staff/301 ..... Witness Qualification Statement
Staff/302 ..... . Staff ROE Modeling
Staff/303 ..... Treasury Inflation Protected Securities (TIPS) Analysis
Staff/304 . GDP Analysis with U.S. Bureau of Economic Analysis (BEA) Data
Staff/305 ..... **CONFIDENTIAL** Cost of LT Debt Table & Maturity Profile
Staff/306 ..... Value Line (VL) Water Utility Profiles
Staff/307 .....**CONFIDENTIAL** Response to Staff Data Request No. 36

ISSUE 1: CAPITAL STRUCTURE

Q. What is the basis for your recommendation for a capital structure of 50 percent common equity and 50 percent LT Debt?

A. I have two primary reasons for supporting my recommended capital structure:

1. This notional capital structure is within the range that optimizes the Company's financial performance balanced against the risk of leverage; and
2. This capital structure is consistent with Commission-jurisdictional utility target capital structures in Oregon.

Staff's notional capital structure depicts the Company were it operating as a stand-alone publicly-traded, investor-owned water utility whose highest priority is efficient water operations.

ISSUE 2: COST OF COMMON EQUITY (ROE)

Q. Does your recommended ROE meet appropriate standards?

A. Yes. The 8.9 percent ROE I recommend meets the *Hope* and *Bluefield* standards, as well as the requirements of Oregon Revised Statute (ORS) 756.040. My recommendations are consistent with establishing "fair and reasonable rates" that are both "commensurate with the return on investments in other enterprises having corresponding risks" and "sufficient to ensure confidence in the financial integrity of the utility, allowing the utility to establish and maintain credit ratings and attract capital."[1]

Q. Describe the analysis underlying Staff's ROE recommendation.

A. I rely on two different three-stage "discounted cash flow" (DCF) models,[2] applied using a cohort group of peer utilities, to estimate the expected return on common equity required by investors.

Q. Describe the two DCF models that you used.

A. My first model is a conventional three-stage Discounted Dividend Model, which Staff denotes as a "30-year Three-stage Discounted Dividend Model with Terminal Valuation based on Growing Perpetuity" (referred to as "Model X").

---

1 *See* ORS 756.040(1) (a) and (b).

2 *See also* the Commission's discussion of multistage versus single-stage DCF models in Order No. 01-777 at page 27.

My second model is the "30-year Three-stage Discounted Dividend Model with Terminal Valuation Based on P/E Ratio" (referred to as "Model Y").

The three stages of the models are: 1) 2017-2021, where I use Value Line's (VL) forecasts of dividends per share for each company; 2) 2022-2026, where the rate of dividend growth converges from the average rate over the 2017-2021 period to the growth rate in of the third stage; and 3) 2027-2046. This is the third "long-term" stage, for which growth rates are discussed.

Model X includes a terminal value calculation, in which I assume dividends per share grow indefinitely at the rate of growth in Stage 3 ("growing perpetuity"). In contrast, Model Y terminates in a sale of stock where the price is determined by my escalated price/earnings (P/E) ratio.

Q. How do you address dividend timing?

A. Each model uses two sets of calculations that differ in the assumed timing of dividend receipt. One set of calculations is based on the standard assumption that the investor receives dividends at the end of each period.

The second set of calculations assumes the investor receives dividends at the beginning of each period. Each model averages the unadjusted ROE values to generate an Internal Rate of Return (IRR) produced with each set of calculations for each peer utility. This approach accounts for the time value of money, closely replicating actual quarterly receipt of dividends by investors.

Q. How do you account for differences in peer utility capital structures?

A. Each model employs the Hamada equation[3] to calculate an adjustment for differences in capital structure between each peer utility and my notional 50 percent common equity capital structure.

Q. What price do you use for each peer utility's stock?

A. I use the average of closing prices for each utility from the first trading day in January, February, and March 2017 to represent a reasonable snapshot of 2017, Q1.

Q. How do Staff's two DCF models differ?

A. Model X uses the calculation of a growing perpetuity as part of the terminal valuation in 2046.

Model Y uses the current price-earnings (P/E) ratio multiplied by the estimated "earnings per share" (EPS) in 2047, which establishes the stock's "selling price" in 2046 for terminal valuation. I estimate the 2047 EPS analogously with methods used to estimate the 2046 dividend in both models; i.e., based on VL estimates to which multiple growth rates are sequentially applied.

[3] Dr. Robert Hamada's Equation as used in Staff/202, Muldoon/4 separates the financial risk of a levered firm, represented by its mix of common stock, preferred stock, and debt, from its fundamental business risk. Staff corrects its ROE modeling for divergent amounts of debt, also referred to as leverage, between the Company and its peers.

PEER SCREEN

Q. How did you select comparable companies (peers) to estimate ROE?

A. I used companies that met the following criteria as peer utilities:

1. Covered by VL as an U.S. Water Utility;
2. Forecasted by VL to have Positive Dividend Growth;
3. No Decline in Annual Dividend in Last Five Years per SNL and VL; and
4. Primarily Domestic US Water Utility Sourced Cash Flows.

Q. What cohort of companies resulted from your screens?

A. Please see Exhibit Staff/302, Muldoon/2 for detailed Staff screens.

SENSITIVITY ANALYSIS

Q. Did Staff also do sensitivity analysis to quantify the impact capitalization size has on required ROE?

A. Yes. Staff's modeling utilized: A) water utilities that passed Staff's Screen, B) the earlier group restricted to Small- and Mid-Cap companies as a sensitivity, and C) the first group restricted to Small-Cap companies as another sensitivity.

Q. How does Staff apply informed judgment to its modeling?

A. Staff examined its full range of ROE results including sensitivities. Within that range, Staff determined that 8.8 percent to 9.0 percent is a reasonable narrowing of focus on Staff's peer companies.

GROWTH RATES

Q. What long-term growth rates did you use in the two DCF models?[4]

A. I used three different long-term growth rates, with different methods employed in developing each.

The first method uses a 50 percent weight applied to the average annual growth rate resulting from estimates of long-term GDP by the EIA, the OMB, and the CBO, with each receiving one-third of the 50 percent weight.[5] The remaining 50 percent is the average annual historical real GDP growth rate, established using regression analysis, for the period 1980 through 2016,[6] to which I apply the TIPS inflation forecast.

The second long-term growth rate relies on Blue Chip & U.S. Office of Management and Budget (OMB) data. At this time, this data happens to offer little incremental dispositive information beyond the first method. At times, expectations between the first and second sources can vary widely.

Last, I employ a nominal historical growth rate. See Table 2 below:

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4 Methods used here related to GDP-based growth rates are similar, if not identical to methods Staff has used in past proceedings. *See*, as an example, Staff's discussion of these methods and, to a limited extent, their conceptual underpinnings in Docket No. UE 233, at Exhibit Staff/800, Storm/46-52.

5 The EIA is the Energy Information Administration within the U.S. Department of Energy (DOE), OMB is the Office of Management and Budget, and CBO is the Congressional Budget Office. EIA and OMB's estimates are of nominal GDP. I applied to CBO's estimate of real GDP an inflation rate for the relevant timeframe developed using the Treasury Inflation-Protected Securities (TIPS) method described by Staff in testimony in multiple recent general rate case proceedings.

6 Staff discussed this approach in recent Staff cost of equity testimony in several rate case proceedings. *See*, as an example, in Docket No. UE 233 Exhibit Staff/800, Storm/46, line 15 through Storm/50 line 3.

Table 2
GDP Growth Rates[7]

	Stage 3 – Long-Term Annual Dividend and EPS Growth Rates Considered					
	Component	Real Rate	TIPS Inflation Forecast	Nominal Rate	Weight	Weighted Rate
	EIA	2.20%	2.04%	4.28%	12.50%	0.54%
	OMB - 10 Year GDP Projection			4.10%	12.50%	0.51%
	White House 2017 Budget			4.30%	12.50%	0.54%
	CBO Projections			4.20%	12.50%	0.53%
	Historical 1980 Q1 – 2016 Q3	2.80%	2.04%	4.90%	50.0%	2.45%
A	Composite				100%	4.56%
B	BEA Avg. Nominal Historical 1980 Q1 – 2016 Q1			5.46%	100.0%	5.46%
C	Blue Chip* – Top 10% 2019 Values	2.90%	2.04%	5.00%	100.0%	5.00%

Q. Does this approach capture a reasonable set of investor expectations similar to Staff's analysis in other recent general rate cases?

A. Yes, Staff modeling captures the expectations of investors who think variously that: A) future conditions will mirror the past, B) federal agency expert analysis also informs the historical track record, and C) the most optimistic 10 percent of Blue Chip referent persons surveyed have the pulse of the future. That last value represents the financial professionals who are most optimistic about the economy's long-run growth.

[7] *See* Staff/302 for this material in electronic form.

Q. Did your analysis include the construction of a synthetic forward curve using UST TIPS break even points?

A. Yes. My forward curve is provided in Exhibit Staff/303, reflecting implied market-based inflationary expectations. Staff's recommendations are consistent with market activity indicating investor expectations of future inflation.

Q. Assume one ignored current downward adjustments by a broad spectrum of federal agencies and instead presumed that future U.S. GDP growth would look like the past 30 years. Would a ROE based on that assumption fall within Staff's recommended range?

A. Yes, I extracted and ran regression on data from U.S. BEA to generate the annual real historical GDP growth rate. My recommended range of ROEs includes values that presume GDP growth over the next 30 years would look like that of the past 30 years.

HAMADA EQUATION

Q. Why is your application of the Hamada Equation to un-lever (remove debt from) peers and to re-lever at a 50 percent LT Debt reasonable?

A. I employ the Hamada Equation as a check on the reasonableness of my modeling results. This eliminates bias based on differences in the amount of LT Debt in peer utilities.

INFORMED STAFF ANALYSIS

Q. Do you monitor and analyze current and projected market conditions?

A. Yes. My analysis includes analysis of the current economic climate and its impact on my estimates of long-term growth. I also rely heavily on feeds from SNL Financial LC (SNL), Bloomberg, Moody's, S&P, WSJ and other sources to make sure that my financial understandings are reflective of investor expectations.

Q. Did you use robust and proven analytical methodologies?

A. Yes. My methods are robust, and parallel Staff's work over the last decade.

ISSUE 3: COST OF LT DEBT

Q. Have you compiled a summary table illustrating your calculation of a notional Cost of LT Debt for the Company?

A. Yes, please see Confidential Exhibit Staff/305 supporting my recommendation for a 4.123 percent Cost of LT Debt.

Q. Why do you look to what the Company leverage or debt would be if the Company were a publicly-traded stand-alone water utility?

A. A parent company with many businesses and interests and a stand-along Water Investor Owned Utility (IOU) can prioritize use of assets, financing choices, and certain stability of cash flows differently. While a parent company might chose to use utility assets to guarantee a variety of transactions and types of borrowing, a publicly traded IOU will most often rely on first mortgage bonds (FMB). FMB require a pool of qualified exclusively reserved assets and a certainty of cash flows in excess of the interest coverage of outstanding borrowing. This approach assures low cost debt-issuance for the IOU and reserves credit facilities for emergency liquidity and letters of credit (LC) support. Ratepayers are responsible for this set of prudent costs within a balanced capital structure.

Q. Are there tradeoffs for a parent company in prioritizing utility operations?

A. Yes, a parent company can use certain assets to guarantee only FMB or a variety of other activities to help the larger corporate family. Similarly, the parent could lean on credit facilities (have ongoing reliance on them) to lower

borrowing costs at increased liquidity risk were markets to become disruptive such as happened in 2008 to 2009. Staff's notional cost structure reflects the very long prudent operations of an investor-owned IOU that prioritizes certainty of credit ratings and cash flows, shuns risk, and gives top priority to delivery of reliable utility service at reasonable rates.

Staff's approach is consistent with Commission practice and can cost a little more when the U.S. Federal Reserve (FED) is stimulating the economy with a large, loose money supply. However, Staff's notional method costs ratepayers a lot less when the FED tightens the U.S. money supply or when financial markets are fearful. At those times, having matched long-term assets and obligations with long-term FMBs means the utility can use its credit facilities to ride out financial storms with little disruption of operations and minimal cost impact for customers.

[BEGIN CONFIDENTIAL]

[redacted]

[8] Please see Exhibit Staff/307.

[redacted]

[redacted]

[END CONFIDENTIAL]

CONCLUSION

Cost of Capital

Q. What is your recommendation regarding Capital Structure?

A. I recommend a 50 percent Common Equity and 50 percent LT Debt Capital Structure, reflecting best practices at this time.

Q. Is it practicable for Sunriver Water to adhere to best IOU practices?

A. Yes, but that is a matter of prioritization and self-identification. Corporate management attention is finite and confronted with many demands and opportunities. If the organization is defined around the utility and utility financial health is the top priority, then these best practices follow. Reality is somewhere in between. The aggregate corporate family can grow faster and non-utility resort challenges can be met faster if the utility is not the top priority. Yet inclusion of best practices herein helps assure that utility operations, customers and finances are prioritized against competing needs.

Q. What is your recommendation regarding ROE?

A. I recommend that the Commission consider a range of reasonable ROEs from 8.8 percent to 9.0 percent, and a point ROE of 8.9 percent — the midpoint in my range of most reasonable ROEs.

My sensitivity analysis addresses differences in the amount of LT Debt in peer utility capital structures and also corrects for differences in capitalization size.

Q. What is your recommendation regarding LT Debt?

A. I recommend a Cost of LT Debt of 4.123 percent which reflects the replacement of confidential credit facility activity with first mortgage bonds. My mix of maturities and choice of markets is consistent with Commission-jurisdictional utilities' finance decisions in current conditions.

Q. How do your recommendations relate to Staff Witness Miller's recommendations?

A. My recommendations are addressed and put into context by Mr. Miller in Exhibit Staff/100. Mr. Miller overlays other considerations to provide summary recommendations to the Commission.

Q. Does that conclude your testimony?

A. Yes.

CASE: UW 169
WITNESS: MATT MULDOON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 301

Witness Qualification Statement

July 7, 2017

WITNESS QUALIFICATION STATEMENT

NAME: Matthew (Matt) J. Muldoon

EMPLOYER: PUBLIC UTIILTY COMMISSION OF OREGON

TITLE: Senior Economist
Energy – Rates Finance and Audit Division

ADDRESS: 201 High Street SE, Suite 100
Salem, OR 97301

EDUCATION: In 1981, I received a Bachelor of Arts Degree in Political Science from the University of Chicago. In 2007, I received a Masters of Business Administration from Portland State University with a certificate in Finance.

EXPERIENCE: From April of 2008 to the present, I have been employed by the OPUC. My current responsibilities include financial and rate analysis with an emphasis on Cost of Capital. I have worked on Cost of Capital in the following general rate case dockets: AVA UG 186; UG 201, UG 246, UG 284, UG 288, and UG 325 current; NWN UG 221; PAC UE 246, and UE 263; PGE UE 262, UE 283, and UE 294; and CNG UG 287 and UG 305..

From 2002 to 2008 I was Executive Director of the Acceleration Transportation Rate Bureau, Inc. where I developed new rate structures for surface transportation and created metrics to insure program success within regulated processes.

I was the Vice President of Operations for Willamette Traffic Bureau, Inc. from 1993 to 2002. There I managed tariff rate compilation and analysis. I also developed new information systems and did sensitivity analysis for rate modeling.

OTHER: I have prepared, and defended formal testimony in contested hearings before the OPUC, ICC, STB, WUTC and ODOT. I have also prepared OPUC Staff testimony in BPA rate cases.

Abbreviations: AVA – Avista Corp., CNG – Cascade Natural Gas Company, IPC – Idaho Power Company, NWN – Northwest Natural Gas Company, PAC – PacifiCorp, PGE – Portland General Electric Company

CASE: UW 169
WITNESS: MATT MULDOON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 302

Return on Equity (ROE)

Exhibits in Support
of Opening Testimony

July 7, 2017

UW 169 Staff ROE Summary

	Stage 3 – Long-Term Annual Dividend and EPS Growth Rates Considered					
	Component	Real Rate	TIPS Inflation Forecast	Nominal Rate	Weight	Weighted Rate
	EIA	2.20%	2.04%	4.28%	12.50%	0.54%
	OMB - 10 Year GDP Projection			4.10%	12.50%	0.51%
	White House 2017 Budget			4.30%	12.50%	0.54%
	CBO Projections			4.20%	12.50%	0.53%
	Historical 1980 Q1 – 2016 Q3	2.80%	2.04%	4.90%	50.0%	2.45%
A	**Composite**				100%	4.56%
B	BEA Avg. Nominal Historical 1980 Q1 – 2016 Q1			5.46%	100.0%	5.46%
C	Blue Chip* – Top 10% 2019 Values	2.90%	2.04%	5.00%	100.0%	5.00%

	Model X: 3 Stage DCF - Dividend Growth with Terminal Value as Perpetuity				
	X	Composite Growth	4.56%	Nominal Historical Growth	5.46%
1	VL H2O Screen	7.21%		8.02%	
2	VL (Low-Cap) H2O Screen - Under $2B	7.05%		7.87%	
3	VL Small-Cap) H2O Screen	6.96%		7.78%	

Hamada Adjustments →

	Model X: 3 Stage DCF - Dividend Growth with Terminal Value as Perpetuity (Hamada				
	X	Composite Growth	4.56%	Nominal Historical Growth	5.46%
1	VL H2O Screen	7.49%		8.30%	
2	VL (Low Cap) H2O Screen	7.37%		8.19%	
3	VL Small-Cap) H2O Screen	7.23%		8.05%	

	Model Y: 3 Stage DCF - Dividend Growth with Terminal Value as Sales based upon EPS Growth and Terminal Stock				
	Y	Composite Growth	4.56%	Nominal Historical Growth	5.46%
1	VL H2O Screen	7.65%		8.36%	
2	VL (Low-Cap) H2O Screen	7.49%		8.21%	
3	VL (Small-Cap) H2O Screen	7.44%		8.16%	

Hamada Adjustments →

	Model Y: 3 Stage DCF - Dividend & EPS Growth with Terminal Value as Stock Sale				
	Y	Composite Growth	4.56%	Nominal Historical Growth	5.46%
1	VL H2O Screen	7.93%		8.64%	
2	VL (Low Cap) H2O Screen	7.81%		8.53%	
3	VL Small-Cap) H2O Screen	7.71%		8.43%	

		Above Right	
❖	Hamada Adjustments to Right Fully Account for Differences in the Amount of Debt in Capital Structure		
❖	Common Stock Flotation Costs Adjustment Shifts Range of Reasonable ROE's Upward by :	12.5	bps
❖	Sensitivity Study to Account for Difference in Capitalization Size -- Maximum Upward Shift Shown to Right	21.0	bps

Informed Range of Modeled Results	8.8%	to	9.0%	ROE
Point ROE Recommendation		8.9%		ROE

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

Screen: 1 Water Utilities Followed by Value Line (VL)
2 " that have capitalization under $2B
See Note Below

Water Utility
Sunriver Water (SR) UW 169

		1	2					Yahoo Fin.	VL	Value Line	SNL or VL	VL 2016	VL	VL 2016	VL
					NYSE	VL	Yahoo Fin.	6/20/2017	6/20/2017	Water Utility	No Div	LT Debt	2020-2022	Common	Preferred
Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	VL Corporate Name Gas Utility	NSDQ Ticker	6/20/2017 Beta	6/20/2017 Beta	Mkt Cap $ Billions	Mkt Cap $ Billions	w VL Beta < 1 6/20/2017	Declines 5 years	< 56% of Capital	LT Debt % of Capital	Equity % of Capital	Stock of Capital
1	American States	Yes	Yes	American States Water Company	AWR	0.75	-.06	1.78	1.60	Yes	Pass	39.4%	43.5%	60.6%	0.0%
2	American Water	No	No	American Water Works Company, Inc.	AWK	0.65	0.16	14.49	12.90	Yes	Fail	52.4%	54.0%	47.5%	0.1%
3	Aqua America	Yes	No	Aqua America, Inc.	WTR	0.70	0.41	6.00	5.70	Yes	Pass	48.4%	51.0%	51.6%	0.0%
4	California Water	Yes	Yes	California Water Service Group	CWT	0.75	0.56	1.74	1.70	Yes	Pass	44.6%	57.0%	55.4%	0.0%
5	Connecticut Water	Yes	Yes	Connecticut Water Services, Inc.	CTWS	0.65	0.02	0.68	0.60	Yes	Pass	45.4%	46.5%	54.4%	0.0%
6	Consolidated Water	No	No	Consolidated Water Co. Ltd.	CWCO	0.90	0.82	0.18	0.18	Yes	Pass	0.0%	0.0%	99.0%	1.0%
7	Middlesex Water	Yes	Yes	Middlesex Water Company	MSEX	0.75	0.45	0.66	0.60	Yes	Pass	37.9%	38.0%	61.5%	0.6%
8	SJW	Yes	Yes	SJW Group	SJW	0.70	-0.16	1.05	0.98	Yes	Pass	50.7%	49.0%	49.3%	0.0%
9	York Water	Yes	Yes	The York Water Company	YORW	0.75	0.38	0.48	0.45	Yes	Pass	42.5%	45.0%	57.4%	0.1%
	TOTAL PEERS	7	6												

Note: Staff further segregates VL Small-Cap in sensitivity modeling to test the effects of Capitalization Size on modeling sesults.

1	2	3	4	17	18
		Screen:		1	
Water Utility				2	
Sunriver Water (SR) UW 169					

Screen #	Abbreviated Utility	1 UW 169 VL Group	2 UW 169 VL Low-Cap	VL Div. Growth Rate > 0%	Notes	Screen #
1	American States	Yes	Yes	Pass	Also has 10 contracts for military installations	1
2	American Water	No	No	Pass	Strategy: Growth through acquisitions and controlling expenses.	2
3	Aqua America	Yes	No	Pass		3
4	California Water	Yes	Yes	Pass		4
5	Connecticut Water	Yes	Yes	Pass	2016-7 M&A: Acquired Heritage Village Water for $20.7M, Trying to purchase Avon Water Co. for $37M	5
6	Consolidated Water	No	No	Fail	Flat Dividend Growth, Higher Risk International Desalination Projects	6
7	Middlesex Water	Yes	Yes	Pass	Also operates water and wastewater services and upgrades under contract with cities and private clients	7
8	SJW	Yes	Yes	Pass	Delays in infrastructure build cost recovery	8
9	York Water	Yes	Yes	Pass	Oldest Water Utility in US - in continuous operation since 1816.	9
	TOTAL PEERS	7	6			

Sunriver Water Peer Dividends

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
																											Value Line Estimate	
Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	Ticker	2012 Yr	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2013 Yr	2014 Q1	2014 Q2	2014 Q3	2014 Q4	2014 Yr	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2015 Yr	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2016 Yr	2014-16 Average	2017 Yr	2018 Yr
1	American States	Yes	Mid-Cap	AWR	0.64	0.1775	0.1775	0.2025	0.2025	0.76	0.2025	0.2025	0.213	0.213	0.83	0.213	0.213	0.224	0.224	0.87	0.224	0.224	0.224	0.242	0.91	0.87	0.96	1.02
3	Aqua America	Yes	Large-Cap	WTR	0.54	0.14	0.14	0.152	0.152	0.58	0.152	0.152	0.165	0.165	0.63	0.165	0.165	0.178	0.178	0.69	0.178	0.178	0.1913	0.1913	0.74	0.69	0.85	0.85
4	California Water	Yes	Mid-Cap	CWT	0.63	0.16	0.16	0.16	0.16	0.64	0.1625	0.1625	0.1625	0.1625	0.65	0.1675	0.1675	0.1675	0.1675	0.67	0.1725	0.1725	0.1725	0.1725	0.69	0.67	0.72	0.75
5	Connecticut Water	Yes	Small-Cap	CTWS	0.96	0.2425	0.2425	0.2475	0.2475	0.98	0.2475	0.2475	0.2575	0.2575	1.01	0.2575	0.2575	0.2675	0.2675	1.05	0.2675	0.2825	0.2825	0.2825	1.12	1.06	1.20	1.24
7	Middlesex Water	Yes	Small-Cap	MSEX	0.74	0.19	0.1875	0.1875	0.19	0.75	0.19	0.19	0.19	0.1925	0.76	0.1925	0.1925	0.1925	0.19875	0.78	0.19875	0.19875	0.19875	0.21125	0.81	0.78	0.84	0.87
8	SJW	Yes	Mid-Cap	SJW	0.71	0.1825	0.1825	0.1825	0.1825	0.73	0.1875	0.1875	0.1875	0.1875	0.75	0.195	0.195	0.195	0.195	0.78	0.2025	0.2025	0.2025	0.2025	0.81	0.78	0.87	0.93
9	York Water	Yes	Small Cap	YORW	0.54	0.14	0.138	0.138	0.138	0.55	0.1431	0.1431	0.1431	0.1431	0.57	0.1495	0.1495	0.1495	0.1555	0.60	0.1555	0.1555	0.1555	0.1602	0.63	0.60	0.66	0.70
	TOTAL	7	6																									

(Low-Cap

Sunriver Water Peer EPS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
										Value Line Estimated EPS																	Value Line Estimated Near Fu	
Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	Ticker	2013 Yr	2014 Q1	2014 Q2	2014 Q3	2014 Q4	2014 Yr	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2015 Yr	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2016 Yr	2014-16 Average	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2017 Yr	2018 Q1	2018 Q2
1	American States	Yes	Mid-Cap	AWR	1.61	0.28	0.39	0.54	0.36	1.57	0.32	0.41	0.56	0.31	1.60	0.28	0.45	0.59	0.30	1.62	1.60	0.33	0.45	0.57	0.35	1.70	0.35	0.47
3	Aqua America	Yes	Large-Cap	WTR	1.16	0.24	0.31	0.38	0.27	1.20	0.27	0.32	0.38	0.17	1.14	0.29	0.34	0.41	0.28	1.32	1.22	0.30	0.35	0.45	0.30	1.40	0.31	0.36
4	California Water	Yes	Mid-Cap	CWT	1.02	(0.11)	0.36	0.70	0.24	1.19	0.03	0.21	0.52	0.18	0.94	(0.02)	0.24	0.48	0.31	1.01	1.05	0.05	0.35	0.65	0.30	1.35	0.07	0.38
5	Connecticut Water	Yes	Small-Cap	CTWS	1.66	0.27	0.67	0.76	0.22	1.92	0.28	0.77	0.79	0.20	2.04	0.28	0.89	0.84	0.07	2.08	2.01	0.30	0.79	0.88	0.23	2.20	0.35	0.80
7	Middlesex Water	Yes	Small-Cap	MSEX	1.03	0.2	0.29	0.42	0.22	1.13	0.22	0.31	0.41	0.28	1.22	0.29	0.36	0.54	0.19	1.38	1.24	0.30	0.37	0.55	0.28	1.50	0.33	0.38
8	SJW	Yes	Mid-Cap	SJW	1.12	0.04	0.34	1.88	0.28	2.54	0.23	0.36	0.46	0.80	1.85	0.16	0.82	0.92	0.67	2.57	2.32	0.25	0.65	0.75	0.60	2.25	0.27	0.67
9	York Water	Yes	Small Cap	YORW	0.75	0.16	0.22	0.23	0.28	0.89	0.20	0.22	0.28	0.27	0.97	0.19	0.23	0.27	0.23	0.92	0.93	0.22	0.25	0.30	0.28	1.05	0.23	0.26
	TOTAL	8	6																									

Sunriver Water Peer Dividends

	1	2	3	4	5	30	31	32	33	34	35		
						d Near Future Dividends in Blue				VL Avg	Div. Growth		
	Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	Ticker	2019 Yr	2020 Yr	2021 Yr	2022 Yr	2020- 22 / Yr	2020-22 vs. 2014-16	Screen #	
1	1	American States	Yes	Mid-Cap	AWR	1.12	1.23	1.35	1.47	1.35	7.5%	1	1
2	3	Aqua America	Yes	Large-Cap	WTR	0.94	1.04	1.15	1.26	1.15	9.0%	3	2
3	4	California Water	Yes	Mid-Cap	CWT	0.82	0.90	0.99	1.08	0.99	6.7%	4	3
4	5	Connecticut Water	Yes	Small-Cap	CTWS	1.29	1.34	1.40	1.46	1.40	4.8%	5	4
5	7	Middlesex Water	Yes	Small-Cap	MSEX	0.92	0.97	1.02	1.07	1.02	4.5%	7	5
6	8	SJW	Yes	Mid-Cap	SJW	0.99	1.05	1.12	1.19	1.12	6.2%	8	6
7	9	York Water	Yes	Small Cap	YORW	0.76	0.83	0.90	0.97	0.90	7.0%	9	7
		TOTAL	7	6						VL H2O Screen	6.5%	Mean	
				= Small- & Mid-Cap)						VL (Low Cap) H2O Screen	6.1%		
										VL Small-Cap) H2O Screen	5.4%		

Sunriver Water Peer EPS

	1	2	3	4	5	30	31	32	33	34	35	36	37	38		
						ture Earnings per Share in Blue							VL Avg	EPS Growth		
	Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	Ticker	2018 Q3	2018 Q4	2018 Yr	2019 Yr	2020 Yr	2021 Yr	2022 Yr	2020 - 22 / Yr	2020-22 vs. 2014-16	Screen #	
1	1	American States	Yes	Mid-Cap	AWR	0.6	0.38	1.80	1.97	2.15	2.35	2.55	2.35	6.7%	1	1
2	3	Aqua America	Yes	Large-Cap	WTR	0.47	0.31	1.45	1.57	1.71	1.85	1.99	1.85	7.2%	3	2
3	4	California Water	Yes	Mid-Cap	CWT	0.67	0.33	1.45	1.54	1.64	1.75	1.86	1.75	8.9%	4	3
4	5	Connecticut Water	Yes	Small-Cap	CTWS	0.90	0.30	2.35	2.45	2.55	2.65	2.75	2.65	4.7%	5	4
5	7	Middlesex Water	Yes	Small-Cap	MSEX	0.57	0.32	1.60	1.74	1.89	2.05	2.21	2.05	8.7%	7	5
6	8	SJW	Yes	Mid-Cap	SJW	0.78	0.63	2.35	2.48	2.61	2.75	2.89	2.75	2.9%	8	6
7	9	York Water	Yes	Small Cap	YORW	0.32	0.29	1.10	1.19	1.29	1.40	1.51	1.40	7.1%	9	7
		TOTAL	8	6								VL H2O Screen		6.6%	Mean	
									(Low-Cap = Small- & Mid-Cap)			VL (Low-Cap) H2O Screen		6.5%		

Staff Hamada Adjustments

AVA GRC
Staff Hamada Adjustments

	1	2	3	4	5	6	7	8	9	10	11	#	12	13	14	15	16	17	#	18	19	
						Yahoo Finance							VL 2016 Cap Structure									
						$ Stock Closing Price 1st Trading Day of Month			*3-Day Avg $ Stock Price*	*Div Yield at Recent Price*	*VL 2016 Return on Common Equity*		% Long Term Debt	% Common Equity	VL Beta	2016 VL Tax Rate	Hamada Unlevered Beta	*Relevered Beta Equity at 50.0%*		Equity Risk Premium	*Hamada Adjustment Equity At 50.0%*	
	Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	Ticker	Jan. 1/1/2017	Feb. 2/1/2017	Mar. 3/1/2017														
1	1	American States	Yes	Mid-Cap	AWR	43.78	44.72	44.30	44.27	2.1%	12.1%		39.4	60.6	0.75	36.6%	0.53	0.87		4.20%	0.49%	1
2	3	Aqua America	Yes	Large-Cap	WTR	30.41	31.74	32.15	31.43	2.3%	12.7%		48.8	51.6	0.70	8.2%	0.37	0.72		4.20%	0.08%	3
3	4	California Water	Yes	Mid-Cap	CWT	34.50	36.75	35.85	35.70	1.9%	11.8%		44.6	55.4	0.75	35.5%	0.49	0.81		4.20%	0.26%	4
4	5	Connecticut Water	Yes	Small-Cap	CTWS	54.04	57.05	53.15	54.75	2.0%	9.9%		45.4	54.4	0.65	9.9%	0.37	0.71		4.20%	0.23%	5
5	7	Middlesex Water	Yes	Small-Cap	MSEX	37.81	37.65	36.95	37.47	2.2%	10.3%		37.9	61.5	0.75	34.0%	0.53	0.89		4.20%	0.57%	7
6	8	SJW	Yes	Mid-Cap	SJW	50.10	48.53	48.22	48.95	1.7%	12.5%		50.7	49.3	0.70	38.8%	0.43	0.69		4.20%	-0.03%	8
7	9	York Water	Yes	Small Cap	YORW	35.80	36.00	35.05	35.62	1.8%	10.4%		42.6	57.4	0.75	31.3%	0.50	0.84		4.20%	0.37%	9
		TOTAL	7	6														VL H2O Screen			0.28%	Mean
																		VL (Low Cap) H2O Screen			0.32%	
																		VL Small-Cap) H2O Screen			0.27%	

Dividend Yield = (Annual Dividends per Share) / Price per Share

(Low-Cap = Small- & Mid-Cap)

When Value Line (VL) Beta ratio exceeds 99.9 or earnings are negative, VI shows "NMF" for 'no meaningful figure'.

4.56% Annual Growth Rate - Stage 3

Dividend Growth with Terminal Value as Perpetuity

E.O.Y. Cash Flows Staff Model X

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
						Terminal Value as			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2045			
	Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	IRR	% of NPV_{DIV}	NPV @ IRR	Recent Price	Initial Stage					Transition Stage						Final Stage																			Terminal Value	2046 Div	2046 Perpetuity	Screen #	
1	1	American States	Yes	Mid-Cap	7.4%	47.0%	0.00	(44.27)	0.96	1.02	1.12	1.23	1.35	1.47	1.62	1.76	1.87	1.96	2.05	2.14	2.24	2.34	2.45	2.56	2.68	2.80	2.93	3.06	3.20	3.35	3.50	3.66	3.83	4.00	4.18	4.37	4.57	178.88	4.78	174.10	1	1
2	3	Aqua America	Yes	Large-Cap	8.1%	40.1%	0.00	(31.43)	0.85	0.85	0.94	1.04	1.15	1.26	1.41	1.53	1.64	1.71	1.79	1.87	1.96	2.05	2.14	2.24	2.34	2.45	2.56	2.68	2.80	2.93	3.06	3.20	3.35	3.50	3.66	3.82	4.00	129.12	4.18	124.93	3	2
3	4	California Water	Yes	Mid-Cap	7.2%	50.5%	0.00	(35.70)	0.72	0.75	0.82	0.90	0.99	1.08	1.18	1.28	1.36	1.42	1.48	1.55	1.62	1.70	1.77	1.86	1.94	2.03	2.12	2.22	2.32	2.42	2.54	2.65	2.77	2.90	3.03	3.17	3.31	143.18	3.46	139.72	4	3
4	5	Connecticut Water	Yes	Small-Cap	6.8%	54.1%	(0.00)	(54.75)	1.20	1.24	1.29	1.34	1.40	1.46	1.58	1.69	1.78	1.87	1.95	2.04	2.13	2.23	2.33	2.44	2.55	2.67	2.79	2.91	3.05	3.19	3.33	3.48	3.64	3.81	3.98	4.16	4.35	214.71	4.55	210.16	5	4
5	7	Middlesex Water	Yes	Small-Cap	7.0%	52.0%	(0.00)	(37.47)	0.84	0.87	0.92	0.97	1.02	1.07	1.16	1.24	1.31	1.37	1.43	1.50	1.57	1.64	1.71	1.79	1.87	1.96	2.05	2.14	2.24	2.34	2.45	2.56	2.67	2.80	2.92	3.06	3.20	147.70	3.34	144.36	7	5
6	8	SJW	Yes	Mid-Cap	6.7%	57.1%	(0.00)	(48.95)	0.87	0.93	0.99	1.05	1.12	1.19	1.30	1.40	1.49	1.55	1.62	1.70	1.78	1.86	1.94	2.03	2.12	2.22	2.32	2.43	2.54	2.65	2.77	2.90	3.03	3.17	3.32	3.47	3.62	193.12	3.79	189.33	8	6
7	9	York Water	Yes	Small Cap	6.9%	53.5%	(0.00)	(35.62)	0.66	0.70	0.76	0.83	0.90	0.97	1.07	1.16	1.23	1.29	1.34	1.41	1.47	1.54	1.61	1.68	1.76	1.84	1.92	2.01	2.10	2.20	2.30	2.40	2.51	2.62	2.74	2.87	3.00	142.03	3.14	138.90	9	7
		TOTALS	7	4																																						

Mean		
7.15%	50.63%	0%
6.99%	49.55%	0%
6.91%	50.75%	0%

VL H2O Screen
VL (Low Cap) H2O Screen (Low-Cap = Small- & Mid-Cap)
VL Small-Cap) H2O Screen

B.O.Y. Cash Flows Staff Model X

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
						Terminal Value as			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2045			
	Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	IRR	% of NPV_{DIV}	NPV @ IRR	Recent Price	Initial Stage					Transition Stage						Final Stage																			Terminal Value	2046 Div	2046 Perpetuity	Screen #	
1	1	American States	Yes	Mid-Cap	7.58%	44.9%	0.00	(44.27)	1.02	1.12	1.23	1.35	1.47	1.62	1.76	1.87	1.96	2.05	2.14	2.24	2.34	2.45	2.56	2.68	2.80	2.93	3.06	3.20	3.35	3.50	3.66	3.83	4.00	4.18	4.37	4.57	4.78	178.15	5.00	173.15	1	1
2	3	Aqua America	Yes	Large-Cap	8.24%	38.0%	0.00	(31.43)	0.85	0.94	1.04	1.15	1.26	1.41	1.53	1.64	1.71	1.79	1.87	1.96	2.05	2.14	2.24	2.34	2.45	2.56	2.68	2.80	2.93	3.06	3.20	3.35	3.50	3.66	3.82	4.00	4.18	128.57	4.37	124.20	3	2
3	4	California Water	Yes	Mid-Cap	7.28%	47.6%	0.00	(35.70)	0.75	0.82	0.90	0.99	1.08	1.18	1.28	1.36	1.42	1.48	1.55	1.62	1.70	1.77	1.86	1.94	2.03	2.12	2.22	2.32	2.42	2.54	2.65	2.77	2.90	3.03	3.17	3.31	3.46	142.72	3.62	139.09	4	3
4	5	Connecticut Water	Yes	Small-Cap	6.93%	52.6%	0.00	(54.75)	1.24	1.29	1.34	1.40	1.46	1.58	1.69	1.78	1.87	1.95	2.04	2.13	2.23	2.33	2.44	2.55	2.67	2.79	2.91	3.05	3.19	3.33	3.48	3.64	3.81	3.98	4.16	4.35	4.55	214.86	4.76	210.10	5	4
5	7	Middlesex Water	Yes	Small-Cap	7.09%	50.4%	0.00	(37.47)	0.87	0.92	0.97	1.02	1.07	1.16	1.24	1.31	1.37	1.43	1.50	1.57	1.64	1.71	1.79	1.87	1.96	2.05	2.14	2.24	2.34	2.45	2.56	2.67	2.80	2.92	3.06	3.20	3.34	147.67	3.49	144.18	7	5
6	8	SJW	Yes	Mid-Cap	6.75%	55.4%	0.00	(48.95)	0.93	0.99	1.05	1.12	1.19	1.30	1.40	1.49	1.55	1.62	1.70	1.78	1.86	1.94	2.03	2.12	2.22	2.32	2.43	2.54	2.65	2.77	2.90	3.03	3.17	3.32	3.47	3.62	3.79	192.85	3.96	188.89	8	6
7	9	York Water	Yes	Small Cap	7.04%	51.6%	(0.00)	(35.62)	0.70	0.76	0.83	0.90	0.97	1.07	1.16	1.23	1.29	1.34	1.41	1.47	1.54	1.61	1.68	1.76	1.84	1.92	2.01	2.10	2.20	2.30	2.40	2.51	2.62	2.74	2.87	3.00	3.14	141.62	3.28	138.34	9	7
		TOTALS	7	6																																						

Mean		
7.27%	48.65%	0%
7.11%	47.52%	0%
7.02%	48.77%	0%

VL H2O Screen
VL (Low Cap) H2O Screen (Low-Cap = Small- & Mid-Cap)
VL Small-Cap) H2O Screen

Average B.O.Y. & E.O.Y. Cash Flows Model X

	1	2	3	4	5	6	7	8	9	
						Terminal Value as	Average 2017 - 2021 Dividend Growth Rates			
	Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	Average IRR	% of NPV_{DIV}	EOY	BOY	Average	Screen #
1	1	American States	Yes	Mid-Cap	7.51%	46.0%	8.9%	9.6%	9.2%	1 1
2	3	Aqua America	Yes	Large-Cap	8.15%	39.1%	7.8%	10.3%	9.1%	3 2
3	4	California Water	Yes	Mid-Cap	7.22%	49.0%	8.3%	9.5%	8.9%	4 3
4	5	Connecticut Water	Yes	Small-Cap	6.88%	53.3%	3.9%	4.1%	4.0%	5 4
5	7	Middlesex Water	Yes	Small-Cap	7.04%	51.2%	5.0%	5.4%	5.2%	7 5
6	8	SJW	Yes	Mid-Cap	6.70%	56.3%	6.5%	6.3%	6.4%	8 6
7	9	York Water	Yes	Small Cap	6.98%	52.6%	8.1%	8.6%	8.3%	9 7
		TOTALS	7	6						

Mean			
7.21%	49.64%	7%	VL H2O Screen
7.05%	48.54%	7%	VL (Low Cap) H2O Screen (Low-Cap = Small- & Mid-Cap)
6.96%	49.76%	7%	VL Small-Cap) H2O Screen

5.46% Annual Growth Rate - Stage 3

EPS Growth to Determine a Sale Terminal Valu **EPS Growth**

E.O.Y. Cash Flows

Staff Model Y

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
	Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	IRR	Terminal Value as % of NPV_{DIV}	NPV @ IRR	Recent Price*	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2045 Terminal Value	2046 Div	2046 Sale	2047	Screen #	
									Initial Stage					Transition Stage					Final Stage																								
1	1	American States	Yes	Mid-Cap	8.7%	51.7%	0.00	(44.27)	0.96	1.02	1.12	1.23	1.35	1.47	1.64	1.79	1.92	2.03	2.14	2.26	2.38	2.51	2.65	2.79	2.94	3.10	3.27	3.45	3.64	3.84	4.05	4.27	4.50	4.75	5.01	5.28	5.57	282.12	5.87	276.25		1	1
				e					1.70	1.80	1.97	2.15	2.35	2.55	2.82	3.07	3.29	3.47	3.66	3.86	4.07	4.30	4.53	4.78	5.04	5.32	5.61	5.91	6.23	6.57	6.93	7.31	7.71	8.13	8.58	9.04	9.54		10.06		10.61		
2	3	Aqua America	Yes	Large-Cap	9.2%	44.1%	0.00	(31.43)	0.85	0.85	0.94	1.04	1.15	1.26	1.42	1.56	1.68	1.77	1.87	1.97	2.08	2.19	2.31	2.44	2.57	2.71	2.86	3.02	3.18	3.36	3.54	3.73	3.94	4.15	4.38	4.62	4.87	192.83	5.14	187.69		3	2
				e					1.40	1.45	1.57	1.71	1.85	1.99	2.22	2.42	2.60	2.74	2.89	3.04	3.21	3.39	3.57	3.77	3.97	4.19	4.42	4.66	4.91	5.18	5.46	5.76	6.08	6.41	6.76	7.13	7.52		7.93		8.36		
3	4	California Water	Yes	Mid-Cap	8.3%	54.3%	0.00	(35.70)	0.72	0.75	0.82	0.90	0.99	1.08	1.19	1.30	1.39	1.47	1.55	1.63	1.72	1.82	1.92	2.02	2.13	2.25	2.37	2.50	2.64	2.78	2.93	3.09	3.26	3.44	3.63	3.83	4.03	215.11	4.26	210.86		4	3
				e					1.35	1.45	1.54	1.64	1.75	1.86	2.09	2.30	2.48	2.61	2.75	2.90	3.06	3.23	3.41	3.59	3.79	3.99	4.21	4.44	4.69	4.94	5.21	5.50	5.80	6.11	6.45	6.80	7.17		7.56		7.97		
4	5	Connecticut Water	Yes	Small-Cap	7.7%	55.9%	0.00	(54.75)	1.20	1.24	1.29	1.34	1.40	1.46	1.59	1.72	1.83	1.93	2.04	2.15	2.26	2.39	2.52	2.66	2.80	2.95	3.12	3.29	3.47	3.65	3.85	4.06	4.29	4.52	4.77	5.03	5.30	282.88	5.59	277.29		5	4
				e					2.20	2.35	2.45	2.55	2.65	2.75	3.01	3.24	3.46	3.65	3.85	4.06	4.28	4.51	4.76	5.02	5.29	5.58	5.89	6.21	6.55	6.91	7.28	7.68	8.10	8.54	9.01	9.50	10.02		10.57		11.14		
5	7	Middlesex Water	Yes	Small-Cap	8.4%	57.0%	0.00	(37.47)	0.84	0.87	0.92	0.97	1.02	1.07	1.17	1.26	1.34	1.42	1.50	1.58	1.66	1.75	1.85	1.95	2.06	2.17	2.29	2.41	2.54	2.68	2.83	2.98	3.15	3.32	3.50	3.69	3.89	240.68	4.11	236.58		7	5
				e					1.50	1.60	1.74	1.89	2.05	2.21	2.48	2.73	2.94	3.10	3.27	3.45	3.64	3.84	4.05	4.27	4.50	4.75	5.00	5.28	5.57	5.87	6.19	6.53	6.88	7.26	7.66	8.07	8.52		8.98		9.47		
6	8	SJW	Yes	Mid-Cap	7.5%	58.7%	0.00	(48.95)	0.87	0.93	0.99	1.05	1.12	1.19	1.31	1.42	1.52	1.61	1.70	1.79	1.89	1.99	2.10	2.21	2.33	2.46	2.59	2.74	2.89	3.04	3.21	3.38	3.57	3.76	3.97	4.19	4.41	252.50	4.66	247.84		8	6
				e					2.25	2.35	2.48	2.61	2.75	2.89	3.11	3.33	3.54	3.73	3.93	4.15	4.38	4.61	4.87	5.13	5.41	5.71	6.02	6.35	6.69	7.06	7.45	7.85	8.28	8.73	9.21	9.71	10.24		10.80		11.39		
7	9	York Water	Yes	Small Cap	8.2%	57.6%	0.00	(35.62)	0.66	0.70	0.76	0.83	0.90	0.97	1.08	1.18	1.26	1.33	1.40	1.48	1.56	1.65	1.74	1.83	1.93	2.04	2.15	2.26	2.39	2.52	2.66	2.80	2.95	3.11	3.28	3.46	3.65	218.09	3.85	214.24		9	7
				e					1.05	1.10	1.19	1.29	1.40	1.51	1.67	1.83	1.96	2.07	2.18	2.30	2.43	2.56	2.70	2.85	3.00	3.16	3.34	3.52	3.71	3.91	4.13	4.35	4.59	4.84	5.11	5.38	5.68		5.99		6.32		
		TOTALS	7	6																																						

Mean		
8.29%	54.20%	0%
8.15%	55.88%	0%
8.10%	56.83%	0%

VL H2O Screen
VL (Low Cap) H2O Screen (Low-Cap = Small- & Mid-Cap)
VL Small-Cap) H2O Screen

B.O.Y. Cash Flows

Staff Model Y EPS Growth

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
	Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	IRR	Terminal Value as % of NPV_{DIV}	NPV @ IRR	Recent Price*	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2045 Terminal Value	2046 Div	2046 Sale	2047	#	
									Initial Stage					Transition Stage					Final Stage																								
1	1	American States	Yes	Mid-Cap	8.9%	49.5%	0.00	(44.27)	1.02	1.12	1.23	1.35	1.47	1.64	1.79	1.92	2.03	2.14	2.26	2.38	2.51	2.65	2.79	2.94	3.10	3.27	3.45	3.64	3.84	4.05	4.27	4.50	4.75	5.01	5.28	5.57	5.87	282.44	6.19	276.25		1	1
				e					1.70	1.80	1.97	2.15	2.35	2.55	2.82	3.07	3.29	3.47	3.66	3.86	4.07	4.30	4.53	4.78	5.04	5.32	5.61	5.91	6.23	6.57	6.93	7.31	7.71	8.13	8.58	9.04	9.54		10.06		10.61		
2	3	Aqua America	Yes	Large-Cap	9.4%	41.8%	0.00	(31.43)	0.85	0.94	1.04	1.15	1.26	1.42	1.56	1.68	1.77	1.87	1.97	2.08	2.19	2.31	2.44	2.57	2.71	2.86	3.02	3.18	3.36	3.54	3.73	3.94	4.15	4.38	4.62	4.87	5.14	193.11	5.42	187.69		3	2
				e					1.40	1.45	1.57	1.71	1.85	1.99	2.22	2.42	2.60	2.74	2.89	3.04	3.21	3.39	3.57	3.77	3.97	4.19	4.42	4.66	4.91	5.18	5.46	5.76	6.08	6.41	6.76	7.13	7.52		7.93		8.36		
3	4	California Water	Yes	Mid-Cap	8.5%	52.2%	0.00	(35.70)	0.75	0.82	0.90	0.99	1.08	1.19	1.30	1.39	1.47	1.55	1.63	1.72	1.82	1.92	2.02	2.13	2.25	2.37	2.50	2.64	2.78	2.93	3.09	3.26	3.44	3.63	3.83	4.03	4.26	215.35	4.49	210.86		4	3
				e					1.35	1.45	1.54	1.64	1.75	1.86	2.09	2.30	2.48	2.61	2.75	2.90	3.06	3.23	3.41	3.59	3.79	3.99	4.21	4.44	4.69	4.94	5.21	5.50	5.80	6.11	6.45	6.80	7.17		7.56		7.97		
4	5	Connecticut Water	Yes	Small-Cap	7.8%	54.2%	0.00	(54.75)	1.24	1.29	1.34	1.40	1.46	1.59	1.72	1.83	1.93	2.04	2.15	2.26	2.39	2.52	2.66	2.80	2.95	3.12	3.29	3.47	3.65	3.85	4.06	4.29	4.52	4.77	5.03	5.30	5.59	283.18	5.90	277.29		5	4
				e					2.20	2.35	2.45	2.55	2.65	2.75	3.01	3.24	3.46	3.65	3.85	4.06	4.28	4.51	4.76	5.02	5.29	5.58	5.89	6.21	6.55	6.91	7.28	7.68	8.10	8.54	9.01	9.50	10.02		10.57		11.14		
5	7	Middlesex Water	Yes	Small-Cap	8.5%	55.2%	0.00	(37.47)	0.87	0.92	0.97	1.02	1.07	1.17	1.26	1.34	1.42	1.50	1.58	1.66	1.75	1.85	1.95	2.06	2.17	2.29	2.41	2.54	2.68	2.83	2.98	3.15	3.32	3.50	3.69	3.89	4.11	240.91	4.33	236.58		7	5
				e					1.50	1.60	1.74	1.89	2.05	2.21	2.48	2.73	2.94	3.10	3.27	3.45	3.64	3.84	4.05	4.27	4.50	4.75	5.00	5.28	5.57	5.87	6.19	6.53	6.88	7.26	7.66	8.07	8.52		8.98		9.47		
6	8	SJW	Yes	Mid-Cap	7.6%	56.9%	0.00	(48.95)	0.93	0.99	1.05	1.12	1.19	1.31	1.42	1.52	1.61	1.70	1.79	1.89	1.99	2.10	2.21	2.33	2.46	2.59	2.74	2.89	3.04	3.21	3.38	3.57	3.76	3.97	4.19	4.41	4.66	252.75	4.91	247.84		8	6
				e					2.25	2.35	2.48	2.61	2.75	2.89	3.11	3.33	3.54	3.73	3.93	4.15	4.38	4.61	4.87	5.13	5.41	5.71	6.02	6.35	6.69	7.06	7.45	7.85	8.28	8.73	9.21	9.71	10.24		10.80		11.39		
7	9	York Water	Yes	Small Cap	8.3%	55.6%	0.00	(35.62)	0.70	0.76	0.83	0.90	0.97	1.08	1.18	1.26	1.33	1.40	1.48	1.56	1.65	1.74	1.83	1.93	2.04	2.15	2.26	2.39	2.52	2.66	2.80	2.95	3.11	3.28	3.46	3.65	3.85	218.30	4.06	214.24		9	7
				e					1.05	1.10	1.19	1.29	1.40	1.51	1.67	1.83	1.96	2.07	2.18	2.30	2.43	2.56	2.70	2.85	3.00	3.16	3.34	3.52	3.71	3.91	4.13	4.35	4.59	4.84	5.11	5.38	5.68		5.99		6.32		
		TOTALS	7	6																																						

Mean		
8.44%	52.21%	0%
8.28%	53.95%	0%
8.22%	55.00%	0%

VL H2O Screen
VL (Low Cap) H2O Screen (Low-Cap = Small- & Mid-Cap)
VL Small-Cap) H2O Screen

Average B.O.Y. & E.O.Y. Cash Flows

Model Y EPS Growth

	1	2	3	4	5	6	7	8	9	
	Screen #	Abbreviated Utility	UW 169 VL Group	UW 169 VL Low-Cap	Average IRR	Terminal Value as % of NPV_{DIV}	Average 2016 - 2020 Dividend Growth Rates EOY	BOY	Average	Screen #	
1	1	American States	Yes	Mid-Cap	8.8%	50.6%	8.9%	9.6%	9.2%	1	1
2	3	Aqua America	Yes	Large-Cap	9.3%	42.9%	7.8%	10.3%	9.1%	3	2
3	4	California Water	Yes	Mid-Cap	8.4%	53.3%	8.3%	9.5%	8.9%	4	3
4	5	Connecticut Wa	Yes	Small-Cap	7.8%	55.0%	3.9%	4.1%	4.0%	5	4
5	7	Middlesex Wate	Yes	Small-Cap	8.5%	56.1%	5.0%	5.4%	5.2%	7	5
6	8	SJW	Yes	Mid-Cap	7.6%	57.8%	6.5%	6.3%	6.4%	8	6
7	9	York Water	Yes	Small Cap	8.3%	56.6%	8.1%	8.6%	8.3%	9	7
		TOTALS	7	6							

Mean			
8.36%	53.20%	7.3%	VL H2O Screen
8.21%	54.91%	7.0%	VL (Low Cap) H2O Screen (Low-Cap = Small- & Mid-Cap)
8.16%	55.92%	5.8%	VL Small-Cap) H2O Screen

CASE: UW 169
WITNESS: MATT MULDOON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 303

Staff Synthetic Forward Curve TIPS Analysis

Treasury Inflation-Protected Securities (TIPS)

Exhibits in Support
of Opening Testimony

July 7, 2017

TIPS Implied Forward Curve

2028 through 2047 TIPs-Implied Average Annual Inflation Rate: 2.04%

Yr. End Mo.-Yr.	Years	Individually Implied Price Levels					Implied Forward Curve/Price Level					Implied Price Level	Check
		5-Yr	7-Yr	10-Yr	20-Yr	30-Yr	5-Yr	7-Yr	10-Yr	20-Yr	30-Yr		
Dec-17	0	100.00	100.00	100.00	100.00	100.00	100.00					100.00	
Dec-18	1	101.67	101.80	101.80	101.83	101.96	101.67					101.67	
Dec-19	2	103.37	103.64	103.64	103.69	103.96	103.37					103.37	
Dec-20	3	105.09	105.51	105.51	105.58	106.00	105.09					105.09	
Dec-21	4	106.85	107.41	107.41	107.51	108.07	106.85					106.85	
Dec-22	5	108.63	109.35	109.35	109.47	110.19	108.63					108.63	
Dec-23	6		111.32	111.32	111.47	112.35		110.96				110.96	
Dec-24	7		113.33	113.33	113.51	114.55		113.33				113.33	
Dec-25	8			115.37	115.58	116.80			115.37			115.37	
Dec-26	9			117.45	117.69	119.09			117.45			117.45	
Dec-27	10			119.57	119.84	121.42			119.57			119.57	
Dec-28	11				122.03	123.80				121.78		121.78	122.01
Dec-29	12				124.26	126.23				124.03		124.03	124.49
Dec-30	13				126.53	128.70				126.33		126.33	127.03
Dec-31	14				128.84	131.23				128.67		128.67	129.62
Dec-32	15				131.20	133.80				131.05		131.05	132.26
Dec-33	16				133.59	136.42				133.47		133.47	134.96
Dec-34	17				136.03	139.09				135.94		135.94	137.71
Dec-35	18				138.52	141.82				138.45		138.45	140.52
Dec-36	19				141.05	144.60				141.02		141.02	143.38
Dec-37	20				143.63	147.43				143.63		143.63	146.30
Dec-38	21					150.32					146.82	146.82	149.29
Dec-39	22					153.27					150.09	150.09	152.33
Dec-40	23					156.27					153.44	153.44	155.43
Dec-41	24					159.34					156.85	156.85	158.60
Dec-42	25					162.46					160.35	160.35	161.84
Dec-43	26					165.64					163.92	163.92	165.14
Dec-44	27					168.89					167.57	167.57	168.50
Dec-45	28					172.20					171.30	171.30	171.94
Dec-46	29					175.58					175.12	175.12	175.44
Dec-47	30					179.02					179.02	179.02	179.02

Average Quarterly Values for FRB H15 Data

See FRB H.15 Tab for Data Feed Sources.

Staff TIPS Analysis **Quarterly Aggregation**

Average Monthly Inflation Indexed Rates by Quarter					
Qtr	TIPS-05m	TIPS-07m	TIPS-10m	TIPS-20m	TIPS-30m
2003-Q1	1.33	1.81	2.07		
2003-Q2	1.15	1.61	1.94		
2003-Q3	1.36	1.84	2.21		
2003-Q4	1.24	1.65	2.01		
2004-Q1	0.82	1.26	1.71		
2004-Q2	1.26	1.69	2.05		
2004-Q3	1.17	1.55	1.89	2.28	
2004-Q4	0.93	1.30	1.69	2.08	
2005-Q1	1.17	1.41	1.71	1.93	
2005-Q2	1.30	1.44	1.68	1.83	
2005-Q3	1.59	1.70	1.82	1.98	
2005-Q4	1.92	1.98	2.04	2.13	
2006-Q1	2.00	2.05	2.09	2.08	
2006-Q2	2.34	2.39	2.46	2.48	
2006-Q3	2.37	2.37	2.37	2.38	
2006-Q4	2.40	2.36	2.32	2.29	
2007-Q1	2.28	2.33	2.33	2.36	
2007-Q2	2.35	2.40	2.44	2.49	
2007-Q3	2.38	2.44	2.45	2.46	
2007-Q4	1.54	1.81	1.92	2.11	
2008-Q1	0.58	1.02	1.32	1.81	
2008-Q2	0.79	1.17	1.48	2.03	
2008-Q3	1.18	1.47	1.70	2.16	
2008-Q4	2.73	2.92	2.60	2.73	
2009-Q1	1.37	1.54	1.79	2.34	
2009-Q2	1.12	1.37	1.72	2.31	
2009-Q3	1.17	1.41	1.74	2.22	
2009-Q4	0.58	0.94	1.37	1.98	
2010-Q1	0.47	0.94	1.43	2.00	2.16
2010-Q2	0.46	0.91	1.36	1.77	1.88
2010-Q3	0.20	0.57	1.06	1.68	1.76
2010-Q4	-0.11	0.28	0.75	1.48	1.65
2011-Q1	0.07	0.67	1.09	1.71	2.00
2011-Q2	-0.29	0.33	0.80	1.49	1.78
2011-Q3	-0.65	-0.22	0.28	0.95	1.25
2011-Q4	-0.75	-0.39	0.05	0.61	0.85
2012-Q1	-1.02	-0.60	-0.17	0.51	0.78
2012-Q2	**-1.08**	**-0.75**	**-0.35**	**0.35**	**0.66**
2012-Q3	-1.27	-1.01	-0.63	0.02	0.43
2012-Q4	**-1.42**	**-1.15**	**-0.76**	**-0.02**	**0.36**
2013-Q1	-1.40	-0.98	-0.59	0.19	0.56
2013-Q2	**-1.04**	**-0.62**	**-0.25**	**0.47**	**0.80**
2013-Q3	-0.32	0.17	0.56	1.16	1.43
2013-Q4	**-0.29**	**0.25**	**0.57**	**1.19**	**1.50**
2014-Q1	-0.16	0.37	0.58	1.11	1.39
2014-Q2	**-0.25**	**0.27**	**0.43**	**0.88**	**1.14**
2014-Q3	-0.13	0.24	0.32	0.72	0.98
2014-Q4	**0.19**	**0.39**	**0.45**	**0.75**	**0.95**
2015-Q1	0.11	0.23	0.27	0.52	0.71
2015-Q2	**-0.10**	**0.22**	**0.30**	**0.67**	**0.91**
2015-Q3	0.26	0.48	0.57	0.92	1.14
2015-Q4	**0.36**	**0.51**	**0.66**	**1.02**	**1.24**
2016-Q1	0.15	0.32	0.49	0.88	1.11
2016-Q2	**-0.24**	**-0.05**	**0.19**	**0.62**	**0.85**
2016-Q3	-0.22	-0.09	0.08	0.44	0.62
2016-Q4	**-0.06**	**0.12**	**0.33**	**0.69**	**0.86**

Average Monthly Nominal UST Rates by Quarter					
Qtr	UST-05m	UST-07m	UST-10m	UST-20m	UST-30m
2003-Q1	2.91	3.46	3.92	4.90	
2003-Q2	2.57	3.13	3.62	4.59	
2003-Q3	3.14	3.72	4.23	5.17	
2003-Q4	3.25	3.78	4.29	5.16	
2004-Q1	2.99	3.52	4.02	4.89	
2004-Q2	3.72	4.18	4.60	5.36	
2004-Q3	3.51	3.92	4.30	5.07	
2004-Q4	3.49	3.85	4.17	4.87	
2005-Q1	3.88	4.09	4.30	4.76	
2005-Q2	3.87	3.99	4.16	4.55	
2005-Q3	4.04	4.11	4.21	4.51	
2005-Q4	4.39	4.42	4.49	4.77	
2006-Q1	4.55	4.55	4.57	4.76	4.64
2006-Q2	4.99	5.02	5.07	5.29	5.14
2006-Q3	4.84	4.85	4.90	5.09	4.99
2006-Q4	4.60	4.60	4.63	4.83	4.74
2007-Q1	4.65	4.65	4.68	4.90	4.80
2007-Q2	4.76	4.79	4.85	5.07	4.99
2007-Q3	4.50	4.60	4.73	5.01	4.94
2007-Q4	3.79	3.98	4.26	4.65	4.61
2008-Q1	2.75	3.15	3.66	4.40	4.41
2008-Q2	3.16	3.46	3.89	4.59	4.58
2008-Q3	3.11	3.44	3.86	4.49	4.45
2008-Q4	2.18	2.63	3.25	3.97	3.68
2009-Q1	1.76	2.23	2.74	3.69	3.45
2009-Q2	2.23	2.88	3.31	4.19	4.17
2009-Q3	2.47	3.12	3.52	4.28	4.32
2009-Q4	2.30	2.98	3.46	4.27	4.33
2010-Q1	2.42	3.16	3.72	4.49	4.62
2010-Q2	2.25	2.93	3.49	4.20	4.37
2010-Q3	1.55	2.19	2.79	3.60	3.85
2010-Q4	1.49	2.18	2.86	3.84	4.16
2011-Q1	2.12	2.83	3.46	4.32	4.56
2011-Q2	1.86	2.55	3.21	4.07	4.34
2011-Q3	1.15	1.78	2.43	3.34	3.70
2011-Q4	0.95	1.50	2.05	2.75	3.04
2012-Q1	0.90	1.44	2.04	2.80	3.14
2012-Q2	**0.79**	**1.24**	**1.82**	**2.55**	**2.94**
2012-Q3	0.67	1.08	1.64	2.37	2.75
2012-Q4	**0.69**	**1.12**	**1.71**	**2.46**	**2.86**
2013-Q1	0.83	1.32	1.95	2.75	3.14
2013-Q2	**0.92**	**1.39**	**2.00**	**2.78**	**3.15**
2013-Q3	1.51	2.12	2.71	3.44	3.72
2013-Q4	**1.44**	**2.12**	**2.75**	**3.50**	**3.79**
2014-Q1	1.60	2.22	2.76	3.42	3.68
2014-Q2	**1.66**	**2.19**	**2.62**	**3.18**	**2.86**
2014-Q3	1.70	2.16	2.50	3.01	3.26
2014-Q4	**1.60**	**2.00**	**2.28**	**2.69**	**2.97**
2015-Q1	1.45	1.77	1.97	2.32	2.55
2015-Q2	**1.52**	**1.91**	**2.17**	**2.62**	**2.89**
2015-Q3	1.55	1.94	2.22	2.65	2.96
2015-Q4	**1.59**	**1.94**	**2.19**	**2.60**	**2.96**
2016-Q1	1.37	1.69	1.92	2.32	2.72
2016-Q2	**1.24**	**1.54**	**1.75**	**2.15**	**2.57**
2016-Q3	1.13	1.40	1.56	1.91	2.28
2016-Q4	**1.61**	**1.93**	**2.13**	**2.52**	**2.82**

Implied Market-based Inflationary Expectations					
Qtr	5-Yr	7-Yr	10-Yr	20-Yr	30-Yr
2003-Q1	1.58	1.65	1.85		
2003-Q2	1.42	1.52	1.68		
2003-Q3	1.78	1.87	2.03		
2003-Q4	2.01	2.13	2.28		
2004-Q1	2.17	2.26	2.31		
2004-Q2	2.47	2.50	2.55		
2004-Q3	2.34	2.37	2.41	2.79	
2004-Q4	2.56	2.55	2.48	2.79	
2005-Q1	2.72	2.68	2.58	2.83	
2005-Q2	2.57	2.55	2.48	2.72	
2005-Q3	2.44	2.41	2.39	2.52	
2005-Q4	2.47	2.44	2.45	2.64	
2006-Q1	2.55	2.50	2.48	2.69	
2006-Q2	2.65	2.62	2.61	2.80	
2006-Q3	2.47	2.48	2.52	2.71	
2006-Q4	2.20	2.24	2.31	2.54	
2007-Q1	2.36	2.32	2.35	2.54	
2007-Q2	2.41	2.39	2.41	2.58	
2007-Q3	2.13	2.16	2.28	2.55	
2007-Q4	2.24	2.17	2.34	2.54	
2008-Q1	2.17	2.13	2.34	2.59	
2008-Q2	2.37	2.29	2.40	2.56	
2008-Q3	1.93	1.96	2.16	2.33	
2008-Q4	-0.55	-0.29	0.65	1.24	
2009-Q1	0.39	0.69	0.95	1.35	
2009-Q2	1.11	1.51	1.60	1.88	
2009-Q3	1.30	1.72	1.77	2.06	
2009-Q4	1.72	2.04	2.09	2.29	
2010-Q1	1.96	2.22	2.28	2.49	2.47
2010-Q2	1.80	2.03	2.13	2.43	2.49
2010-Q3	1.35	1.63	1.73	1.92	2.09
2010-Q4	1.59	1.90	2.12	2.36	2.51
2011-Q1	2.05	2.16	2.37	2.61	2.56
2011-Q2	2.15	2.22	2.41	2.57	2.56
2011-Q3	1.81	2.00	2.15	2.39	2.45
2011-Q4	1.71	1.89	1.99	2.14	2.19
2012-Q1	1.92	2.04	2.20	2.29	2.36
2012-Q2	**1.86**	**1.99**	**2.17**	**2.21**	**2.28**
2012-Q3	1.94	2.09	2.28	2.35	2.31
2012-Q4	**2.11**	**2.27**	**2.47**	**2.48**	**2.50**
2013-Q1	2.23	2.31	2.54	2.55	2.58
2013-Q2	**1.95**	**2.01**	**2.25**	**2.32**	**2.34**
2013-Q3	1.82	1.95	2.15	2.29	2.29
2013-Q4	**1.73**	**1.86**	**2.17**	**2.31**	**2.29**
2014-Q1	1.77	1.85	2.18	2.30	2.29
2014-Q2	**1.90**	**1.92**	**2.20**	**2.30**	**1.72**
2014-Q3	1.83	1.92	2.18	2.28	2.29
2014-Q4	**1.41**	**1.61**	**1.83**	**1.95**	**2.02**
2015-Q1	1.35	1.54	1.70	1.79	1.85
2015-Q2	**1.63**	**1.69**	**1.86**	**1.95**	**1.97**
2015-Q3	1.29	1.47	1.65	1.73	1.82
2015-Q4	**1.23**	**1.43**	**1.53**	**1.58**	**1.72**
2016-Q1	1.23	1.37	1.43	1.45	1.61
2016-Q2	**1.48**	**1.58**	**1.56**	**1.53**	**1.72**
2016-Q3	1.35	1.49	1.48	1.47	1.66
2016-Q4	**1.67**	**1.80**	**1.80**	**1.83**	**1.96**

FRB H.15 Market Yield on U.S. Treasury (UST) Securities at Constant Maturity, Quoted on an Investment Basis in Percent per Year

Staff Accessed , Jan. 6, 2017 at: http://federalreserve.gov/releases/h15/data.htm

Monthly https://www.federalreserve.gov/datadownload/Choose.aspx?rel=H15

TIPS-05m	5	Year	Inflation Indexed	H.15 ID
TIPS-07m	7			RIFLGFCY05_XII_N.M
TIPS-10m	10			RIFLGFCY07_XII_N.M
TIPS-20m	20			RIFLGFCY10_XII_N.M
TIPS-30m	30			RIFLGFCY20_XII_N.M
				RIFLGFCY30_XII_N.M

Month	TIPS-05m	TIPS-07m	TIPS-10m	TIPS-20m	TIPS-30m
2003-01	1.65	2.10	2.29		
2003-02	1.24	1.74	1.99		
2003-03	1.09	1.60	1.94		
2003-04	1.36	1.85	2.18		
2003-05	1.18	1.61	1.91		
2003-06	0.91	1.37	1.72		
2003-07	1.30	1.76	2.11		
2003-08	1.48	1.97	2.32		
2003-09	1.29	1.80	2.19		
2003-10	1.21	1.68	2.08		
2003-11	1.27	1.64	1.96		
2003-12	1.23	1.64	1.98		
2004-01	1.09	1.48	1.89		
2004-02	0.86	1.31	1.76		
2004-03	0.52	0.98	1.47		
2004-04	1.02	1.49	1.90		
2004-05	1.34	1.77	2.09		
2004-06	1.41	1.80	2.15	TIPS-20	
2004-07	1.29	1.68	2.02	2.44	
2004-08	1.12	1.51	1.86	2.23	
2004-09	1.10	1.46	1.80	2.16	
2004-10	0.97	1.35	1.73	2.13	
2004-11	0.90	1.27	1.68	2.09	
2004-12	0.92	1.28	1.67	2.02	
2005-01	1.13	1.40	1.72	1.98	
2005-02	1.08	1.33	1.63	1.85	
2005-03	1.29	1.49	1.79	1.95	
2005-04	1.23	1.42	1.71	1.87	
2005-05	1.28	1.41	1.65	1.82	
2005-06	1.39	1.49	1.67	1.80	
2005-07	1.67	1.75	1.88	2.00	
2005-08	1.71	1.79	1.89	2.02	
2005-09	1.40	1.56	1.70	1.93	
2005-10	1.70	1.82	1.94	2.09	
2005-11	1.97	2.03	2.06	2.16	
2005-12	2.09	2.10	2.12	2.14	
2006-01	1.93	1.98	2.01	2.05	
2006-02	1.98	2.02	2.05	2.01	
2006-03	2.09	2.15	2.20	2.17	
2006-04	2.26	2.34	2.41	2.43	
2006-05	2.30	2.36	2.45	2.48	
2006-06	2.45	2.48	2.53	2.54	
2006-07	2.46	2.48	2.51	2.52	
2006-08	2.27	2.29	2.29	2.31	
2006-09	2.38	2.35	2.32	2.31	
2006-10	2.51	2.45	2.41	2.38	
2006-11	2.41	2.35	2.29	2.23	
2006-12	2.28	2.28	2.25	2.26	
2007-01	2.47	2.47	2.44	2.42	
2007-02	2.34	2.38	2.36	2.38	
2007-03	2.04	2.14	2.18	2.27	
2007-04	2.12	2.20	2.26	2.35	
2007-05	2.29	2.32	2.37	2.45	
2007-06	2.65	2.67	2.69	2.67	
2007-07	2.60	2.63	2.64	2.62	
2007-08	2.39	2.45	2.44	2.47	
2007-09	2.14	2.24	2.26	2.30	
2007-10	2.01	2.15	2.20	2.26	
2007-11	1.35	1.65	1.77	1.99	
2007-12	1.27	1.62	1.79	2.08	
2008-01	0.86	1.24	1.47	1.81	
2008-02	0.65	1.09	1.41	1.87	
2008-03	0.23	0.73	1.09	1.76	
2008-04	0.62	1.00	1.36	1.91	
2008-05	0.79	1.16	1.46	2.00	
2008-06	0.97	1.35	1.63	2.19	
2008-07	0.84	1.24	1.57	2.09	
2008-08	1.15	1.47	1.68	2.15	
2008-09	1.55	1.71	1.85	2.25	
2008-10	2.75	2.96	2.75	2.87	
2008-11	3.69	3.84	2.89	3.00	
2008-12	1.76	1.96	2.17	2.32	
2009-01	1.59	1.72	1.91	2.46	
2009-02	1.29	1.48	1.75	2.31	
2009-03	1.23	1.43	1.71	2.26	
2009-04	1.11	1.29	1.57	2.22	
2009-05	1.07	1.34	1.72	2.35	
2009-06	1.18	1.48	1.86	2.36	
2009-07	1.18	1.44	1.82	2.31	
2009-08	1.29	1.49	1.77	2.22	
2009-09	1.03	1.29	1.64	2.13	
2009-10	0.83	1.12	1.48	2.04	
2009-11	0.48	0.84	1.28	1.90	
2009-12	0.43	0.86	1.36	1.99	
2010-01	0.42	0.85	1.37	2.00	TIPS-30
2010-02	0.42	0.90	1.42	2.03	2.16
2010-03	0.56	1.08	1.51	1.98	2.15
2010-04	0.62	1.10	1.50	1.90	2.05
2010-05	0.41	0.86	1.31	1.72	1.83
2010-06	0.34	0.76	1.26	1.69	1.77
2010-07	0.34	0.73	1.24	1.80	1.87
2010-08	0.13	0.51	1.02	1.65	1.76
2010-09	0.13	0.46	0.91	1.58	1.66
2010-10	-0.32	0.02	0.53	1.32	1.44
2010-11	-0.21	0.17	0.67	1.44	1.61
2010-12	0.21	0.65	1.04	1.67	1.89
2011-01	0.06	0.62	1.06	1.70	1.97
2011-02	0.25	0.84	1.24	1.85	2.13
2011-03	-0.09	0.54	0.95	1.58	1.89
2011-04	-0.14	0.49	0.86	1.48	1.79
2011-05	-0.34	0.29	0.78	1.47	1.77
2011-06	-0.38	0.21	0.76	1.53	1.78
2011-07	-0.49	0.09	0.62	1.36	1.62
2011-08	-0.75	-0.36	0.14	0.81	1.10
2011-09	-0.72	-0.39	0.08	0.69	1.02
2011-10	-0.63	-0.28	0.19	0.72	0.99
2011-11	-0.85	-0.46	0.00	0.55	0.78
2011-12	-0.78	-0.44	-0.03	0.56	0.78
2012-01	-0.92	-0.55	-0.11	0.51	0.74
2012-02	-1.11	-0.69	-0.25	0.45	0.72
2012-03	-1.03	-0.57	-0.14	0.56	0.87
2012-04	-1.06	-0.65	-0.21	0.50	0.79
2012-05	-1.12	-0.79	-0.34	0.44	0.68
2012-06	-1.05	-0.82	-0.50	0.10	0.50
2012-07	-1.15	-0.92	-0.60	-0.01	0.39
2012-08	-1.19	-0.94	-0.59	0.06	0.47
2012-09	-1.47	-1.17	-0.71	0.02	0.44
2012-10	-1.47	-1.18	-0.75	-0.01	0.41
2012-11	-1.38	-1.13	-0.77	-0.06	0.35
2012-12	-1.40	-1.13	-0.76	0.00	0.33
2013-01	-1.39	-1.04	-0.61	0.20	0.48
2013-02	-1.39	-0.94	-0.57	0.19	0.57
2013-03	-1.43	-0.97	-0.59	0.19	0.62
2013-04	-1.38	-0.97	-0.65	0.07	0.48
2013-05	-1.14	-0.69	-0.36	0.35	0.72
2013-06	-0.59	-0.21	0.25	0.98	1.21
2013-07	-0.45	0.02	0.46	1.09	1.34
2013-08	-0.33	0.15	0.55	1.16	1.44
2013-09	-0.17	0.34	0.66	1.22	1.50
2013-10	-0.41	0.11	0.43	1.05	1.37
2013-11	-0.38	0.18	0.55	1.20	1.51
2013-12	-0.09	0.47	0.74	1.32	1.61
2014-01	-0.09	0.45	0.63	1.17	1.44
2014-02	-0.26	0.30	0.55	1.12	1.40
2014-03	-0.14	0.37	0.56	1.05	1.33
2014-04	-0.11	0.38	0.54	0.98	1.23
2014-05	-0.34	0.21	0.37	0.82	1.08
2014-06	-0.29	0.23	0.37	0.84	1.11
2014-07	-0.27	0.18	0.28	0.72	0.98
2014-08	-0.21	0.15	0.22	0.64	0.90
2014-09	0.10	0.38	0.46	0.81	1.05
2014-10	0.06	0.32	0.38	0.74	0.96
2014-11	0.14	0.37	0.45	0.77	0.99
2014-12	0.37	0.47	0.51	0.73	0.89
2015-01	0.17	0.24	0.27	0.50	0.66
2015-02	0.11	0.22	0.26	0.52	0.73
2015-03	0.04	0.23	0.28	0.55	0.73
2015-04	-0.26	-0.01	0.08	0.42	0.65
2015-05	-0.10	0.27	0.33	0.70	0.96
2015-06	0.05	0.39	0.50	0.89	1.13
2015-07	0.14	0.42	0.50	0.87	1.11
2015-08	0.31	0.49	0.56	0.87	1.08
2015-09	0.33	0.52	0.65	1.01	1.24
2015-10	0.21	0.39	0.57	0.98	1.22
2015-11	0.40	0.55	0.69	1.03	1.25
2015-12	0.46	0.59	0.73	1.06	1.26
2016-01	0.33	0.49	0.67	1.05	1.26
2016-02	0.14	0.30	0.47	0.85	1.09
2016-03	-0.03	0.16	0.34	0.73	0.99
2016-04	-0.22	-0.03	0.19	0.60	0.86
2016-05	-0.22	-0.04	0.21	0.64	0.86
2016-06	-0.27	-0.07	0.17	0.63	0.82
2016-07	-0.32	-0.16	0.04	0.42	0.61
2016-08	-0.17	-0.06	0.09	0.43	0.62
2016-09	-0.17	-0.05	0.12	0.47	0.64
2016-10	-0.26	-0.10	0.10	0.49	0.69
2016-11	-0.07	0.11	0.32	0.69	0.86
2016-12	0.15	0.36	0.56	0.89	1.04

Monthly

UST-05m	5	Year	H.15 ID	RIFLGFCY05_N.M
UST-07m	7			RIFLGFCY07_N.M
UST-10m	10			RIFLGFCY10_N.M
UST-20m	20			RIFLGFCY20_N.M
UST-30m	30			RIFLGFCY30_N.M

Month	UST-05m	UST-07m	UST-10m	UST-20m	UST-30m
2003-01	3.05	3.60	4.05	5.02	
2003-02	2.90	3.45	3.90	4.87	
2003-03	2.78	3.34	3.81	4.82	
2003-04	2.93	3.47	3.96	4.91	
2003-05	2.52	3.07	3.57	4.52	
2003-06	2.27	2.84	3.33	4.34	
2003-07	2.87	3.45	3.98	4.92	
2003-08	3.37	3.96	4.45	5.39	
2003-09	3.18	3.74	4.27	5.21	
2003-10	3.19	3.75	4.29	5.21	
2003-11	3.29	3.81	4.30	5.17	
2003-12	3.27	3.79	4.27	5.11	
2004-01	3.12	3.65	4.15	5.01	
2004-02	3.07	3.59	4.08	4.94	
2004-03	2.79	3.31	3.83	4.72	
2004-04	3.39	3.89	4.35	5.16	
2004-05	3.85	4.31	4.72	5.46	
2004-06	3.93	4.35	4.73	5.45	
2004-07	3.69	4.11	4.50	5.24	
2004-08	3.47	3.90	4.28	5.07	
2004-09	3.36	3.75	4.13	4.89	
2004-10	3.35	3.75	4.10	4.85	
2004-11	3.53	3.88	4.19	4.89	
2004-12	3.60	3.93	4.23	4.88	
2005-01	3.71	3.97	4.22	4.77	
2005-02	3.77	3.97	4.17	4.61	
2005-03	4.17	4.33	4.50	4.89	
2005-04	4.00	4.16	4.34	4.75	
2005-05	3.85	3.94	4.14	4.56	
2005-06	3.77	3.86	4.00	4.35	
2005-07	3.98	4.06	4.18	4.48	
2005-08	4.12	4.18	4.26	4.53	
2005-09	4.01	4.08	4.20	4.51	
2005-10	4.33	4.38	4.46	4.74	
2005-11	4.45	4.48	4.54	4.83	
2005-12	4.39	4.41	4.47	4.73	
2006-01	4.35	4.37	4.42	4.65	UST-30
2006-02	4.57	4.56	4.57	4.73	4.54
2006-03	4.72	4.71	4.72	4.91	4.73
2006-04	4.90	4.94	4.99	5.22	5.06
2006-05	5.00	5.03	5.11	5.35	5.20
2006-06	5.07	5.08	5.11	5.29	5.15
2006-07	5.04	5.05	5.09	5.25	5.13
2006-08	4.82	4.83	4.88	5.08	5.00
2006-09	4.67	4.68	4.72	4.93	4.85
2006-10	4.69	4.69	4.73	4.94	4.85
2006-11	4.58	4.58	4.60	4.78	4.69
2006-12	4.53	4.54	4.56	4.78	4.68
2007-01	4.75	4.75	4.76	4.95	4.85
2007-02	4.71	4.71	4.72	4.93	4.82
2007-03	4.48	4.50	4.56	4.81	4.72
2007-04	4.59	4.62	4.69	4.95	4.87
2007-05	4.67	4.69	4.75	4.98	4.90
2007-06	5.03	5.05	5.10	5.29	5.20
2007-07	4.88	4.93	5.00	5.19	5.11
2007-08	4.43	4.53	4.67	5.00	4.93
2007-09	4.20	4.33	4.52	4.84	4.79
2007-10	4.20	4.33	4.53	4.83	4.77
2007-11	3.67	3.87	4.15	4.56	4.52
2007-12	3.49	3.74	4.10	4.57	4.53
2008-01	2.98	3.31	3.74	4.35	4.33
2008-02	2.78	3.21	3.74	4.49	4.52
2008-03	2.48	2.93	3.51	4.36	4.39
2008-04	2.84	3.19	3.68	4.44	4.44
2008-05	3.15	3.46	3.88	4.60	4.60
2008-06	3.49	3.73	4.10	4.74	4.69
2008-07	3.30	3.60	4.01	4.62	4.57
2008-08	3.14	3.46	3.89	4.53	4.50
2008-09	2.88	3.25	3.69	4.32	4.27
2008-10	2.73	3.19	3.81	4.45	4.17
2008-11	2.29	2.82	3.53	4.27	4.00
2008-12	1.52	1.89	2.42	3.18	2.87
2009-01	1.60	1.98	2.52	3.46	3.13
2009-02	1.87	2.30	2.87	3.83	3.59
2009-03	1.82	2.42	2.82	3.78	3.64
2009-04	1.86	2.47	2.93	3.84	3.76
2009-05	2.13	2.81	3.29	4.22	4.23
2009-06	2.71	3.37	3.72	4.51	4.52
2009-07	2.46	3.14	3.56	4.38	4.41
2009-08	2.57	3.21	3.59	4.33	4.37
2009-09	2.37	3.02	3.40	4.14	4.19
2009-10	2.33	2.96	3.39	4.16	4.19
2009-11	2.23	2.92	3.40	4.24	4.31
2009-12	2.34	3.07	3.59	4.40	4.49
2010-01	2.48	3.21	3.73	4.50	4.60
2010-02	2.36	3.12	3.69	4.48	4.62
2010-03	2.43	3.16	3.73	4.49	4.64
2010-04	2.58	3.28	3.85	4.53	4.69
2010-05	2.18	2.86	3.42	4.11	4.29
2010-06	2.00	2.66	3.20	3.95	4.13
2010-07	1.76	2.43	3.01	3.80	3.99
2010-08	1.47	2.10	2.70	3.52	3.80
2010-09	1.41	2.05	2.65	3.47	3.77
2010-10	1.18	1.85	2.54	3.52	3.87
2010-11	1.35	2.02	2.76	3.82	4.19
2010-12	1.93	2.66	3.29	4.17	4.42
2011-01	1.99	2.72	3.39	4.28	4.52
2011-02	2.26	2.96	3.58	4.42	4.65
2011-03	2.11	2.80	3.41	4.27	4.51
2011-04	2.17	2.84	3.46	4.28	4.50
2011-05	1.84	2.51	3.17	4.01	4.29
2011-06	1.58	2.29	3.00	3.91	4.23
2011-07	1.54	2.28	3.00	3.95	4.27
2011-08	1.02	1.63	2.30	3.24	3.65
2011-09	0.90	1.42	1.98	2.83	3.18
2011-10	1.06	1.62	2.15	2.87	3.13
2011-11	0.91	1.45	2.01	2.72	3.02
2011-12	0.89	1.43	1.98	2.67	2.98
2012-01	0.84	1.38	1.97	2.70	3.03
2012-02	0.83	1.37	1.97	2.75	3.11
2012-03	1.02	1.56	2.17	2.94	3.28
2012-04	0.89	1.43	2.05	2.82	3.18
2012-05	0.76	1.21	1.80	2.53	2.93
2012-06	0.71	1.08	1.62	2.31	2.70
2012-07	0.62	0.98	1.53	2.22	2.59
2012-08	0.71	1.14	1.68	2.40	2.77
2012-09	0.67	1.12	1.72	2.49	2.88
2012-10	0.71	1.15	1.75	2.51	2.90
2012-11	0.67	1.08	1.65	2.39	2.80
2012-12	0.70	1.13	1.72	2.47	2.88
2013-01	0.81	1.30	1.91	2.68	3.08
2013-02	0.85	1.35	1.98	2.78	3.17
2013-03	0.82	1.32	1.96	2.78	3.16
2013-04	0.71	1.15	1.76	2.55	2.93
2013-05	0.84	1.31	1.93	2.73	3.11
2013-06	1.20	1.71	2.30	3.07	3.40
2013-07	1.40	1.99	2.58	3.31	3.61
2013-08	1.52	2.15	2.74	3.49	3.76
2013-09	1.60	2.22	2.81	3.53	3.79
2013-10	1.37	1.99	2.62	3.38	3.68
2013-11	1.37	2.07	2.72	3.50	3.80
2013-12	1.58	2.29	2.90	3.63	3.89
2014-01	1.65	2.29	2.86	3.52	3.77
2014-02	1.52	2.15	2.71	3.38	3.66
2014-03	1.64	2.23	2.72	3.35	3.62
2014-04	1.70	2.27	2.71	3.27	3.52
2014-05	1.59	2.12	2.56	3.12	3.39
2014-06	1.68	2.19	2.60	3.15	3.42
2014-07	1.70	2.17	2.54	3.07	3.33
2014-08	1.63	2.08	2.42	2.94	3.20
2014-09	1.77	2.22	2.53	3.01	3.26
2014-10	1.55	1.98	2.30	2.77	3.04
2014-11	1.62	2.03	2.33	2.76	3.04
2014-12	1.64	1.98	2.21	2.55	2.83
2015-01	1.37	1.67	1.88	2.20	2.46
2015-02	1.47	1.79	1.98	2.34	2.57
2015-03	1.52	1.84	2.04	2.41	2.63
2015-04	1.35	1.69	1.94	2.33	2.59
2015-05	1.54	1.93	2.20	2.59	2.96
2015-06	1.68	2.10	2.36	2.85	3.11
2015-07	1.63	2.04	2.32	2.77	3.07
2015-08	1.54	1.91	2.17	2.55	2.86
2015-09	1.49	1.88	2.17	2.62	2.95
2015-10	1.39	1.76	2.07	2.50	2.89
2015-11	1.67	2.02	2.26	2.69	3.03
2015-12	1.70	2.04	2.24	2.61	2.97
2016-01	1.52	1.85	2.09	2.49	2.86
2016-02	1.22	1.53	1.78	2.20	2.62
2016-03	1.38	1.68	1.89	2.28	2.68
2016-04	1.26	1.57	1.81	2.21	2.62
2016-05	1.30	1.60	1.81	2.22	2.63
2016-06	1.17	1.44	1.64	2.02	2.45
2016-07	1.07	1.33	1.50	1.82	2.23
2016-08	1.13	1.40	1.56	1.89	2.26
2016-09	1.18	1.46	1.63	2.02	2.35
2016-10	1.27	1.56	1.76	2.17	2.50
2016-11	1.60	1.93	2.14	2.54	2.86
2016-12	1.96	2.29	2.49	2.84	3.11

AVA UG 305

AVA UG 325

Staff Accessed , Jan. 6, 2017 at: http://federalreserve.gov/releases/h15/data.htm https://www.federalreserve.gov/datadownload/Choose.aspx?rel=H15

Annual

TIPS-05a	5	Year	Inflation Indexed	H.15 ID
TIPS-07a	7			RIFLGFCY05_XII_N.A
TIPS-10a	10			RIFLGFCY07_XII_N.A
TIPS-20a	20			RIFLGFCY10_XII_N.A
TIPS-30a	30			RIFLGFCY20_XII_N.A
				RIFLGFCY30_XII_N.A

Year	TIPS-05a	TIPS-07a	TIPS-10a	TIPS-20a	TIPS-30a
2003	1.27	1.73	2.06		
2004	1.04	1.45	1.83	2.14	
2005	1.50	1.63	1.81	1.97	
2006	2.28	2.29	2.31	2.31	
2007	2.15	2.25	2.29	2.36	
2008	1.30	1.63	1.77	2.18	
2009	1.06	1.32	1.66	2.21	
2010	0.26	0.68	1.15	1.73	1.82
2011	-0.41	0.09	0.55	1.19	1.47
2012	-1.19	-0.87	-0.48	0.22	0.56
2013	0.76	-0.29	0.07	0.75	1.07
2014	-0.09	0.32	0.44	0.86	1.11
2015	0.15	0.36	0.45	0.78	1.00
2016	-0.01	0.07	0.27	0.65	0.86

Annual

UST-05a	5	Year	H.15 ID	RIFLGFCY05_N.A
UST-07a	7			RIFLGFCY07_N.A
UST-10a	10			RIFLGFCY10_N.A
UST-20a	20			RIFLGFCY20_N.A
UST-30a	30			RIFLGFCY30_N.A

Year	UST-05a	UST-07a	UST-10a	UST-20a	UST-30a
2003	2.97	3.52	4.01	4.96	
2004	3.43	3.87	4.27	5.04	
2005	4.05	4.15	4.29	4.64	
2006	4.75	4.76	4.80	5.00	4.91
2007	4.43	4.51	4.63	4.91	4.84
2008	2.80	3.17	3.66	4.36	4.28
2009	2.20	2.82	3.26	4.11	4.08
2010	1.93	2.62	3.22	4.03	4.25
2011	1.52	2.16	2.78	3.62	3.91
2012	0.76	1.22	1.80	2.54	2.92
2013	1.17	1.74	2.35	3.12	3.45
2014	1.64	2.14	2.54	3.07	3.34
2015	1.53	1.89	2.14	2.55	2.84
2016	1.33	1.63	1.84	2.22	2.59

CASE: UW 169
WITNESS: MATT MULDOON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 304

Staff Historical GDP Analysis with BEA Data

U.S. Bureau of Economic Analysis (BEA)
Gross Domestic Product (GDP)

Exhibits in Support
of Opening Testimony

July 7, 2017

Bureau of Economic Analysis (BEA)

Current-Dollar and "Real" Gross Domestic Product (GDP)

Staff Accessed January 6, 2017

Annual

http://www.bea.gov/national/index.htm

Yr	GDP in billions of current dollars	GDP in billions of chained 2009 dollars
1929	104.6	1,056.6
1930	92.2	966.7
1931	77.4	904.8
1932	59.5	788.2
1933	57.2	778.3
1934	66.8	862.2
1935	74.3	939.0
1936	84.9	1,060.5
1937	93.0	1,114.6
1938	87.4	1,077.7
1939	93.5	1,163.6
1940	102.9	1,266.1
1941	129.4	1,490.3
1942	166.0	1,771.8
1943	203.1	2,073.7
1944	224.6	2,239.4
1945	228.2	2,217.8
1946	227.8	1,960.9
1947	249.9	1,939.4
1948	274.8	2,020.0
1949	272.8	2,008.9
1950	300.2	2,184.0
1951	347.3	2,360.0
1952	367.7	2,456.1
1953	389.7	2,571.4
1954	391.1	2,556.9
1955	426.2	2,739.0
1956	450.1	2,797.4
1957	474.9	2,856.3
1958	482.0	2,835.3
1959	522.5	3,031.0
1960	543.3	3,108.7
1961	563.3	3,188.1
1962	605.1	3,383.1
1963	638.6	3,530.4
1964	685.8	3,734.0
1965	743.7	3,976.7
1966	815.0	4,238.9
1967	861.7	4,355.2
1968	942.5	4,569.0
1969	1,019.9	4,712.5
1970	1,075.9	4,722.0
1971	1,167.8	4,877.6
1972	1,282.4	5,134.3
1973	1,428.5	5,424.1
1974	1,548.8	5,396.0
1975	1,688.9	5,385.4
1976	1,877.6	5,675.4
1977	2,086.0	5,937.0
1978	2,356.6	6,267.2
1979	2,632.1	6,466.2
1980	2,862.5	6,450.4
1981	3,211.0	6,617.7
1982	3,345.0	6,491.3
1983	3,638.1	6,792.0
1984	4,040.7	7,285.0
1985	4,346.7	7,593.8
1986	4,590.2	7,860.5
1987	4,870.2	8,132.6
1988	5,252.6	8,474.5
1989	5,657.7	8,786.4
1990	5,979.6	8,955.0
1991	6,174.0	8,948.4
1992	6,539.3	9,266.6
1993	6,878.7	9,521.0
1994	7,308.8	9,905.4
1995	7,664.1	10,174.8
1996	8,100.2	10,561.0
1997	8,608.5	11,034.9
1998	9,089.2	11,525.9
1999	9,660.6	12,065.9
2000	10,284.8	12,559.7
2001	10,621.8	12,682.2
2002	10,977.5	12,908.8
2003	11,510.7	13,271.1
2004	12,274.9	13,773.5
2005	13,093.7	14,234.2
2006	13,855.9	14,613.8
2007	14,477.6	14,873.7
2008	14,718.6	14,830.4
2009	14,418.7	14,418.7
2010	14,964.4	14,783.8
2011	15,517.9	15,020.6
2012	16,155.3	15,354.6
2013	16,691.5	15,612.2
2014	17,393.1	15,982.3
2015	18,036.6	16,397.2

Quarterly

(Seasonally adjusted annual rates)

Quarter	GDP in billions of current dollars	GDP in billions of chained 2009 dollars	Qtr#
1947q1	243.1	1,934.5	1
1947q2	246.3	1,932.3	2
1947q3	250.1	1,930.3	3
1947q4	260.3	1,960.7	4
1948q1	266.2	1,989.5	5
1948q2	272.9	2,021.9	6
1948q3	279.5	2,033.2	7
1948q4	280.7	2,035.3	8
1949q1	275.4	2,007.5	9
1949q2	271.7	2,000.8	10
1949q3	273.3	2,022.8	11
1949q4	271.0	2,004.7	12
1950q1	281.2	2,084.6	13
1950q2	290.7	2,147.6	14
1950q3	308.5	2,230.4	15
1950q4	320.3	2,273.4	16
1951q1	336.4	2,304.5	17
1951q2	344.5	2,344.5	18
1951q3	351.8	2,392.8	19
1951q4	356.6	2,398.1	20
1952q1	360.2	2,423.5	21
1952q2	361.4	2,428.5	22
1952q3	368.1	2,446.1	23
1952q4	381.2	2,526.4	24
1953q1	388.5	2,573.4	25
1953q2	392.3	2,593.5	26
1953q3	391.7	2,578.9	27
1953q4	386.5	2,539.8	28
1954q1	385.9	2,528.0	29
1954q2	386.7	2,530.7	30
1954q3	391.6	2,559.4	31
1954q4	400.3	2,609.3	32
1955q1	413.8	2,683.8	33
1955q2	422.2	2,727.5	34
1955q3	430.9	2,764.1	35
1955q4	437.8	2,780.8	36
1956q1	440.5	2,770.0	37
1956q2	446.8	2,792.9	38
1956q3	452.0	2,790.6	39
1956q4	461.3	2,836.2	40
1957q1	470.6	2,854.5	41
1957q2	472.8	2,848.2	42
1957q3	480.3	2,875.9	43
1957q4	475.7	2,846.4	44
1958q1	468.4	2,772.7	45
1958q2	472.8	2,790.9	46
1958q3	486.7	2,855.5	47
1958q4	500.4	2,922.3	48
1959q1	511.1	2,976.6	49
1959q2	524.2	3,049.0	50
1959q3	525.2	3,043.1	51
1959q4	529.3	3,055.1	52
1960q1	543.3	3,123.2	53
1960q2	542.7	3,111.3	54
1960q3	546.0	3,119.1	55
1960q4	541.1	3,081.3	56
1961q1	545.9	3,102.3	57
1961q2	557.4	3,159.9	58
1961q3	568.2	3,212.6	59
1961q4	581.6	3,277.7	60
1962q1	595.2	3,336.8	61
1962q2	602.6	3,372.7	62
1962q3	609.6	3,404.8	63
1962q4	613.1	3,418.0	64
1963q1	622.7	3,456.1	65
1963q2	631.8	3,501.1	66
1963q3	645.0	3,569.5	67
1963q4	654.8	3,595.0	68
1964q1	671.1	3,672.7	69
1964q2	680.8	3,716.4	70
1964q3	692.8	3,766.9	71
1964q4	698.4	3,780.2	72
1965q1	719.2	3,873.5	73
1965q2	732.4	3,926.4	74
1965q3	750.2	4,006.2	75
1965q4	773.1	4,100.6	76
1966q1	797.3	4,201.9	77
1966q2	807.2	4,219.1	78
1966q3	820.8	4,249.2	79
1966q4	834.9	4,285.6	80
1967q1	846.0	4,324.9	81
1967q2	851.1	4,328.7	82
1967q3	866.6	4,366.1	83
1967q4	883.2	4,401.2	84
1968q1	911.1	4,490.6	85
1968q2	936.3	4,566.4	86
1968q3	952.3	4,599.3	87
1968q4	970.1	4,619.8	88
1969q1	995.4	4,691.6	89
1969q2	1,011.4	4,706.7	90
1969q3	1,032.0	4,736.1	91
1969q4	1,040.7	4,715.5	92
1970q1	1,053.5	4,707.1	93
1970q2	1,070.1	4,715.4	94
1970q3	1,088.5	4,757.2	95
1970q4	1,091.5	4,708.3	96
1971q1	1,137.8	4,834.3	97
1971q2	1,159.4	4,861.9	98
1971q3	1,180.3	4,900.0	99
1971q4	1,193.6	4,914.3	100
1972q1	1,233.8	5,002.4	101
1972q2	1,270.1	5,118.3	102
1972q3	1,293.8	5,165.4	103
1972q4	1,332.0	5,251.2	104
1973q1	1,380.7	5,380.5	105
1973q2	1,417.6	5,441.5	106
1973q3	1,436.8	5,411.9	107
1973q4	1,479.1	5,462.4	108
1974q1	1,494.7	5,417.0	109
1974q2	1,534.2	5,431.3	110
1974q3	1,563.4	5,378.7	111
1974q4	1,603.0	5,357.2	112
1975q1	1,619.6	5,292.4	113
1975q2	1,656.4	5,333.2	114
1975q3	1,713.8	5,421.4	115
1975q4	1,765.9	5,494.4	116
1976q1	1,824.5	5,618.5	117
1976q2	1,856.9	5,661.0	118
1976q3	1,890.5	5,689.8	119
1976q4	1,938.4	5,732.5	120
1977q1	1,992.5	5,799.2	121
1977q2	2,060.2	5,913.0	122
1977q3	2,122.4	6,017.6	123
1977q4	2,168.7	6,018.2	124
1978q1	2,208.7	6,039.2	125
1978q2	2,336.6	6,274.0	126
1978q3	2,398.9	6,335.3	127
1978q4	2,482.2	6,420.3	128
1979q1	2,531.6	6,433.0	129
1979q2	2,595.9	6,440.8	130
1979q3	2,670.4	6,487.1	131
1979q4	2,730.7	6,503.9	132
1980q1	2,796.5	6,524.9	133
1980q2	2,799.9	6,392.6	134
1980q3	2,860.0	6,382.9	135
1980q4	2,993.5	6,501.2	136
1981q1	3,131.8	6,635.7	137
1981q2	3,167.3	6,587.3	138
1981q3	3,261.2	6,662.9	139
1981q4	3,283.5	6,585.1	140
1982q1	3,273.8	6,475.0	141
1982q2	3,331.3	6,510.2	142
1982q3	3,367.1	6,486.8	143
1982q4	3,407.8	6,493.1	144
1983q1	3,480.3	6,578.2	145
1983q2	3,583.8	6,728.3	146
1983q3	3,692.3	6,860.0	147
1983q4	3,796.1	7,001.5	148

1980 through 2016 Q3

Average 5.46% Nominal

Average 2.63% Real

1	8.783381	1980	
2	8.762896		
3	8.761378		
4	8.779742		
5	8.800219	1981	
6	8.792899		
7	8.804310		
8	8.792565		
9	8.775704	1982	
10	8.781125		
11	8.777525		
12	8.778495		
13	8.791516	1983	
14	8.814078		
15	8.833463		
16	8.853880		
17	8.873552	1984	
18	8.890961		
19	8.900753		
20	8.908695		
21	8.918583	1985	
22	8.927699		
23	8.943140		
24	8.950611		
25	8.959838	1986	
26	8.964414		
27	8.974441		
28	8.979606		
29	8.986572	1987	
30	8.997729		
31	9.006754		
32	9.023131		
33	9.028735	1988	
34	9.041863		
35	9.047621		
36	9.060784		
37	9.070814	1989	
38	9.078647		
39	9.086080		
40	9.088195		
41	9.099085	1990	
42	9.102944		
43	9.103189		
44	9.094638		
45	9.089934	1991	
46	9.097664		
47	9.102454		
48	9.106800		
49	9.118554	1992	
50	9.129510		
51	9.139188		
52	9.149156		
53	9.151026	1993	
54	9.156950		
55	9.161812		
56	9.175076		
57	9.184838	1994	
58	9.198409		
59	9.204292		
60	9.215577		
61	9.218993	1995	
62	9.222476		
63	9.231005		
64	9.238072		
65	9.244616	1996	
66	9.261927		
67	9.271134		
68	9.281647		
69	9.289235	1997	
70	9.304213		
71	9.316860		
72	9.324588		
73	9.334432	1998	
74	9.344084		
75	9.357087		
76	9.373369		
77	9.381323	1999	
78	9.389532		
79	9.402043		
80	9.419247		
81	9.422148	2000	
82	9.440857		
83	9.442063		
84	9.447726		
85	9.444883	2001	
86	9.450168		
87	9.447000		
88	9.449775		
89	9.458941	2002	
90	9.464440		
91	9.469299		
92	9.469932		
93	9.475102	2003	
94	9.484337		
95	9.500948		
96	9.512569		
97	9.518303	2004	
98	9.525604		
99	9.534653		
100	9.543263		
101	9.553866	2005	
102	9.559073		
103	9.567441		
104	9.573135		
105	9.585078	2006	
106	9.588064		
107	9.588955		
108	9.596752		
109	9.597370	2007	
110	9.604994		
111	9.611697		
112	9.615259		
113	9.608412	2008	
114	9.613362		
115	9.608553		
116	9.587200		
117	9.573246	2009	
118	9.571895		
119	9.575157		
120	9.584789		
121	9.589106	2010	
122	9.598720		
123	9.605452		
124	9.611731		
125	9.607861	2011	
126	9.615112		
127	9.617211		
128	9.628412		
129	9.635020	2012	
130	9.639678		
131	9.640875		
132	9.641103		
133	9.648073	2013	
134	9.649988		
135	9.657670		
136	9.667379		
137	9.664405	2014	
138	9.674125		
139	9.686233		
140	9.691945		
141	9.697017	2015	
142	9.703462		
143	9.708379		
144	9.710552		
145	9.712630	2016	
146	9.716139		
147	9.724779		

OLS Regression

Annualized Real LN GPD Q

2.80%

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.987369563
R Square	0.974898655
Adjusted R Square	0.974725542
Standard Error	0.047411547
Observations	147

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	12.65898051	12.65898051	5631.582812	6.3677E-118
Residual	145	0.325938947	0.002247855		
Total	146	12.98491946			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	8.790216674	0.00786095	1118.213012	3.02E-287	8.774679824	8.805753524	8.774679824	8.805753524
X Variable 1	0.006915507	9.21529E-05	75.04387258	6.3677E-118	0.006733371	0.007097644	0.006733371	0.007097644

GDP is an array of expenditure and income data collected by BEA directly and through other government agencies.

Note July 31, 2013, 14th Comprehensive Significant Revision:
BEA revised its tables back to 1929 in to order to count:
1 Artistic Works
2 Research and Development
as Capital Investments that Depreciate Over Time
rather than one time expenditures

From an Economy based on
(Industry and Manufacturing)
to one based on
(Knowledge and Information)

This comprehensive revision did not cause a large percentage jump.
The relative difference of actual amounts over time changed little.

1984q1	3,912.8	7,140.6	149
1984q2	4,015.0	7,266.0	150
1984q3	4,087.4	7,337.5	151
1984q4	4,147.6	7,396.0	152
1985q1	4,237.0	7,469.5	153
1985q2	4,302.3	7,537.9	154
1985q3	4,394.6	7,655.2	155
1985q4	4,453.1	7,712.6	156
1986q1	4,516.3	7,784.1	157
1986q2	4,555.2	7,819.8	158
1986q3	4,619.6	7,898.6	159
1986q4	4,669.4	7,939.5	160
1987q1	4,736.2	7,995.0	161
1987q2	4,821.5	8,084.7	162
1987q3	4,900.5	8,158.0	163
1987q4	5,022.7	8,292.7	164
1988q1	5,090.6	8,339.3	165
1988q2	5,207.7	8,449.5	166
1988q3	5,299.5	8,498.3	167
1988q4	5,412.7	8,610.9	168
1989q1	5,527.4	8,697.7	169
1989q2	5,628.4	8,766.1	170
1989q3	5,711.6	8,831.5	171
1989q4	5,763.4	8,850.2	172
1990q1	5,890.8	8,947.1	173
1990q2	5,974.7	8,981.7	174
1990q3	6,029.5	8,983.9	175
1990q4	6,023.3	8,907.4	176
1991q1	6,054.9	8,865.6	177
1991q2	6,143.6	8,934.4	178
1991q3	6,218.4	8,977.3	179
1991q4	6,279.3	9,016.4	180
1992q1	6,380.8	9,123.0	181
1992q2	6,492.3	9,223.5	182
1992q3	6,586.5	9,313.2	183
1992q4	6,697.6	9,406.5	184
1993q1	6,748.2	9,424.1	185
1993q2	6,829.6	9,480.1	186
1993q3	6,904.2	9,526.3	187
1993q4	7,032.8	9,653.5	188
1994q1	7,136.3	9,748.2	189
1994q2	7,269.8	9,881.4	190
1994q3	7,352.3	9,939.7	191
1994q4	7,476.7	##########	192
1995q1	7,545.3	##########	193
1995q2	7,604.9	##########	194
1995q3	7,706.5	##########	195
1995q4	7,799.5	##########	196
1996q1	7,893.1	##########	197
1996q2	8,061.5	##########	198
1996q3	8,159.0	##########	199
1996q4	8,287.1	##########	200
1997q1	8,402.1	##########	201
1997q2	8,551.9	##########	202
1997q3	8,691.8	##########	203
1997q4	8,788.3	##########	204
1998q1	8,889.7	##########	205
1998q2	8,994.7	##########	206
1998q3	9,146.5	##########	207
1998q4	9,325.7	##########	208
1999q1	9,447.1	##########	209
1999q2	9,557.0	##########	210
1999q3	9,712.3	##########	211
1999q4	9,926.1	##########	212
2000q1	10,031.0	##########	213
2000q2	10,278.3	##########	214
2000q3	10,357.4	##########	215
2000q4	10,472.3	##########	216
2001q1	10,508.1	##########	217
2001q2	10,638.4	##########	218
2001q3	10,639.5	##########	219
2001q4	10,701.3	##########	220
2002q1	10,834.4	##########	221
2002q2	10,934.8	##########	222
2002q3	11,037.1	##########	223
2002q4	11,103.8	##########	224
2003q1	11,230.1	##########	225
2003q2	11,370.7	##########	226
2003q3	11,625.1	##########	227
2003q4	11,816.8	##########	228
2004q1	11,988.4	##########	229
2004q2	12,181.4	##########	230
2004q3	12,367.7	##########	231
2004q4	12,562.2	##########	232
2005q1	12,813.7	##########	233
2005q2	12,974.1	##########	234
2005q3	13,205.4	##########	235
2005q4	13,381.6	##########	236
2006q1	13,648.9	##########	237
2006q2	13,799.8	##########	238
2006q3	13,908.5	##########	239
2006q4	14,066.4	##########	240
2007q1	14,233.2	##########	241
2007q2	14,422.3	##########	242
2007q3	14,569.7	##########	243
2007q4	14,685.3	##########	244
2008q1	14,668.4	##########	245
2008q2	14,813.0	##########	245
2008q3	14,843.0	##########	247
2008q4	14,549.9	##########	248
2009q1	14,383.9	##########	249
2009q2	14,340.4	##########	250
2009q3	14,384.1	##########	251
2009q4	14,566.5	##########	252
2010q1	14,681.1	##########	253
2010q2	14,888.6	##########	254
2010q3	15,057.7	##########	255
2010q4	15,230.2	##########	256
2011q1	15,238.4	##########	257
2011q2	15,460.9	##########	258
2011q3	15,587.1	##########	259
2011q4	15,785.3	##########	260
2012q1	15,973.9	##########	261
2012q2	16,121.9	##########	262
2012q3	16,227.9	##########	263
2012q4	16,297.3	##########	264
2013q1	16,475.4	##########	265
2013q2	16,541.4	##########	266
2013q3	16,749.3	##########	267
2013q4	16,999.9	##########	268
2014q1	17,025.2	##########	269
2014q2	17,285.6	##########	270
2014q3	17,569.4	##########	271
2014q4	17,692.2	##########	272
2015q1	17,783.6	##########	273
2015q2	17,998.3	##########	274
2015q3	18,141.9	##########	275
2015q4	18,222.8	##########	276
2016q1	18,281.6	##########	276
2016q2	18,450.1	##########	276
2016q3	18,675.3	##########	276

CASE: UW 169
WITNESS: MATT MULDOON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 305

Cost of Long-Term Debt

Exhibits in Support
of Opening Testimony

REDACTED
July 7, 2017

Abbreviations Used by Staff:

10-K	Annual Report filed with the SEC (2012 unless specified otherwise)
10-Q	Quarterly Report filed with the SEC (2012 Q1 unless specified otherwise)
BB	Bloomberg
Cpn	Coupon Rate (Percent)
Curr	Currency
CUSIP	Committee on Uniform Securities Identification Procedures Security Identification
EIN	IRS Employer Identification Number
FMB	First Mortgage Bonds
Freq	Frequency
IOU	Investor Owned Utility
IRS	U.S. Internal Revenue Service
Key	SNL Funding Key (Identification Number)
LT	Long-Term
M	Millions of US Dollars
MTN	Medium Term Notes
N/A	Not Available
N/R	Not Rated
NYSE	New York Stock Exchange (Ticker Symbol)
PCRB	Pollution Control Revenue Bonds
SEC	U.S. Securities and Exchange Commission (File Number)
SNL	SNL Financial, LC
SR	Sunriver Water
U.S.	United States of America
USD	US Dollar (Denominated)
UST	U.S. Treasuries
WD	Withdrawn (Credit Rating)

Pages 2 to 3 are confidential and is subject to

Protective Order No. 17-184.

CASE: UW 169
WITNESS: MATT MULDOON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 306

Value Line (VL)
Water Utility Profiles

Exhibits in Support
of Opening Testimony

July 7, 2017

Stocks in the Water Utility Industry have performed well since our last report three months ago. This continues a trend that runs counter to the group's historical track record. Previously, these equities were held by conservative investors for the generous yields, solid dividend growth prospects, well-defined earnings, and low operating risk. Typically, shares of water companies would trail the market when the bulls were in charge, and hold their value better than the market indices when the bears were in control. Indeed, the industry's strong run has lowered the yield on an average water utility stock to a level close to the *Value Line* median. The yield spread between water stocks and the other dividend paying equities in the *Value Line Investment Survey* is near an all-time low. Thus, we find it hard to recommend these stocks because they appear to be more than fully valued. That's why the industry is ranked among the lowest of the 97 we follow.

Of the nine stocks in the sector, none are ranked to outperform the market in the year ahead. Moreover, almost all of the equities have below-average total return potential through the pull to 2020-2022. All in all, investors can probably find more attractive investment candidates elsewhere.

INDUSTRY TIMELINESS: 88 (of 97)

Yields Remain Very Low

Historically, conservative, income-oriented investors were the main buyer of this group. Besides the high yield, these stock's shares have low Beta coefficients (almost always a decent margin below 1.00), well-defined earning streams and dividend growth prospects, high marks for Stock Price Stability, and at least adequate balance sheets. Investors were willing to accept less total returns in exchange for the low level of risk associated with these equities. Over the past few years however, water utility stocks have been on a roll, with many outperforming the bull market. As a result of the substantial rise in stock prices, the yield on these stocks has dropped substantially. As we went to press, the average dividend yield for the nine members of the industry was 2.15%, a measly 15 basis points higher than the average stock we follow. Scarcity is one of the reasons water stocks trade at a premium as the industry's market cap is relatively small: There are two large cap stocks, two medium cap stocks, and the remaining five are all small caps. For example, should institutional investors choose to enter this sector to diversify out of electric or gas utilities, they have to pay a higher relative price because there are so few equities to choose from.

Regulation And Consolidation

The water infrastructure in the United States is badly in need of repair. After decades of neglect, the industry faced reality about 10 years ago and started to reinvest in modernizing and updating pipes, valves, sewers, and wastewater facilities. The expenditures still required by the industry are enormous. A majority of water districts are currently involved in large construction programs. Fortunately, state regulators understand the urgent need to fix the problem, and they have, for the most part, been very reasonable in allowing utilities to recoup the investments being made. As we often caution subscribers regarding all types of utilities, the importance of the regulatory climate in a state cannot be emphasized enough. State commissions not only determine how much a utility can earn, but also whether capital expenditures are recoverable. The ability of the utilities and regulators to work together is one of the main reasons behind better service for water users and solid returns for shareholders.

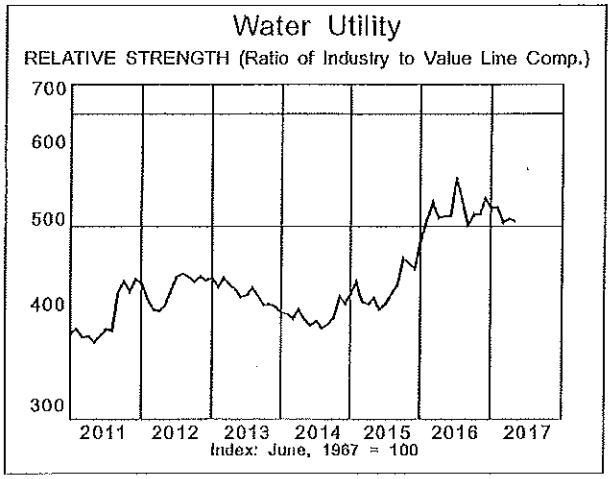
Even with the positive regulatory environment, many of the smaller water districts realize that they do not have the funds needed to make all the repairs necessary to bring their systems into compliance with EPA regulations. This has resulted in the bigger utilities, such as *American Water Works* and *Aqua America*, having ongoing acquisition programs. The water utility business is rife with redundancies and significant synergies can be achieved by merging entities. The situation appears to be close to a win-win as the larger companies have the capital required to upgrade the acquired water district's systems, but also to make the new entity more efficient. In the years ahead, we expect to see consolidation increase because there are literally tens of thousands of small municipal water districts which would be more productive if they merged with a bigger company. Investor-owned utilities are also looking to buy larger systems as was the case recently in Scranton. Usually it can take dozens and dozens of mergers to increase the customer base in a meaningful way.

Conclusion

Water utilities ought to continue to turn in decent operational performances in the coming years. Acquisitions should also remain a key strategy of the larger companies as smaller municipalities will succumb to not having the financial wherewithal to fund the modernization that their pipeline and wastewater systems require. In any case, our Ranking System believes that all of the industry's positive attributes are already reflected in the price of their equities.

As always, we urge subscribers to read each individual report before investing to better understand the specific risks associated with each stock.

James A. Flood



AMER. STATES WATER NYSE-AWR

RECENT PRICE 43.96 | P/E RATIO 26.6 (Trailing: 27.1 / Median: 20.0) | RELATIVE P/E RATIO 1.36 | DIV'D YLD 2.2% | VALUE LINE

TIMELINESS 3 Raised 3/10/17
SAFETY 2 Raised 7/20/12
TECHNICAL 2 Raised 4/14/17
BETA .75 (1.00 = Market)

2020-22 PROJECTIONS

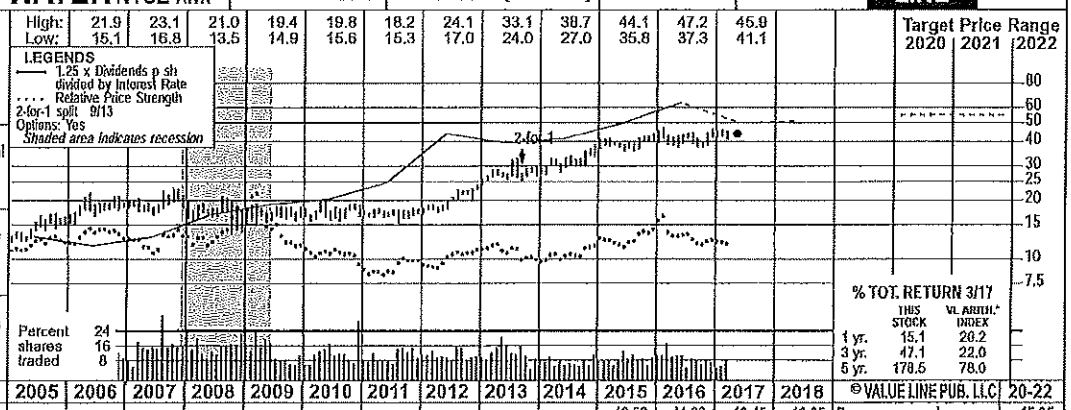
	Price	Gain	Ann'l Total Return
High	55	(+25%)	8%
Low	40	(-10%)	1%

Insider Decisions

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

Institutional Decisions

	2Q2016	3Q2016	4Q2016
to Buy	95	84	102
to Sell	90	88	87
Hld's(000)	23585	23554	24607



% TOT. RETURN 3/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	15.1	26.2
3 yr.	47.1	22.0
5 yr.	178.5	78.0

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	6.69	6.99	6.61	7.03	7.08	8.75	9.21	9.74	10.71	11.12	12.12	12.19	12.17	12.56	11.92	12.45	12.65	Revenues per sh	15.95
1.26	1.27	1.04	1.11	1.32	1.45	1.65	1.69	1.70	2.11	2.13	2.48	2.65	2.67	2.81	2.70	2.85	3.05	"Cash Flow" per sh	3.85
.67	.67	.39	.53	.66	.67	.81	.78	.81	1.11	1.12	1.41	1.61	1.57	1.60	1.62	1.70	1.80	Earnings per sh A	2.35
.43	.44	.44	.44	.45	.46	.48	.50	.51	.52	.55	.64	.76	.83	.87	.91	.96	1.02	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	34.80	37.06	37.26	37.70	38.53	38.72	38.29	36.50	36.57	36.60	36.70	Common Shs Outst'g C	37.00
16.7	16.3	31.9	23.2	21.9	27.7	24.0	22.6	21.2	15.7	15.4	14.3	17.2	20.1	24.6	25.6	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	21.0
.86	1.00	1.82	1.23	1.17	1.50	1.27	1.36	1.41	1.00	.97	.91	.97	1.06	1.24	1.35			Relative P/E Ratio	1.30
3.9%	3.6%	3.5%	3.6%	3.1%	2.5%	2.5%	2.9%	2.9%	3.0%	3.2%	3.1%	2.7%	2.6%	2.2%	2.2%			Avg Ann'l Div'd Yield	2.8%
						301.4	318.7	361.0	398.9	419.3	466.9	472.1	465.8	458.6	436.1	455	465	Revenues ($mill)	590
						28.0	28.8	29.5	41.4	42.0	54.1	62.7	61.1	60.5	59.7	62.0	66.0	Net Profit ($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%	56%	57%	All Div'ds to Net Prof	57%

CAPITAL STRUCTURE as of 12/31/16
Total Debt $411.3 mill. Due in 5 Yrs $41.7 mill.
LT Debt $321.0 mill. LT Interest $20.0 mill. (39% of Cap'l)

Leases, Uncapitalized: Annual rentals $2.5 mill.
Pension Assets-12/16 $150.9 mill. Oblig. $180.4 mill.
Pfd Stock None.

Common Stock 36,586,831 shs.
as of 2/21/17

MARKET CAP: $1.6 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2014	2015	12/31/16
Cash Assets	76.0	4.4	.4
Accts Receivable	18.8	18.9	20.0
Other	114.7	109.4	146.5
Current Assets	209.5	132.7	166.9
Accts Payable	41.9	50.6	43.7
Debt Due	.3	28.3	90.3
Other	57.1	44.6	43.9
Current Liab.	99.3	123.5	177.9

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

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	102.0	115.6	138.3	109.9	465.8
2015	100.9	114.6	133.0	110.1	458.6
2016	93.5	112.0	123.8	106.8	436.1
2017	100	115	130	110	455
2018	100	118	132	115	465

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.28	.39	.54	.36	1.57
2015	.32	.41	.56	.31	1.60
2016	.28	.45	.59	.30	1.62
2017	.33	.45	.57	.35	1.70
2018	.35	.47	.60	.38	1.80

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

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 9.9% of out. shares; Vanguard, 9.4%; off. & dir. 1.4%. (4/16 Proxy). Chairman: Lloyd Ross. President & Chief Executive Officer: Robert J. Sprowls. Inc: CA. Address: 630 East Foothill Boulevard, San Dimas, CA 91773. Tel: 909-394-3600. Internet: www.aswater.com.

We expect to see improvement in American States Water's bottom line. Following three-consecutive years of flat earnings, the company seems poised to post a decent increase in share earnings in 2017, to $1.70 (+5%). This should result from a combination of rate relief and greater contributions from nonregulated businesses (see below). The trend will likely continue into 2018, as we think earnings of $1.80 a share (+6%) are possible.

A major rate case should be filed soon. According to California law, a water utility must petition the state regulatory commission (CPUC) for rate relief triennially. American States' Golden State Water (GSWC) subsidiary plans on tending a petition by June seeking higher tariffs for the years 2019 through 2021. It will probably take at least until 2019 for the CPUC to render a decision, but GSWC can implement higher rates, subject to refunds, in the interim. (In 2016's fourth quarter, the company had to take an $0.08-a-share charge to comply with the CPUC's last December rate ruling.)

The nonregulated businesses continue to grow in importance. Through its ASUS subsidiary, the company recently signed a 50-year, $510 million contract to supply water to the Eglin Air Force Base. ASUS now services 10 military installations and it will continue to bid on contracts to provide water to more bases as the government has decided that outsourcing this function to private entities makes the most economic sense. Last year, share earnings from this operation rose 3%, to account for $0.33 (20%) of the company's profits. In 2017, management estimates that income from this segment will increase 10%, to $0.36 a share. American Water will benefit in the long run, as this sector becomes larger because the CPUC cannot cap the returns on equity in this segment as it does with the water utility operations.

These shares do not stand out for special consideration at this time. For starters, the equity is ranked to only perform in line with the broader market averages in the upcoming 12-month period. Moreover, total return potential through 2020-2022 is well below the *Value Line* median.

James A. Flood *April 14, 2017*

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

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

(C) In millions, adjusted for split.

Company's Financial Strength	A
Stock's Price Stability	80
Price Growth Persistence	75
Earnings Predictability	85

AMERICAN WATER NYSE-AWK

RECENT PRICE 77.72 | P/E RATIO 26.3 (Trailing: 29.6 Median: NMF) | RELATIVE P/E RATIO 1.34 | DIV'D YLD 2.1% | VALUE LINE

TIMELINESS 3 Raised 2/3/17
SAFETY 3 New 7/25/08
TECHNICAL 4 Lowered 3/10/17
BETA .65 (1.00 = Market)

2020-22 PROJECTIONS

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

Insider Decisions

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

Institutional Decisions

	2Q2016	3Q2016	4Q2016
to Buy	280	265	316
to Sell	254	289	278
Hld's(000)	150627	142186	145668

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

High: 23.7 23.0 25.8 32.8 39.4 45.1 56.2 61.2 85.2 78.7 70.0
Low: 16.5 16.2 19.4 25.2 31.3 37.0 41.1 48.4 58.9 70.0

Target Price Range 2020 | 2021 | 2022
128
96
80
64
48
40
32
24
16
12

Percent shares traded 21 14 7

% TOT. RETURN 3/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	15.1	20.2
3 yr.	83.5	22.0
5 yr.	158.4	78.6

2001	2002	2003	2004	2005	2006	2007	2008E	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
--	--	--	--	--	13.08	13.84	14.61	13.98	15.49	15.18	16.25	16.28	16.78	17.72	18.54	*19.40*	*20.45*	Revenues per sh	*23.05*
--	--	--	--	--	.65	d.47	2.87	2.89	3.56	3.73	4.27	4.36	4.75	5.13	5.26	*5.85*	*6.20*	"Cash Flow" per sh	*7.45*
--	--	--	--	--	d.97	d2.14	1.10	1.25	1.53	1.72	2.11	2.06	2.39	2.64	2.62	*3.05*	*3.25*	Earnings per sh A	*4.15*
--	--	--	--	--	--	--	.40	.82	.86	.90	1.21	.84	1.21	1.33	1.47	*1.61*	*1.76*	Div'd Decl'd per sh B∎	*2.35*
--	--	--	--	--	4.31	4.74	6.31	4.50	4.38	5.27	5.25	5.50	5.33	6.51	7.36	*6.25*	*6.15*	Cap'l Spending per sh	*6.30*
--	--	--	--	--	23.86	28.39	25.64	22.91	23.59	24.11	25.11	26.52	27.39	28.25	29.24	*30.80*	*32.40*	Book Value per sh D	*39.45*
--	--	--	--	--	160.00	160.00	160.00	174.63	175.00	175.66	176.99	178.25	179.46	178.28	178.10	*178.50*	*179.00*	Common Shs Outst'g C	*187.50*
--	--	--	--	--	--	--	18.9	15.6	14.6	16.8	16.7	19.9	20.0	20.5	27.7	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*18.0*
--	--	--	--	--	--	--	1.14	1.04	.93	1.05	1.06	1.12	1.05	1.03	1.46			Relative P/E Ratio	*1.15*
--	--	--	--	--	--	--	1.9%	4.2%	3.8%	3.1%	3.4%	2.0%	2.5%	2.5%	2.0%			Avg Ann'l Div'd Yield	*3.1%*
2214.2	2336.9	2440.7	2710.7	2666.2	2876.9	2901.9	3011.3	3159.0	3302.0	*3465*	*3665*	Revenues ($mill)	*4325*
d342.3	187.2	209.9	267.8	304.9	374.3	369.3	429.8	476.0	468.0	*545*	*580*	Net Profit ($mill)	*780*
---	37.4%	37.9%	40.4%	39.5%	40.7%	39.1%	39.4%	39.1%	39.2%	*38.5%*	*38.0%*	Income Tax Rate	*36.5%*
--	--	--	--	--	6.2%	5.1%	--	5.1%	1.4%	*2.0%*	*2.5%*	AFUDC % to Net Profit	*3.5%*
50.9%	53.1%	56.9%	56.8%	55.7%	53.9%	52.4%	52.4%	53.7%	52.4%	*54.0%*	*55.0%*	Long-Term Debt Ratio	*54.0%*
49.1%	46.9%	43.1%	43.2%	44.2%	46.1%	47.6%	47.4%	46.2%	47.5%	*46.0%*	*45.0%*	Common Equity Ratio	*46.0%*
9245.7	8750.2	9289.0	9561.3	9580.3	9635.5	9940.7	10364	10911	10967	*11900*	*12850*	Total Capital ($mill)	*16000*
9318.0	9991.8	10524	11059	11021	11739	12391	12900	13933	14992	*15675*	*16400*	Net Plant ($mill)	*18000*
NMF	3.7%	3.8%	4.4%	4.8%	5.4%	5.1%	5.5%	5.7%	5.6%	*6.0%*	*6.0%*	Return on Total Cap'l	*6.5%*
NMF	4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	*10.0%*	*10.0%*	Return on Shr. Equity	*10.5%*
NMF	4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	*10.0%*	*10.0%*	Return on Com Equity	*10.5%*
NMF	3.0%	1.8%	2.8%	3.5%	3.6%	4.7%	4.3%	4.7%	4.0%	*4.5%*	*4.5%*	Retained to Com Eq	*4.5%*
--	34%	65%	56%	52%	57%	40%	50%	50%	56%	*53%*	*55%*	All Div'ds to Net Prof	*57%*

CAPITAL STRUCTURE as of 12/31/16
Total Debt $7172.0 mil. Due in 5 Yrs $1698.0 mil.
LT Debt $5749.0 mil. LT Interest $300.0 mil. (52% of Cap'l)

Leases, Uncapitalized: Annual rentals $14.0 mill.
Pension Assets 12/16 $1443.0 mill Oblig. $1864.0 mill.
Pfd Stock $10.0 mill. Pfd Div'd $.5 mill

Common Stock 176,214,748 shs. as of 2/16/17

MARKET CAP: $12.9 billion (Large Cap)

CURRENT POSITION ($MILL.)	2014	2015	12/31/16
Cash Assets	23.1	45.0	75.0
Accts Receivable	267.1	255.0	269.0
Other	638.3	357.0	440.0
Current Assets	928.5	657.0	784.0
Accts Payable	285.8	126.0	154.0
Debt Due	511.1	682.0	1423.0
Other	444.1	725.0	815.0
Current Liab.	1241.0	1533.0	2392.0

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

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	679.0	754.8	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	*765*	*870*	*985*	*845*	*3465*
2018	*810*	*920*	*1045*	*890*	*3665*

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.39	.62	.86	.52	2.39
2015	.44	.68	.96	.56	2.64
2016	.46	.77	.83	.57	2.62
2017	*.53*	*.82*	*1.03*	*.67*	*3.05*
2018	*.57*	*.88*	*1.09*	*.71*	*3.25*

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

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

American Water Works' earnings and dividend prospects are bright. Last year, the utility posted a rare earnings decline due to a $0.22-a-share expense related to a chemical spill in West Virginia. Boosted by higher rates in certain states and cost savings (more below), share earnings should rise to $3.05 in 2017. Furthermore, the good news should continue into 2018, as we expect per-share earnings to increase a solid 7%, to $3.25. What's more, management forecast that the bottom line will experience growth of 7%-10% over the next three- to five-year period. Based upon these income expectations, the annual hike in the dividend should average almost double digits.

Growth through acquisitions and controlling expenses remain the company's main strategy. A very high percentage of water utilities in the U.S. are fairly small and run by local authorities. Because the nation's water infrastructure is antiquated, many small towns and cities don't have the funds required to modernize their pipelines. Moreover, since the industry is rife with redundancies, larger entities can buy out smaller ones and achieve significant synergies by combining systems. Indeed, American Water Works puts great significance on its internal expense ratio. Since 2010, this percentage has decreased from 42% to under 35%.

Spending on infrastructure should remain high. Through early next decade, the utility has earmarked well over $5 billion to replace old pipes and other aging facilities. Not all of the expenditures can be met through internal sources, so debt levels should increase. The utility has been hesitant to issue new shares over the past seven years, but we think this policy could change as the value of the equity has increased severalfold in the interim.

Shares of AWK do not have much appeal. Despite being viewed as a defensive play for its high scores for Price Stability, Earnings Predictability, and steady flow of dividend income, AWK has outperformed the broader market averages in the past three months, as well as over the one-, three-, and five-year periods. At the recent quote, the equity is already trading well within our projected 2020-2022 Target Price Range.

James A. Flood *April 14, 2017*

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

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

AQUA AMERICA NYSE-WTR

RECENT PRICE 32.29 | P/E RATIO 23.4 (Trailing: 24.5 / Median: 22.0) | RELATIVE P/E RATIO 1.19 | DIV'D YLD 2.5% | VALUE LINE

TIMELINESS 3 Lowered 8/26/16
SAFETY 2 Raised 4/28/12
TECHNICAL 4 Raised 4/7/17
BETA .70 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	45	(+40%)	11%
Low	35	(+10%)	4%

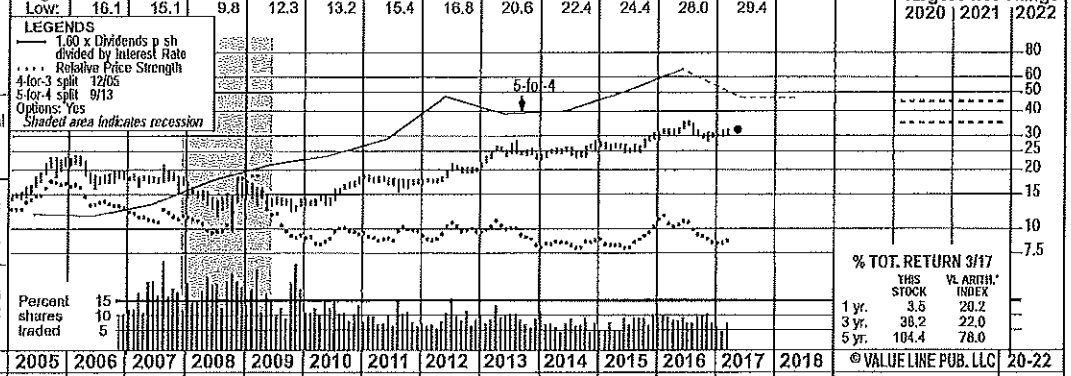
Insider Decisions

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

Institutional Decisions

	2Q2016	3Q2016	4Q2016
to Buy	179	163	182
to Sell	152	169	171
Hld's(000)	85171	85606	86566

	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	2.36	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	4.75	5.00	Revenues per sh	6.05
	.69	.76	.77	.87	.97	1.01	1.10	1.14	1.29	1.42	1.45	1.51	1.82	1.89	1.87	2.07	2.15	2.25	"Cash Flow" per sh	2.75
	.41	.43	.46	.51	.57	.56	.57	.58	.62	.72	.83	.87	1.16	1.20	1.14	1.32	1.40	1.45	Earnings per sh A	1.85
	.24	.26	.28	.29	.32	.35	.38	.41	.44	.47	.50	.54	.58	.63	.69	.74	.80	.85	Div'd Decl'd per sh B■	1.15
	.87	.96	1.06	1.23	1.47	1.64	1.43	1.58	1.66	1.89	1.90	1.98	1.73	1.84	2.07	2.16	2.05	2.25	Cap'l Spending per sh	2.25
	3.32	3.49	4.27	4.71	5.04	5.57	5.85	6.26	6.50	6.81	7.21	7.90	8.63	9.27	9.78	10.43	11.10	11.75	Book Value per sh	14.85
	142.47	141.49	154.31	158.97	161.21	165.41	166.75	169.21	170.61	172.46	173.60	175.43	177.93	178.59	176.54	177.39	178.00	178.50	Common Shs Outst'g C	180.00
	23.6	23.6	24.5	25.1	31.8	34.7	32.0	24.9	23.1	21.1	21.3	21.9	21.2	20.8	23.5	23.9	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	21.0
	1.21	1.29	1.40	1.33	1.69	1.87	1.70	1.50	1.54	1.34	1.34	1.39	1.19	1.09	1.18	1.26			Relative P/E Ratio	1.30
	2.5%	2.5%	2.5%	2.3%	1.8%	1.8%	2.1%	2.8%	3.1%	3.1%	2.8%	2.8%	2.4%	2.5%	2.6%	2.3%			Avg Ann'l Div'd Yield	2.9%
							602.5	627.0	670.5	726.1	712.0	757.8	768.6	779.9	814.2	819.9	845	895	Revenues ($mill)	1085
							95.0	97.9	104.4	124.0	144.8	153.1	205.0	213.9	201.8	234.2	250	260	Net Profit ($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	2646.6	2929.7	3003.6	3216.0	3469.5	3587.7	3740	4100	Total Capital ($mill)	5500
							2792.8	2997.4	3227.3	3469.3	3612.9	3936.2	4167.3	4402.0	4688.9	5001.6	5095	5275	Net Plant ($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%	57%	59%	All Div'ds to Net Prof	62%



CAPITAL STRUCTURE as of 12/31/16
Total Debt $1894.8 mill. Due in 5 Yrs $430.5 mill.
LT Debt $1737.6 mill. LT Interest $76.3 mill.
(48% of Cap'l)

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

Pfd Stock None
Common Stock 177,445,993 shares
as of 2/13/17

MARKET CAP: $5.7 billion (Large Cap)

CURRENT POSITION ($MILL.)	2014	2015	12/31/16
Cash Assets	4.1	3.2	3.7
Receivables	97.0	99.1	97.4
Inventory (AvgCst)	12.8	12.4	13.0
Other	38.6	13.7	14.6
Current Assets	152.5	128.4	128.7
Accts Payable	60.0	56.5	59.9
Debt Due	70.0	52.3	157.2
Other	95.3	84.4	84.4
Current Liab.	225.3	193.2	301.5

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%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	182.7	195.3	210.5	191.4	779.9
2015	190.3	205.8	221.0	197.1	814.2
2016	192.6	203.9	226.6	196.8	819.9
2017	195	210	235	205	845
2018	205	225	250	215	895

Calendar	EARNINGS PER SHARE A Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.24	.31	.38	.27	1.20
2015	.27	.32	.38	.17	1.14
2016	.29	.34	.41	.28	1.32
2017	.30	.35	.45	.30	1.40
2018	.31	.36	.47	.31	1.45

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

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

Aqua America is in for another good year in 2017. Last year, the company posted a 16% increase in share earnings, due in part, to several different states granting its water utilities higher rates. (An unusual income item in 2016 also helped the numbers look better.) North Carolina and Ohio have already granted increased tariffs for this year. All told, we think that the company's share net can rise 6% over 2016's strong number.

A more moderate gain seems to be in the cards for 2018. A petition to raise customers' bills in Pennsylvania was recently filed and should be ruled upon next year. We think the rates will probably only be sufficient to raise Aqua's share net $0.05 a share, or only 3.6%.

Dividend growth prospects are strong through early next decade. Although the yield premium that water stocks used to carry relative to the *Value Line* median has narrowed considerably over the past couple of years, Aqua still should average annual hikes in the payout of 9% over the next three- to five-year period.

Aqua has the balance sheet to make more and bigger acquisitions. The domestic water industry consists of thousands of small locally-run water districts. Due to the redundancy of many of the tasks, consolidation has been the trend over the past decade or so because huge synergies can be achieved. Moreover, the smaller, inefficient water districts are finding it difficult to raise the needed funds to upgrade their deteriorating pipeline systems. In the fourth quarter of 2016, the company announced that it would be making acquisitions of over $100 million. This is greater than all the tuck-in acquisitions made over the past half decade. With its solid finances, the utility has room to make bigger purchases in the future. As these purchases are integrated into the system, large cost saving can be achieved.

Investors can find better options elsewhere. The strong performance by the water utility industry has left the stocks with dividend yields that are only moderately higher than the *Value Line* median. True, dividend growth potential is strong, but WTR still offers below-average total return potential through 2020-2022.

James A. Flood *April 14, 2017*

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

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

CALIFORNIA WATER NYSE-CWT

RECENT PRICE 35.40 | P/E RATIO 26.0 (Trailing: 35.0 / Median: 20.0) | RELATIVE P/E RATIO 1.33 | DIV'D YLD 2.0% | VALUE LINE

TIMELINESS 3 Lowered 12/23/16
SAFETY 3 Lowered 7/22/07
TECHNICAL 2 Raised 4/14/17
BETA .75 (1.00 = Market)

2020-22 PROJECTIONS

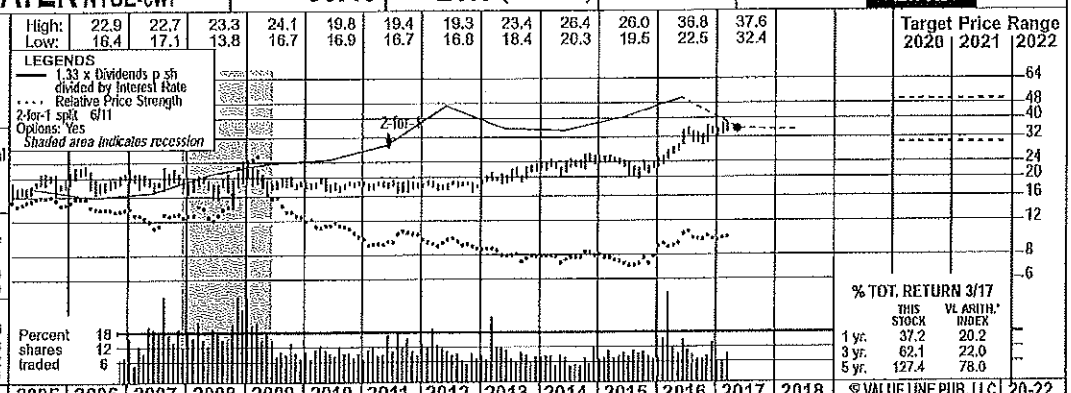
	Price	Gain	Ann'l Total Return
High	50	(+40%)	11%
Low	30	(-15%)	-1%

Insider Decisions

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

Institutional Decisions

	2Q2016	3Q2016	4Q2016
to Buy	87	75	93
to Sell	78	73	82
Hld's(000)	35676	33965	34200



	2020	2021	2022
Target Price Range			

% TOT. RETURN 3/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	37.2	20.2
3 yr.	62.1	22.0
5 yr.	127.4	78.0

	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	14.05	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	14.25	14.60	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	48.00	48.00	Common Shs Outst'g D	50.00
	27.1	19.8	22.1	20.1	24.9	29.2	26.1	19.8	19.7	20.3	21.3	17.9	20.1	19.7	24.8	29.6	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	23.0
	1.39	1.08	1.26	1.06	1.33	1.58	1.39	1.19	1.31	1.29	1.34	1.14	1.13	1.04	1.25	1.56			Relative P/E Ratio	1.45
	4.4%	4.5%	4.2%	3.9%	3.1%	2.9%	3.0%	3.1%	3.1%	3.2%	3.4%	3.5%	3.1%	2.8%	2.9%	2.3%			Avg Ann'l Div'd Yield	2.5%
							367.1	410.3	449.4	460.4	501.8	560.0	584.1	597.5	588.4	609.4	645	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%	66%	53%	52%	All Div'ds to Net Prof	56%

CAPITAL STRUCTURE as of 12/31/16
Total Debt $655.0 mill. Due in 5 Yrs $174.0 mill.
LT Debt $531.7 mill. LT Interest $33.4 mill.
(45% of Cap'l)

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

Pfd Stock None

Common Stock 47,965,000 shs.

MARKET CAP: $1.7 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2014	2015	12/31/16
Cash Assets	19.6	8.8	25.5
Other	134.5	118.8	116.6
Current Assets	154.1	127.6	142.1
Accts Payable	59.4	66.4	77.8
Debt Due	85.7	40.2	123.3
Other	72.6	41.9	49.1
Current Liab.	217.7	148.5	250.2

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 (4/16 proxy). Has 1,163 employees. Pres., Chrm., and CEO: Peter C. Nelson. Inc.: DE. Addr.: 1720 North First St., San Jose, CA 95112-4598. Tel.: 408-367-8200. Web: www.calwatergroup.com.

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	135	160	195	155	645
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	.05	.35	.65	.30	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				

California Water Service Group reported standout financial results to conclude 2016. The regulated and nonregulated water provider generated revenues of $151 million and $0.31 a share in net income during the December period. Both figures improved markedly year over year, easily besting our estimates. While the showing was stellar, it is worth noting that organic operations (top and bottom lines) got some help from one-time items associated with the rate case decision, namely the resolution of balancing accounts and the recovery of drought costs. These benefits outpaced an uptick in maintenance and wholesale water expenses. All things considered. . .

Growth is likely on tap for 2017 and 2018. Overall, the company's ability to immediately impose water rate hikes on its customers far outweighs the manageable increases in operating costs. Drought conditions continue to be a concern, mainly on water usage restrictions and operating expenses, but this essentially becomes a wash once the Public Utilities Commission approves recovery. Thus, our 2017 revenue estimate of $645 million and share net expectation of $1.35 are unchanged, for now. Moreover, we are unveiling our 2018 revenue and earnings estimates of $675 million and $1.45 a share, respectively.

Aggressive capital investment in the coming years was an additional component of the rate case decision. California Water spent a record $229 million on infrastructure upgrades and system improvements last year. With an allotment of $658 million for its capital budget to be spread over the pull to 2019, we see no slowdown of spending in sight.

The company raised its quarterly dividend by 4%, to $0.18 a share. This marks the 49th consecutive annual payout increase. That said, the current yield, while roughly on par with the broader market averages, is noticeably weaker than in prior years, mainly due to the stock's recent price surge.

Based on this issue's rich valuation, we think better options can be found elsewhere, for now. But we still like the long-term story, and suggest investors keep CWT on their radars should a meaningful dip in share price occur.

Nicholas P. Patrikis *April 14, 2017*

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

Company's Financial Strength	B++
Stock's Price Stability	85
Price Growth Persistence	35
Earnings Predictability	75

CONNECTICUT WATER NDQ-CTWS

RECENT PRICE 52.96 | P/E RATIO 26.0 (Trailing: 25.5 / Median: 20.0) | RELATIVE P/E RATIO 1.33 | DIV'D YLD 2.1% | VALUE LINE

TIMELINESS 5 Lowered 4/7/17
SAFETY 3 New 1/18/13
TECHNICAL 2 Raised 4/14/17
BETA .65 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	60	(+15%)	6%
Low	40	(-25%)	-4%

Insider Decisions

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

Institutional Decisions

	2Q2016	3Q2016	4Q2016
to Buy	49	51	59
to Sell	52	48	45
Hld's(000)	5136	5226	5436

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
High:	27.7	25.6	29.0	26.4	27.9	29.1	32.8	36.4	37.5	39.9	58.3	59.3								
Low:	20.3	22.4	19.3	17.3	20.0	23.3	26.2	27.8	31.0	33.2	37.5	51.9								
	5.93	5.77	5.91	6.04	5.81	5.66	7.05	7.24	6.93	7.65	7.93	9.47	8.29	8.45	8.58	8.77	*9.20*	*10.00*	Revenues per sh	*13.35*
	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*	*3.55*	"Cash Flow" per sh	*3.90*
	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	*1.20*	*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	*21.75*	*22.60*	Book Value per sh [D]	*23.75*
	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	*11.50*	*11.50*	Common Shs Outst'g [C]	*12.00*
	21.5	24.3	23.5	22.9	26.6	29.0	23.0	22.2	18.4	20.7	23.0	19.4	18.4	17.5	17.6	23.3	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*19.0*
	1.10	1.33	1.34	1.21	1.52	1.57	1.22	1.34	1.23	1.32	1.44	1.23	1.03	.92	.89	1.22			Relative P/E Ratio	*1.20*
	3.3%	3.0%	3.0%	3.1%	3.4%	3.6%	3.6%	3.6%	4.1%	3.9%	3.6%	3.2%	3.2%	3.0%	2.9%	2.3%			Avg Ann'l Div'd Yield	*2.8%*
							59.0	61.3	59.4	66.4	69.4	83.8	91.5	94.0	96.0	98.7	*106*	*115*	Revenues ($mill)	*160*
							8.8	9.4	10.2	9.8	9.9	13.6	18.3	21.3	22.8	23.4	*25.5*	*27.0*	Net Profit ($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%	48.9%	45.7%	44.1%	45.4%	*47.0%*	*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%	*53.0%*	*53.0%*	Common Equity Ratio	*53.5%*
							193.2	196.5	221.3	225.6	254.2	364.6	373.6	388.6	402.4	433.8	*470*	*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%*	*6.0%*	Return on Total Cap'l	*6.5%*
							8.7%	9.6%	9.3%	8.6%	8.3%	7.3%	9.2%	10.1%	10.1%	9.9%	*10.0%*	*10.5%*	Return on Shr. Equity	*11.0%*
							8.7%	9.1%	9.4%	8.7%	8.3%	7.3%	9.2%	10.2%	10.1%	9.9%	*10.0%*	*10.5%*	Return on Com Equity	*11.0%*
							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	*5.0%*
							82%	79%	76%	81%	83%	62%	59%	53%	52%	54%	*55%*	*53%*	All Div'ds to Net Prof	*53%*

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

Target Price Range 2020 | 2021 | 2022

% TOT. RETURN 3/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	20.4	20.2
3 yr.	68.6	22.0
5 yr.	116.9	78.0

CAPITAL STRUCTURE as of 12/31/16
Total Debt $201.9 mill. Due in 5 Yrs $19.8 mill.
LT Debt $197.0 mill. LT Interest $7.7 mill. (44% 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 11,248,000 shs.

MARKET CAP: $600 million (Small Cap)

CURRENT POSITION ($MILL.)	2014	2015	12/31/16
Cash Assets	2.5	.7	1.6
Accounts Receivable	12.0	11.0	13.0
Other	21.7	15.3	14.8
Current Assets	36.2	27.0	29.4
Accts Payable	10.0	11.9	13.1
Debt Due	4.4	2.8	4.9
Other	9.2	22.2	37.1
Current Liab.	23.6	36.9	55.1

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	3.0%	7.5%
"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%	3.0%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	20.3	25.4	27.6	20.7	94.0
2015	20.0	26.6	28.4	21.0	96.0
2016	21.6	26.1	29.5	21.5	98.7
2017	*23.0*	*28.0*	*32.0*	*23.0*	*106*
2018	*25.0*	*30.0*	*35.0*	*25.0*	*115*

Calendar	EARNINGS PER SHARE [A] Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.27	.67	.76	.22	1.92
2015	.28	.77	.79	.20	2.04
2016	.28	.89	.84	.07	2.08
2017	*.30*	*.79*	*.88*	*.23*	*2.20*
2018	*.35*	*.80*	*.90*	*.30*	*2.35*

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

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 2.6% of the common stock; BlackRock, Inc. 7.0%; (4/16 proxy). Address: 93 West Main Street, Clinton, CT 06413. Telephone: (860) 669-8636. Internet: www.ctwater.com.

Connecticut Water Service has closed the book on its acquisition of Heritage Village Water Company. The deal was finalized in February of this year for a total value of $20.7 million. In sum, approximately 7,700 customers (water & wastewater) spanning Southbury, Middlebury, and Oxford, Connecticut will be brought under the umbrella. This addition brings the company's footprint to 79 communities in the Northeast, serving over 440,000 people. Indeed, we look for the acquisition to positively impact the top line.

A second deal, which is a bit larger in stature (in terms of cost), is in the queue. As mentioned in our January review, Connecticut Water has entered into an agreement to purchase The Avon Water Company at a cash-and-stock price of about $37 million. Avon serves nearly 4,800 water customers across several communities in Connecticut. Currently, the acquisition is pending approval from the Public Utilities Regulatory Authority, which should be decided within the second quarter. The deal is expected to close by the third quarter of this year.

Top- and bottom-line growth should be more profound going forward. Taking into consideration a jump in the customer base, with further additions possible in the back half of 2017, we think revenue growth of 7% is achievable this year. Meanwhile, earnings are poised to advance nicely, as our model calls for share-net expansion of 6% in 2017. Operation and maintenance costs may inch higher in the near term due to integration, but expenses seem to be under control. What's more, over the long haul, the company's growth-through-acquisition model will probably remain in place. Solid free cash flow generation, along with a manageable amount of debt, augurs well for this strategy.

Our recommendation on this equity has not changed much over the past three months. The stock price, though slightly off of fresh all-time highs, already appears to be reflecting a good amount of the gains we envision over the 2020-2022 time frame. Moreover, the issue is pegged as a market laggard over the coming six to 12 months (Timeliness: 5). All told, we continue to advise investors to take a pass on these richly valued shares, for now.

Nicholas P. Patrikis *April 14, 2017*

(A) Diluted earnings. Next earnings report due late May.
(B) Dividends historically paid in mid-March, June, September, and December. ■ Div'd reinvestment plan available.
(C) In millions, adjusted for split.
(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	85

CONSOL. WATER CO. NDQ-CWCO

RECENT PRICE 11.60 | P/E RATIO 22.3 (Trailing: 43.0 Median: 25.0) | RELATIVE P/E RATIO 1.14 | DIV'D YLD 2.6% | VALUE LINE

TIMELINESS 3 Lowered 3/31/17
SAFETY 3 New 1/17/14
TECHNICAL 5 Lowered 4/7/17
BETA .90 (1.00 = Market)

2020-22 PROJECTIONS

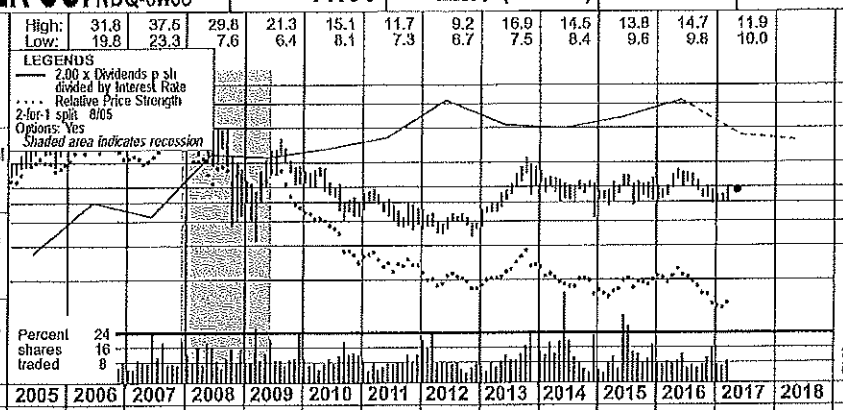
	Price	Gain	Ann'l Total Return
High	30	(+160%)	27%
Low	20	(+70%)	16%

Insider Decisions

	J	J	A	S	O	N	D	J	F
to Buy	0	0	0	1	0	0	0	0	0
Options	10	0	0	1	0	1	12	0	0
to Sell	0	0	0	1	0	2	6	0	0

Institutional Decisions

	2Q2016	3Q2016	4Q2016
to Buy	43	28	40
to Sell	29	36	36
Hld's(000)	6934	6830	6885



High:	31.8	37.5	29.8	21.3	15.1	11.7	9.2	16.9	14.5	13.8	14.7	11.9
Low:	19.8	23.3	7.6	6.4	8.1	7.3	6.7	7.5	8.4	9.6	9.8	10.0

Target Price Range

2020	2021	2022
		40
		32
		24
		16
		12
		10
		8
		6
		4

% TOT. RETURN 3/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	-1.8	20.2
3 yr.	-4.6	22.0
5 yr.	67.7	78.0

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
1.41	1.52	1.68	2.02	1.12	2.71	3.41	4.52	3.99	3.49	3.79	4.49	4.35	4.46	3.86	3.89	*4.00*	*4.15*	Revenues per sh	*9.70*
.52	.50	.63	.77	.37	.87	1.20	.95	1.18	.86	.83	1.17	.96	.80	.89	.95	*1.10*	*1.20*	"Cash Flow" per sh	*1.85*
.35	.32	.42	.49	.23	.59	.79	.50	.74	.43	.42	.64	.58	.42	.51	.27	*.60*	*.65*	Earnings per sh A	*1.25*
.20	.21	.21	.23	.12	.24	.20	.33	.26	.30	.30	.30	.30	.30	.30	.30	*.30*	*.30*	Div'd Decl'd per sh B■	*.40*
.24	.39	.19	.24	.77	1.83	.54	.46	.18	.09	.96	.31	.29	.32	.21	.23	*.25*	*.30*	Cap'l Spending per sh	*.40*
2.45	2.64	3.89	4.20	2.54	7.49	8.21	8.36	8.53	8.69	8.83	9.20	9.44	9.58	9.81	9.79	*10.00*	*10.35*	Book Value per sh D	*11.90*
7.84	7.99	11.37	11.51	23.46	14.13	14.40	14.53	14.54	14.55	14.57	14.59	14.69	14.72	14.78	14.87	*15.00*	*15.00*	Common Shs Outst'g C	*16.00*
13.9	21.6	19.3	23.1	NMF	43.0	35.4	37.8	19.0	26.9	22.4	12.4	20.0	28.3	22.7	44.8	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*21.0*
.71	1.18	1.10	1.22	NMF	2.32	1.88	2.27	1.27	1.71	1.41	.79	1.12	1.49	1.14	2.36			Relative P/E Ratio	*1.30*
4.2%	3.1%	2.6%	2.0%	.7%	.9%	.7%	1.7%	2.0%	2.6%	3.2%	3.8%	2.6%	2.5%	2.6%	2.5%			Avg Ann'l Div'd Yield	*1.6%*
49.2	65.7	58.0	50.7	55.2	65.5	63.8	65.6	57.1	57.9	*60.0*	*62.0*	Revenues ($mill)	*155*
11.4	7.2	10.8	6.3	6.1	9.3	8.6	6.3	7.5	4.0	*9.0*	*10.0*	Net Profit ($mill)	*20.0*
--	--	--	--	--	--	--	--	--	--	*NMF*	*NMF*	Income Tax Rate	*NMF*
--	--	--	--	4.0%	--	--	--	--	--	*NMF*	*NMF*	AFUDC % to Net Profit	*NMF*
15.9%	14.8%	13.8%	11.8%	5.1%	3.7%	--	--	3.7%	--	*Nil*	*Nil*	Long-Term Debt Ratio	*Nil*
84.1%	85.2%	86.2%	88.2%	94.9%	96.3%	99.8%	99.8%	100.0%	100.0%	*100%*	*100%*	Common Equity Ratio	*100%*
140.7	142.7	143.9	143.3	135.6	139.4	138.9	141.2	145.0	145.6	*150*	*155*	Total Capital ($mill)	*190*
65.0	65.1	61.2	56.2	64.3	61.6	58.6	56.4	53.7	53.1	*55.0*	*58.0*	Net Plant ($mill)	*135*
8.6%	5.7%	8.1%	4.9%	5.0%	7.0%	6.2%	4.4%	5.2%	2.7%	*6.0%*	*6.5%*	Return on Total Cap'l	*10.5%*
9.6%	5.9%	8.7%	5.0%	4.7%	6.9%	6.2%	4.4%	5.2%	2.7%	*6.0%*	*6.5%*	Return on Shr. Equity	*10.5%*
9.6%	5.9%	8.7%	5.0%	4.7%	6.9%	6.2%	4.4%	5.2%	2.7%	*6.0%*	*6.5%*	Return on Com Equity	*10.5%*
6.5%	2.8%	4.6%	1.5%	1.0%	3.6%	3.0%	1.2%	2.1%	NMF	*3.0%*	*3.5%*	Retained to Com Eq	*7.0%*
33%	52%	46%	69%	79%	48%	51%	73%	59%	112%	*50%*	*46%*	All Div'ds to Net Prof	*32%*

CAPITAL STRUCTURE as of 12/31/16
Total Debt $0.5 mill. Due In 5 Yrs $.5 mill.
LT Debt None LT Interest None

Leases, Uncapitalized: Annual rentals $.8 mill.

No Defined Benefit Pension Plan

Pfd Stock NMF (37,706 avg shares out.)
Div'd NMF

Common Stock 14,871,664 shs.
as of 3/10/17

MARKET CAP: $175 million (Small Cap)

CURRENT POSITION ($MILL.)	2014	2015	12/31/16
Cash Assets	40.7	50.4	39.3
Accts Receivable	11.8	9.5	16.5
Other	6.9	5.5	5.1
Current Assets	59.4	65.4	60.9
Accts Payable	6.0	4.8	4.9
Debt Due	9.0	7.0	.5
Other	1.2	1.4	1.3
Current Liab.	16.2	13.2	6.7

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	7.5%	1.5%	*16.0%*
"Cash Flow"	3.0%	-1.5%	*13.5%*
Earnings	-1.0%	-5.5%	*21.0%*
Dividends	4.5%	.5%	*7.0%*
Book Value	7.5%	2.5%	*4.0%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	16.3	16.9	17.0	15.4	65.6
2015	14.7	14.4	14.6	13.4	57.1
2016	14.0	15.4	14.4	14.1	57.9
2017	*14.5*	*15.5*	*15.0*	*15.0*	*60.0*
2018	*15.0*	*16.0*	*15.5*	*15.5*	*62.0*

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.04	.19	.13	.06	.42
2015	.13	.15	.12	.11	.51
2016	.15	.15	d.13	.10	.27
2017	*.11*	*.17*	*.14*	*.18*	*.60*
2018	*.12*	*.18*	*.16*	*.19*	*.65*

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.075	.075	.075	.075	.30
2014	.075	.075	.075	.075	.30
2015	.075	.075	.075	.075	.30
2016	.075	.075	.075	.075	.30
2017	.075				

BUSINESS: Consolidated Water Co. Ltd. develops and operates seawater desalination plants and water distribution systems in areas where naturally occuring supplies of potable water are scarce or nonexistent. Its desalination process involves reverse osmosis tech. It provides water in the Cayman Islands, Belize, the Bahamas, the British Virgin Islands, and Bali. At 12/31/16, it operated 13 plants with a capacity of 26.3 million gallons per day. Inc.: Cayman Islands. Has 117 employees. President & Chief Executive Officer: Frederick McTaggart. Off./Dir. own 3.2% of stock; (4/16 proxy). Address: Regatta Office Park Windward Three, 4th Floor, West Bay Road P.O. Box 1114 Grand Cayman, KY1-1102, Cayman Islands. Tel.: (345) 945-4277. Internet: www.cwco.com.

Consolidated Water's Bali plant has not gotten off to a good start. The company had to write down the value of its investment in the Nusa Dua desalination facility located on the popular Indonesian tourist center. The island is a high-end destination, with many five-star hotels. Population growth and tourism have both been thriving despite Bali's shortage of potable water. Consolidated speculated by building the plant without first having long-term contracts in place. Demand for water from the project, finished in 2016, has been below expectations, thus far. Moreover, the government seems to want the company, against its will, to take on a local partner. Though the beginning has been difficult, we still believe that the island's shortage of drinkable water will eventually increase the value of Nusa Dua. **The water company's international portfolio leaves it vulnerable to poor regulatory conditions.** The company has water operations in the Cayman Islands, The Bahamas, Indonesia, and the British Virgin Islands. Over the years, Consolidated has often clashed with governments regarding prices that can be charged. This adds increased uncertainty to the company. Still, all of the islands where it is domiciled require the water Consolidated purifies and, thus far, despite ongoing disputes with several nations, the company and the countries both need each other.

The Mexican project seems to hold significant appeal. Consolidated has done most of the lengthy preconstruction work on a $500 million desalination plant to be located in the Baja region. The cost of the facility will be much cheaper by having it built south of the border. Also, the facility will be constructed so that it conforms to American regulations. This way, it will be able to sell water not just to the city of Tijuana, but also to San Diego.

These shares carry much more risk than others in the Water Industry. Foreign regulation creates a greater degree of regulatory risk than in the U.S. In addition, though the outlook for its newer projects seems favorable, these plants have been built on spec and have no guaranteed, well-defined income flow. In any case, CWCO is better left to investors with a speculative bent.

James A. Flood *April 14, 2017*

(A) Fully diluted earnings. Next earnings report due early May. (B) Dividends historically paid in late January, April, July, and October. ■ Dividend reinvestment plan available.

(C) In millions adjusted for stock split.
(D) Includes intangibles. As of 12/16, $15 million/$1.01 a share.

Company's Financial Strength	B+
Stock's Price Stability	30
Price Growth Persistence	10
Earnings Predictability	50

MIDDLESEX WATER NDQ-MSEX

RECENT PRICE 37.09 | P/E RATIO 26.3 (Trailing: 26.9 / Median: 20.0) | RELATIVE P/E RATIO 1.34 | DIV'D YLD 2.3% | VALUE LINE

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

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	50	(+35%)	10%
Low	35	(-5%)	1%

Insider Decisions

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

Institutional Decisions

	2Q2016	3Q2016	4Q2016
to Buy	59	50	40
to Sell	52	56	62
Hld's(000)	7208	7495	7874

	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	8.50	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	1.50	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	25.8	Bold figures are Value Line estimates		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			Relative P/E Ratio	1.30
	3.8%	3.7%	3.3%	3.4%	3.5%	3.7%	3.7%	4.0%	4.7%	4.2%	4.0%	4.0%	3.7%	3.7%	3.3%	2.3%			Avg Ann'l Div'd Yield	2.4%
							86.1	91.0	91.2	102.7	102.1	110.4	114.8	117.1	126.0	132.9	140	145	Revenues ($mill)	160
							11.8	12.2	10.0	14.3	13.4	14.4	16.6	18.4	20.0	22.7	25.0	27.0	Net Profit ($mill)	35.0
							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	38.0%
							49.6%	51.8%	52.1%	55.8%	56.6%	57.4%	58.7%	58.8%	59.8%	61.5%	61.5%	62.0%	Common Equity Ratio	61.5%
							268.8	259.4	267.9	310.5	312.5	316.5	321.4	335.8	345.4	355.4	370	385	Total Capital ($mill)	450
							333.9	366.3	376.5	405.9	422.2	435.2	446.5	465.4	481.9	517.6	525	535	Net Plant ($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%	11.0%	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%	11.0%	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%	5.0%	5.0%	Retained to Com Eq	6.0%
							79%	78%	98%	75%	87%	83%	73%	67%	63%	58%	56%	54%	All Div'ds to Net Prof	50%

Target Price Range 2020 | 2021 | 2022: 64, 48, 40, 32, 24, 20, 16, 12, 8, 6

% TOT. RETURN 3/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	22.5	20.2
3 yr.	85.3	22.0
5 yr.	131.0	76.0

CAPITAL STRUCTURE as of 12/31/16
Total Debt $152.7 mill. Due in 5 Yrs $32.1 mill.
LT Debt $134.5 mill. LT Interest $5.3 mill.
(Total interest coverage: 7.6x)
(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 16,296,000 shs.

MARKET CAP: $600 million (Small Cap)

CURRENT POSITION ($MILL.)	2014	2015	12/31/16
Cash Assets	2.7	3.5	3.9
Other	20.2	20.9	22.8
Current Assets	22.9	24.4	26.7
Accts Payable	6.4	6.5	12.3
Debt Due	24.9	8.7	18.2
Other	12.6	13.1	16.6
Current Liab.	43.9	28.3	47.1

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

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	27.1	29.2	32.7	28.1	117.1
2015	28.8	31.7	34.7	30.8	126.0
2016	30.6	32.7	37.8	31.8	132.9
2017	32.0	34.0	39.0	35.0	140
2018	33.0	37.0	40.0	35.0	145

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

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

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., 6.4% (4/16 proxy). Add.: 1500 Ronson Road, Iselin, NJ 08830. Tel.: 732-634-1500. Internet: www.middlesexwater.com.

Middlesex Water Company stumbled a bit in the fourth quarter. Its woes were mainly isolated to the bottom line, as earnings of $0.19 a share for the December period declined more than 30%, year over year. A substantial increase in operation and maintenance expenses, coupled with higher, unforeseen costs associated with its water main asset assessment program, weighed on profitability. Nonetheless, full-year top- and bottom-line figures improved moderately, thanks to strong performances in the first three quarters of 2016. However, the advance was not quite on par with consensus and, as a result, the market punished the relatively overvalued stock. Presently, MSEX shares are trading around levels of last fall.

We are lowering our 2017 revenue and earnings estimates. Largely owing to loftier labor expenses, we are shaving a dime from our current-year net income call, to $1.50 a share. Meanwhile, our 2018 bottom-line estimate is being initiated at $1.60 a share.

The current yield is appetizing. Though the return is 100 to 200 basis points below historical norms, MSEX shares presently offer a 2.3% yield. This outpaces the majority of equities in the water utility industry. Indeed, the recent price descent is helping to bolster its appeal. Looking further out, based on our 3- to 5-year Target Price Range and projected annual payout increases, we think this rate of return should hold steady.

Elevated capital spending on infrastructure upgrades is likely over the pull to 2020-2022. Middlesex is in the midst of a $12 million overhaul of its Edison and South Amboy infrastructures (improving water mains and service lines to bolster distribution capabilities). This is apt to be followed by upgrades down the road to other municipalities.

This issue is absent of investment appeal at the moment, with the exception of its solid dividend yield. Slated to only mirror the broader market over the coming six to 12 months (Timeliness: 3), investors would do well to wait for some clarity on a bottom-line recovery in the near term. Furthermore, at recent levels, capital appreciation potential over the long run is nothing to write home about.

Nicholas P. Patrikis *April 14, 2017*

(A) Diluted earnings. Next earnings report due early May.

(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	80
Price Growth Persistence	40
Earnings Predictability	85

SJW CORP. NYSE-SJW

RECENT PRICE 47.77 | P/E RATIO 20.6 (Trailing: 18.6 / Median: 23.0) | RELATIVE P/E RATIO 1.05 | DIV'D YLD 1.8% | VALUE LINE

TIMELINESS 4 Raised 1/27/17
SAFETY 3 New 4/22/11
TECHNICAL 3 Lowered 4/14/17
BETA .70 (1.00 = Market)

2020-22 PROJECTIONS

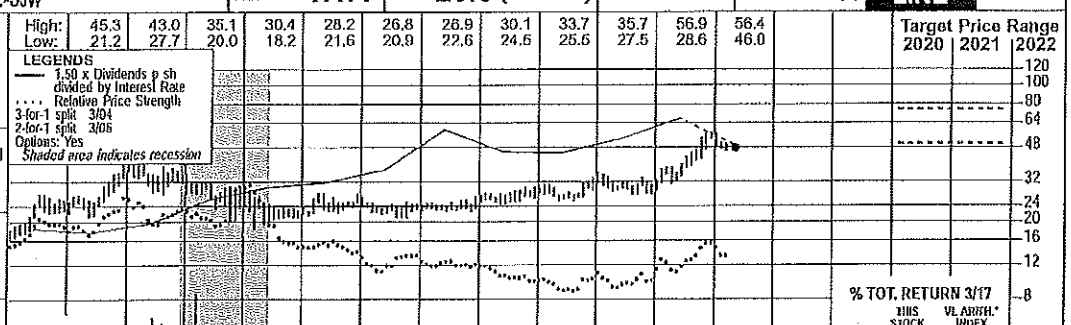
	Price	Gain	Ann'l Total Return
High	75	(+55%)	13%
Low	50	(+5%)	3%

Insider Decisions

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

Institutional Decisions

	2Q2016	3Q2016	4Q2016
to Buy	64	50	81
to Sell	68	70	59
Hld's(000)	9308	9513	9218



2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
7.45	7.97	8.20	9.14	9.86	10.35	11.25	12.12	11.68	11.62	12.85	14.01	13.73	15.76	14.97	16.61	*16.20*	*15.90*	Revenues per sh	*19.55*
1.49	1.55	1.75	1.89	2.21	2.38	2.30	2.44	2.21	2.38	2.80	2.97	2.90	4.42	3.86	4.76	*4.40*	*4.40*	"Cash Flow" per sh	*4.90*
.77	.78	.91	.87	1.12	1.19	1.04	1.08	.81	.84	1.11	1.18	1.12	2.54	1.85	2.57	*2.25*	*2.35*	Earnings per sh A	*2.75*
.43	.46	.49	.51	.53	.57	.61	.65	.66	.68	.69	.71	.73	.75	.76	.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	8.95	*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	16.83	20.61	*21.20*	*21.60*	Book Value per sh	*23.90*
18.27	18.27	18.27	18.27	18.27	18.28	18.36	18.18	18.50	18.55	18.59	18.67	20.17	20.29	20.38	20.46	*21.00*	*22.00*	Common Shs Outst'g C	*23.00*
18.5	17.3	15.4	19.6	19.7	23.5	33.4	26.2	28.7	29.1	21.2	20.4	24.3	11.2	16.6	15.7	*bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*22.0*
.95	.94	.88	1.04	1.05	1.27	1.77	1.58	1.91	1.85	1.33	1.30	1.37	.59	.84	.83			Relative P/E Ratio	*1.40*
3.0%	3.4%	3.5%	3.0%	2.4%	2.0%	1.7%	2.3%	2.8%	2.8%	2.9%	3.0%	2.7%	2.6%	2.5%	2.0%			Avg Ann'l Div'd Yield	*1.8%*
206.6	220.3	216.1	215.6	239.0	261.5	276.9	319.7	305.1	339.7	*340*	*350*	Revenues ($mill)	*450*
19.3	20.2	15.2	15.8	20.9	22.3	23.5	51.8	37.9	52.8	*47.0*	*52.0*	Net Profit ($mill)	*63.0*
39.4%	39.5%	40.4%	39.8%	41.1%	41.1%	38.7%	32.5%	38.1%	36.8%	*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	784.6	855.0	*870*	*925*	Total Capital ($mill)	*1075*
645.5	684.2	718.5	785.5	756.2	831.6	898.7	963.0	1036.6	1146.4	*1200*	*1250*	Net Plant ($mill)	*1325*
5.7%	5.8%	4.4%	4.3%	4.9%	5.0%	5.0%	8.3%	6.3%	7.4%	*6.5%*	*6.5%*	Return on Total Cap'l	*7.0%*
8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	*10.5%*	*11.0%*	Return on Shr. Equity	*11.5%*
8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	*10.5%*	*11.0%*	Return on Com Equity	*11.5%*
3.5%	3.3%	1.2%	1.2%	3.1%	3.3%	2.8%	10.2%	5.7%	8.6%	*6.5%*	*6.5%*	Retained to Com Eq	*7.0%*
57%	59%	80%	80%	61%	59%	62%	29%	42%	31%	*39%*	*40%*	All Div'ds to Net Prof	*41%*

CAPITAL STRUCTURE as of 12/31/16
Total Debt $447.6 mill. Due in 5 Yrs $14.3 mill.
LT Debt $433.3 mill. LT Interest $20.0 mill.
(51% of Cap'l)

Leases, Uncapitalized: Annual rentals $6.6 mill.

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

Pfd Stock None.

Common Stock 20,456,000 shs.

MARKET CAP: $975 million (Mid Cap)

CURRENT POSITION ($MILL.)	2014	2015	12/31/16
Cash Assets	2.4	5.2	25.3
Accts Receivable	15.0	16.4	16.4
Other	50.7	51.8	57.9
Current Assets	68.1	73.4	99.6
Accts Payable	7.0	16.2	16.7
Debt Due	13.8	38.1	14.3
Other	23.9	25.3	30.6
Current Liab.	44.7	79.6	63.6

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

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	54.6	70.4	125.4	69.3	319.7
2015	62.1	72.4	83.0	87.6	305.1
2016	61.1	86.9	112.3	79.4	339.7
2017	*65.0*	*90.0*	*100*	*85.0*	*340*
2018	*68.0*	*92.0*	*103*	*87.0*	*350*

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.04	.34	1.88	.28	2.54
2015	.23	.36	.46	.80	1.85
2016	.16	.82	.92	.67	2.57
2017	*.25*	*.65*	*.75*	*.60*	*2.25*
2018	*.27*	*.67*	*.78*	*.63*	*2.35*

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

BUSINESS: SJW Corporation 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: Charles J. Toeniskoetter, Inc.: California. Address: 110 West Taylor Street, San Jose, CA 95110. Telephone: (408) 279-7800. Internet: www.sjwater.com.

Shares of SJW Corp. have cooled a bit in price subsequent to an impressive run-up over the course of last year. The stock nearly doubled in value during 2016 and, not surprisingly, we have seen higher selling volume in the early stages of this year, as investors were likely taking some profits off the table. In our view, this pullback (shares are down approximately 15% in price since our January report) is warranted. December-period top- and bottom-line results declined, year over year, which was in line with our expectations.

Several factors will probably keep revenues and net income at bay this year. Cumulative rate increases stemming from the 2015 California Rate Case decision are being largely overshadowed by lower revenue adjustments in its conservation memorandum accounts. On top of that, water production expenses ought to continue to rise. Specifically, higher per-unit prices for purchased water, ground water extraction, and energy charges are apt to be a bottom-line drag. In addition, elevated maintenance and administrative expenses are likely to increase overall operating expenses. On balance, our current-year revenue estimate of $340 million and earnings call of $2.25 take into account the abovementioned headwinds.

SJW boosted its quarterly dividend payout. The board of directors announced a 7% increase to the distribution, to $0.2175 per share. Long-term, income-seeking accounts should find comfort in the company's long-standing track record of dividend hikes, but at recent levels, the annual yield of 1.8% (slightly below market average: 2.0%) pales in comparison to most of its peers in the water utility industry.

Massive infrastructure investments over the next few years are still on the docket. Leading up to the 2020-2022 time frame, we expect SJW to spend roughly $300 million to revamp its plant and water systems. This ought to improve production efficiency and help curb operating expenses.

There is little to like here at the moment. The stock is unfavorably ranked for Timeliness (4), and capital gains potential 3 to 5 years out is subpar.

Nicholas P. Patrikis *April 14, 2017*

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

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

YORK WATER NDQ-YORW

RECENT PRICE 34.70 | P/E RATIO 34.7 (Trailing: 37.7 Median: 24.0) | RELATIVE P/E RATIO 1.77 | DIV'D YLD 1.8% | VALUE LINE

TIMELINESS 5 Lowered 3/17/17
SAFETY 3 Lowered 7/17/15
TECHNICAL 2 Raised 4/14/17
BETA .75 (1.00 = Market)

2020-22 PROJECTIONS

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

Insider Decisions

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

Institutional Decisions

	2Q2016	3Q2016	4Q2016
to Buy	44	37	46
to Sell	38	36	34
Hld's(000)	4006	4033	4284

	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	4.15	Revenues per sh	5.65
	.59	.57	.65	.65	.79	.77	.86	.88	.95	1.07	1.09	1.12	1.19	1.36	1.45	1.42	1.65	1.70	"Cash Flow" per sh	2.05
	.43	.40	.47	.49	.56	.56	.57	.57	.64	.71	.71	.72	.75	.89	.97	.92	1.05	1.10	Earnings per sh A	1.40
	.34	.35	.37	.39	.42	.45	.48	.49	.51	.52	.53	.54	.55	.57	.60	.63	.66	.70	Div'd Decl'd per sh B	.90
	.75	.66	1.07	2.50	1.69	1.85	1.69	2.17	1.18	.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	9.10	9.55	Book Value per sh	11.00
	9.46	9.55	9.63	10.33	10.46	11.20	11.27	11.37	12.56	12.69	12.79	12.92	12.98	12.83	12.81	12.85	13.00	12.75	Common Shs Outst'g C	12.00
	17.8	26.9	24.5	25.7	26.3	31.2	30.3	24.6	21.9	20.7	23.9	24.4	26.3	23.1	23.5	32.8	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	22.5
	.91	1.47	1.40	1.36	1.40	1.68	1.61	1.48	1.46	1.32	1.50	1.55	1.48	1.22	1.18	1.72			Relative P/E Ratio	1.40
	4.4%	3.3%	3.2%	3.1%	2.9%	2.5%	2.8%	3.5%	3.6%	3.5%	3.1%	3.1%	2.8%	2.8%	2.6%	2.1%			Avg Ann'l Div'd Yield	2.8%
							31.4	32.8	37.0	39.0	40.6	41.4	42.4	45.9	47.1	47.6	51.0	53.0	Revenues ($mill)	68.0
							6.4	6.4	7.5	8.9	9.1	9.3	9.7	11.5	12.5	11.8	13.5	14.0	Net Profit ($mill)	17.0
							36.5%	36.1%	37.9%	38.5%	35.3%	37.6%	37.6%	29.8%	27.5%	31.3%	29.0%	30.0%	Income Tax Rate	32.5%
							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%	8.0%	7.5%	Return on Total Cap'l	8.0%
							9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	11.5%	11.5%	Return on Shr. Equity	12.5%
							9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	11.5%	11.5%	Return on Com Equity	12.5%
							1.7%	1.4%	1.9%	2.7%	2.5%	2.4%	2.4%	3.9%	4.4%	3.4%	4.5%	4.0%	Retained to Com Eq	4.5%
							82%	85%	78%	72%	73%	74%	74%	64%	62%	67%	63%	64%	All Div'ds to Net Prof	64%

% TOT. RETURN 3/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	17.0	20.2
3 yr.	84.3	22.0
5 yr.	128.7	78.0

Target Price Range 2020 | 2021 | 2022

CAPITAL STRUCTURE as of 12/31/16
Total Debt $84.6 mill. Due in 5 Yrs $30.5 mill.
LT Debt $84.6 mill. LT Interest $5.4 mill.
(43% of Cap'l)
Pension Assets 12/16 $35.5 mill.
Oblig. $40.8 mill.
Pfd Stock None
Common Stock 12,852,000 shs.
MARKET CAP: $450 million (Small Cap)

CURRENT POSITION ($MILL.)	2014	2015	12/31/16
Cash Assets	1.5	2.9	4.2
Accounts Receivable	4.0	3.5	4.3
Inventory (Avg. Cost)	.8	.8	.7
Other	4.9	4.6	3.4
Current Assets	11.2	11.8	12.6
Accts Payable	1.6	1.8	3.7
Debt Due	--	--	--
Other	4.3	4.4	4.5
Current Liab.	5.9	6.2	8.2

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

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	10.6	11.8	12.0	11.5	45.9
2015	11.2	11.9	12.4	11.6	47.1
2016	11.3	11.8	12.6	11.9	47.6
2017	12.0	12.5	13.5	13.0	51.0
2018	12.5	13.0	14.0	13.5	53.0

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.16	.22	.23	.28	.89
2015	.20	.22	.28	.27	.97
2016	.19	.23	.27	.23	.92
2017	.22	.25	.30	.28	1.05
2018	.23	.26	.32	.29	1.10

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

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

York Water's 2016 bottom line was dragged down by several factors. These included higher income taxes due to fewer-than-expected asset improvements (discussed below), and higher depreciation and retirement expenses. The company registered profits of $0.92 a share for the full year, a nickel less than the like-2015 figure. The top line, however, got a boost from an increased number of customers, thanks largely to recent acquisitions, along with marginally higher billings. Revenues increased $0.5 million, year over year, to $47.6 million.

The company should benefit from IRS Tangible Property Rules going forward, as planned spending is scheduled to ramp up this year and next. York fell short of its target asset improvement volume in 2016, spending just over $1.00 a share. As a consequence, it was unable to take advantage of certain tax deductions due to the lack of eligible improvements, resulting in a higher tax bill. This probably wont be the case this year. Management is guiding investments of approximately $23 million and $16 million in 2017 and 2018, respectively, which should help reduce income taxes. Spending will likely be allocated towards completion of a new untreated water pumping station, beginning a dam upgrade project, as well as general improvements to pipes and facilities that support its expanding customer base.

We are leaving intact our 2017 top- and bottom-line estimates. The recent close of West York Borough wastewater ought to supplement revenue growth. Meanwhile, the abovementioned tax benefits augur well for a rebound in share net.

The valuation is still a bit stretched. Shares of the water utility declined about 10% in price since our January review, as investors digested yearend results. But despite the pullback, YORW shares remain fairly expensive, trading more than 34.0x our 12-month forward-looking earnings-per-share forecast. There is little to be excited about over the long haul, too. Much of the gains we foresee over the 3- to 5-year horizon are already reflected in the stock price. Thus, we continue to advise investors to exercise patience and wait for a more-attractive entry point.

Nicholas P. Patrikis *April 14, 2017*

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

Company's Financial Strength	B+
Stock's Price Stability	75
Price Growth Persistence	55
Earnings Predictability	95

CASE: UW 169
WITNESS: MATT MULDOON

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 307

Exhibits in Support
Of Opening Testimony

July 7, 2017

Staff Exhibit 307 is confidential and is subject to

Protective Order No. 17-184.