



DEPARTMENT OF THE NAVY
OFFICE OF THE GENERAL COUNSEL
NAVY LITIGATION OFFICE
720 KENNON STREET SE RM 233
WASHINGTON NAVY YARD DC 20374-5013

December 7, 2012

Sent Federal Express w/electronic copy to:

Luly Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

In Re: City of Newport, Utilities Department, Water Division
Docket No. 4355

Dear Ms. Massaro:

Enclosed please find the original and nine copies of the Direct Testimony of Brian C. Collins on behalf of the Department of the Navy in the above-referenced case, Docket No. 4355. An electronic copy of this testimony has been sent to each individual on the service list.

Sincerely,

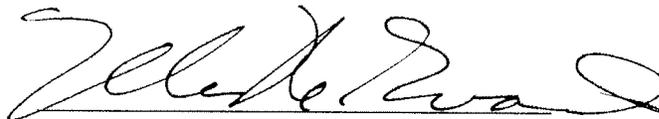
A handwritten signature in cursive script, appearing to read "Ellen M. Evans", is written over a light blue horizontal line.

Ellen M. Evans
Counsel for the Navy and FEA

cc: Electronic Service List

Certificate of Service

I hereby certify that I have caused to be sent by electronic mail, a copy of the direct testimony of Brian C. Collins on behalf of the Department of the Navy, to the attached Service List for Docket No. 4355, on the 7th day of December, 2012.

A handwritten signature in black ink, appearing to read "Ellen M. Evans", written in a cursive style.

Ellen M. Evans

Parties/Address	E-mail Distribution	Phone
Joseph A. Keough, Jr., Esq. Keough & Sweeney 41 Mendon Avenue Pawtucket, RI 02861	jkeoughjr@keoughsweeney.com	401-724-3600
Julia Forgue, Director of Public Works Newport Water Department 70 Halsey Street Newport, RI 02840	jforgue@cityofnewport.com	401-845-5601
	crussell@cityofnewport.com	
	lsitrin@CityofNewport.com	
Karen Lyons, Esq. Dept. of Attorney General 150 South Main Street Providence, RI 02903	klyons@riag.ri.gov	401-222-2424
	sscialabba@ripuc.state.ri.us	
	psmith@ripuc.state.ri.us	
	dmacrae@riag.ri.gov	
	jmunoz@riag.ri.gov	
Harold Smith Raftelis Financial Consulting, PA 511 East Blvd. Charlotte, NC 28203	Hsmith@raftelis.com	704-373-1199
Gerald J. Petros, Esq. Hinckley, Allen & Snyder LLP 50 Kennedy Plaza, Suite 1500 Providence, RI 02903	gpetros@haslaw.com	401-274-2000
	aramos@haslaw.com	
	jmansolf@haslaw.com	
William McGlinn Portsmouth Water & Fire District 1944 East Main Road PO Box 99 Portsmouth, RI 02871	wmcglinn@portsmouthwater.org	401-683-2090 ext. 224
Dr. Kay Davoodi, P.E. Utility Rates and Studies Office NAVFACHQ- Building 33 1322 Patterson Ave SE Washington Navy Yard, DC 20374-5065	Khojasteh.davoodi@navy.mil	202-685-3319
	Larry.r.allen@navy.mil	
Maurice Brubaker Brubaker and Associates, Inc. PO Box 412000 St. Louis, MO 63141-2000	mbrubaker@consultbai.com	401-724-3600 401-724-9909
	bcollins@consultbai.com	
Thomas S. Catlin Exeter Associates, Inc. 10480 Little Patuxent Parkway, Suite 300 Columbia, MD 21044	tcatlin@exeterassociates.com	410-992-7500
	jmierzwa@exeterassociates.com	
Christopher Woodcock Woodcock & Associates, Inc. 18 Increase Ward Drive Northborough, MA 01532	Woodcock@w-a.com	508-393-3337
File an original and nine (9) copies w/: Luly E. Massaro, Commission Clerk Public Utilities Commission 89 Jefferson Blvd. Warwick, RI 02888	lmassaro@puc.state.ri.us	401-780-2107
	cwilson@puc.state.ri.us	
	sccamara@puc.state.ri.us	

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

**BEFORE THE
RHODE ISLAND PUBLIC UTILITIES COMMISSION**

_____)
Application to Change Rates)
Based on Cost of Service Study)
Which Reflects the Second Phase)
of Multi-Year Rate Plan to Collect)
Additional Debt Service Revenue)
Requirement of Approximately)
\$1,986,710 or 15.5%)
_____)

Docket No. 4355

Direct Testimony and Schedule of

Brian C. Collins

On behalf of

The United States Department of the Navy

December 7, 2012



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

**BEFORE THE
RHODE ISLAND PUBLIC UTILITIES COMMISSION**

Application to Change Rates)	
Based on Cost of Service Study)	
Which Reflects the Second Phase)	
of Multi-Year Rate Plan to Collect)	Docket No. 4355
Additional Debt Service Revenue)	
Requirement of Approximately)	
\$1,986,710 or 15.5%)	

Direct Testimony of Brian C. Collins

1 **Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A Brian C. Collins. My business address is 16690 Swingley Ridge Road, Suite 140,
3 Chesterfield, MO 63017.

4 **Q WHAT IS YOUR OCCUPATION?**

5 A I am a consultant in the field of public utility regulation and an Associate of Brubaker
6 & Associates, Inc., energy, economic and regulatory consultants.

7 **Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

8 A This information is included in Appendix A to my testimony.

9 **Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?**

10 A I have been asked to testify on behalf of the United States Department of the Navy
11 ("Navy"). Naval Station Newport in Newport, Rhode Island purchases large volumes
12 of water from the Water Division of the City of Newport ("Newport Water"). Thus, the

1 Navy has a direct economic interest in how the cost of providing water service to it is
2 determined.

3 **Q WHAT IS THE SUBJECT OF YOUR TESTIMONY?**

4 A In my testimony, I will respond to the direct testimony of Mr. Harold Smith of Raftelis
5 Financial Consultants, Inc. ("RFC") on behalf of Newport Water. Specifically, I will
6 address Newport Water's 2012 demand study, which was used in conjunction with
7 the 2011 demand study, to determine the class demand factors utilized in the
8 proposed class cost of service study. I will also address Newport Water's proposed
9 cost allocation method for water treatment capital costs.

10 My silence on any aspect of Newport Water's proposals in this case should
11 not be taken as agreement with or an endorsement of those proposals.

12 **Q PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

13 A My recommendations are as follows:

- 14 1. With respect to Newport Water's 2012 demand study, I recommend
15 removal of usage associated with Navy's hydrant flushing program from
16 the Company's 2012 demand study.
- 17 2. With respect to Newport Water's proposed allocation of treatment capital
18 costs, I recommend that cost allocation to classes be based on the class
19 actual demands per the Docket 4128 Settlement Agreement Cost of
20 Service Study and not on class projected demands as proposed by
21 Newport Water.

1 **Demand Study**

2 **Q HAS NEWPORT WATER PERFORMED A DEMAND STUDY IN CONJUNCTION**
3 **WITH ITS PROPOSED COST OF SERVICE STUDY?**

4 A Yes. As described in Mr. Smith's September 7, 2012 testimony at page 11, Newport
5 Water conducted a demand study in conjunction with its cost of service study.
6 According to Mr. Smith's testimony, the demand study involved the collection and
7 analysis of customer demand data that allowed Newport Water to draw conclusions
8 about the way specific customer classes demand service. Newport Water has
9 completed two demand studies, one for 2011 and one for 2012.

10 **Q HOW DID NEWPORT WATER COLLECT DEMAND DATA FROM ITS**
11 **CUSTOMERS FOR COMPLETING ITS DEMAND STUDIES?**

12 A For both the 2011 and 2012 demand studies, Newport Water collected daily demand
13 data from wholesale customers (Navy and Portsmouth Water & Fire District) as well
14 as from sample accounts randomly selected from the residential and commercial
15 classes and compiled annual demand data for all classes from the utility billing
16 system.

17 **Q HOW DID NEWPORT WATER DEVELOP DEMAND FACTORS FROM ITS 2012**
18 **AND 2011 DEMAND STUDIES USED IN ITS PROPOSED COST OF SERVICE**
19 **STUDY?**

20 A As explained by Mr. Smith at page 14 of his September 7, 2012 testimony, for each
21 demand study, the demand factors were calculated from the daily data collected from
22 the sample customer accounts and the annual demand data compiled for the same
23 sample accounts from the utility billing system. The daily data is used to identify peak

1 day demand for each class and the annual data is used to determine annual average
2 day demand for each class. The demand factors are determined by comparing the
3 peak day demand for each class to average day demand for each class. The 2012
4 demand factors were then averaged with the 2011 demand factors to determine
5 composite demand factors which were used for cost allocation in Newport Water's
6 proposed cost of service study.

7 **Q HAVE YOU REVIEWED NEWPORT WATER'S DEMAND STUDIES?**

8 A Yes, I have. I will specifically address the 2012 demand study. Newport Water
9 conducted the 2012 demand study for the period June 1 through September 30,
10 2012. Mr. Smith emailed the electronic version of the 2012 demand study to Navy
11 and other parties on October 30, 2012.

12 **Q DO YOU HAVE ANY COMMENTS ON THE 2012 DEMAND STUDY DATA?**

13 A Yes, I do. In my review of the electronic version of the 2012 demand study provided
14 to the parties, the Summary Data tab of the demand study contains the daily
15 demands of each class in columns B – DS for the study period. It should be noted
16 that columns B – DS were hidden in the spreadsheet, presumably for ease of
17 presentation. In my review, I noticed in the hidden cells that Newport Water
18 highlighted each class's maximum day during the study period, including Navy's
19 maximum day demand, in orange. Newport Water indicated Navy's maximum day
20 date is August 7, 2012 as shown in cell DV9 and Navy's maximum day usage is
21 777,210 gallons on August 7, 2012, which is contained in cell BQ9 of the Summary
22 Data tab.

1 **Q WAS NAVY’S HIGHLIGHTED MAXIMUM DAY USAGE USED IN CALCULATING**
2 **NAVY’S DEMAND FACTOR FOR 2012?**

3 A No, it was not. Despite Newport Water highlighting Navy’s maximum day usage of
4 777,210 gallons and indicating that the maximum day usage occurred on August 7,
5 2012 in the Summary Data tab of the 2012 Demand Study, Newport Water utilized
6 Navy usage of 1,213,663 gallons for calculating Navy’s 2012 maximum day demand
7 factor. The result of Newport Water using the higher usage in the calculation of the
8 demand factor for Navy is that the maximum day demand factor will be higher than it
9 otherwise should be. The end result is that more costs are allocated to Navy than
10 otherwise would be if the correct maximum day usage is included in the demand
11 factor calculation.

12 **Q WHEN DID NAVY’S USAGE OF 1,213,663 GALLONS OCCUR?**

13 A This usage occurred on September 25, 2012. Navy personnel indicated that this
14 day’s usage was impacted by Navy’s hydrant flushing program.

15 **Q DO YOU HAVE ANY EXPLANATION AS TO WHY NEWPORT WATER WOULD**
16 **HIGHLIGHT NAVY’S MAXIMUM DAY AS AUGUST 7, 2012 YET THEN UTILIZE**
17 **USAGE ON SEPTEMBER 25, 2012 TO CALCULATE NAVY’S DEMAND FACTOR?**

18 A Other than to allocate more costs to Navy, I do not.

1 **Q WHY IS IT IMPORTANT THAT NAVY HAS A HYDRANT FLUSHING PROGRAM?**

2 A Hydrant flushing programs are used as preventative maintenance to remove
3 sediment that has accumulated in water lines and improves water quality. The
4 program also allows a check of water pressure to ensure that a water system is
5 functioning properly.

6 **Q IS IT APPROPRIATE TO INCLUDE NAVY USAGE IMPACTED BY HYDRANT
7 FLUSHING IN CALCULATING NAVY'S DEMAND FACTOR?**

8 A No, it is not. Hydrant flushing is a controlled customer behavior and is not indicative
9 of Navy's normal operations during the peak period and does not contribute to
10 Newport Water's maximum system peak. As a result, any Navy usage including
11 hydrant flushing used in Navy's demand factor calculations will not be indicative of
12 Navy's cost of service during the peak demand period.

13 **Q DID NAVY NOTIFY NEWPORT WATER OF ITS HYDRANT FLUSHING
14 PROGRAM?**

15 A Yes. It is my understanding that on September 14, 2012, Navy notified Newport
16 Water via email that it intended to start its hydrant flushing program on September 24,
17 2012.

18 **Q DID NEWPORT WATER ACKNOWLEDGE NAVY'S HYDRANT FLUSHING
19 PROGRAM?**

20 A Not to my knowledge. In fact, according to Newport Water's response to Navy 1-1,
21 Newport Water states:

22 "Newport's consultant was not aware that the consumption recorded at
23 the Fort Adams meter on 9/25/12 was the result of scheduled flushing."

1 **Q SINCE IT WAS COLLECTING DATA FOR ITS 2012 CUSTOMER DEMAND STUDY**
2 **THROUGH SEPTEMBER 30, 2012, DID NEWPORT WATER RECOMMEND NAVY**
3 **DELAY ITS HYDRANT FLUSHING PROGRAM UNTIL AFTER THAT DATE?**

4 A Not to my knowledge.

5 **Q WOULD THIS HAVE BEEN AN APPROPRIATE RESPONSE BY NEWPORT**
6 **WATER TO NAVY'S NOTICE OF SCHEDULED HYDRANT FLUSHING?**

7 A In my opinion, it would have been. The purpose of the demand factor study is for the
8 utility to gain an understanding of typical customer demands reflective of normal
9 operations during the peak period of water consumption. A hydrant flushing program
10 is controlled customer usage. Including Navy's hydrant flushing program usage in
11 Newport Water's demand study conducted during the peak period is not reflective of
12 normal Navy peak period operations and should not be used in determining Navy's
13 demand factor.

14 **Q DO YOU HAVE ANY FURTHER COMMENTS ON NEWPORT WATER'S FAILURE**
15 **TO ACKNOWLEDGE NAVY'S HYDRANT FLUSHING PROGRAM?**

16 A Yes. A utility has the responsibility to efficiently utilize its assets, especially during the
17 period of time it considers to be its peak demand period. If Newport Water considers
18 the period of June 1, 2012 to September 30, 2012 as its peak period of water usage,
19 it is my opinion that it should cooperate with customers and encourage them to
20 conduct hydrant flushing programs outside of the peak demand period for water
21 consumption.

1 **Q IS NAVY WILLING TO CONDUCT ITS HYDRANT FLUSHING PROGRAM**
2 **OUTSIDE OF NEWPORT WATER'S PEAK DEMAND PERIOD?**

3 A Yes. It is my understanding that Navy is willing to cooperate with Newport Water to
4 ensure that its hydrant flushing program occurs after October 1 each year. This
5 commitment by Navy will ensure that the removal of Navy's hydrant flushing usage
6 from Newport Water's demand study will reflect typical Navy operations during
7 Newport Water's peak demand period.

8 **Q DO YOU HAVE ANY ADDITIONAL COMMENTS WITH RESPECT TO NEWPORT**
9 **WATER'S DATA COLLECTION PERIOD FOR ITS DEMAND STUDIES?**

10 A Yes. In Docket 4128, the data collection period for the demand study performed in
11 conjunction with the cost of service study was from June 1 to September 15, 2010.
12 The collection periods for the 2011 and 2012 demand studies ended September 30.
13 To ensure the 2011 and 2012 demand studies are consistent with Exhibit A of the
14 Settlement Agreement in Docket 4128, the data collection periods should have ended
15 September 15, consistent with the 2010 demand study collection period. This is
16 another reason why usage related to Navy's hydrant flushing program on
17 September 25, 2012 should not be included in the calculation of Navy's demand
18 factors for 2012.

19 **Q WHAT IS THE IMPACT OF YOUR RECOMMENDATION TO REMOVE NAVY'S**
20 **HYDRANT FLUSHING USAGE FROM NEWPORT WATER'S DEMAND STUDY?**

21 A Removal of Navy's September 25, 2012 hydrant flushing usage results in a maximum
22 day usage of 777,210 gallons occurring on August 7, 2012. This is consistent with
23 Newport Water's finding in the Summary Data tab of Newport Water's electronic

1 version of its demand study that Navy's maximum day usage occurred on August 7,
2 2012.

3 **Q WHAT IS THE IMPACT OF YOUR RECOMMENDATION OF NAVY'S 2012**
4 **MAXIMUM DAY USAGE OF 777,210 GALLONS ON NAVY'S 2012 DEMAND**
5 **FACTORS?**

6 A Navy's 2012 maximum day demand factor is reduced from 1.97 to 1.26.

7 **Q WHAT IS THE IMPACT OF YOUR RECOMMENDATION FOR NAVY'S 2012**
8 **DEMAND FACTOR ON NAVY'S COST OF SERVICE?**

9 A The impact of my recommendation is that Navy's annual cost of service is reduced by
10 \$40,628.

11 **Cost of Service Study – Allocation of Treatment Capital Costs**

12 **Q DOES MR. SMITH DEFINE THE CAPITAL COSTS ALLOCATED IN THE COST OF**
13 **SERVICE STUDY?**

14 A Yes, he does. At page 22 of his testimony, Mr. Smith states that Newport Water's
15 capital costs consist of two components: (1) contributions to the capital spending
16 restricted account for cash funded capital projects, and (2) contribution to the debt
17 service restricted account for capital projects financed with borrowed funds.

18 **Q DOES MR. SMITH DESCRIBE HOW THE CAPITAL COSTS ARE ALLOCATED IN**
19 **THE COST OF SERVICE STUDY?**

20 A Yes, he does. Newport first assigned these costs to Base/Extra Capacity categories.
21 According to Mr. Smith's September 7, 2012 testimony at pages 22-23, capital costs

1 are allocated using the same allocation factors as the corresponding operation and
2 maintenance (“O&M”) costs but capital costs assigned to the treatment categories are
3 allocated differently.

4 **Q HOW DOES MR. SMITH ALLOCATE TREATMENT CAPITAL COSTS IN THE**
5 **COST OF SERVICE STUDY?**

6 A According to Mr. Smith, treatment capital costs are allocated directly to each
7 customer class based on each class’s proportionate share of average day and peak
8 day treatment capacity that will be available when the treatment plant projects are
9 complete. Mr. Smith further states that each class’s share of treatment capacity is
10 based on their 20-year projected average day and peak day demands used in the
11 design of the plants. In other words, Mr. Smith has allocated treatment capital costs
12 based on Newport Water’s forecasted demands for each class.

13 **Q IS IT APPROPRIATE TO USE FORECASTED CLASS DEMAND PROJECTIONS**
14 **TO ALLOCATE WATER TREATMENT CAPITAL COSTS TO CLASSES?**

15 A No, it is not.

16 **Q WHY NOT?**

17 A Forecasted long-term class demands are appropriate to size the assets that are
18 necessary to provide water service, such as water treatment plants. However, in
19 allocating the costs of these assets to classes, actual historical usage should be
20 used. For allocating the capital costs of water treatment plants, historical class
21 consumptions should be used to calculate the appropriate class base and maximum
22 day allocation factors for allocating the capital costs. This will ensure that each class

1 pays for the water treatment plant capital costs based on how each class actually
2 utilizes the asset.

3 **Q IS NEWPORT WATER'S PROPOSAL CONSISTENT WITH THE SETTLEMENT**
4 **AGREEMENT COST OF SERVICE STUDY IN DOCKET 4128?**

5 A No, it is not. In Docket 4128, Newport Water utilized historical base and maximum
6 day characteristics for each class to allocate treatment capital costs to the classes.
7 Newport Water's proposal in the instant case is a significant change and inconsistent
8 with the allocation of treatment capital costs contained in the cost of service study
9 agreed to by all parties in Docket 4128. (Docket No. 4128 – Settlement Agreement,
10 Exhibit B, pages 14 and 24.)

11 **Q WHAT IS YOUR RECOMMENDATION WITH RESPECT TO THE ALLOCATION OF**
12 **TREATMENT CAPITAL COSTS?**

13 A My recommendation is to allocate treatment capital costs to all classes based on the
14 allocation agreed to in the cost of service study in Docket 4128.

15 **Q WHAT IS THE IMPACT OF YOUR RECOMMENDATION ON NAVY'S COST OF**
16 **SERVICE?**

17 A My recommendation reduces Navy's allocated cost of service by \$119,178.

1 A summary of my adjustments to Navy's allocated cost of service is included
2 in Table 1 below:

TABLE 1	
<u>Summary of Recommended Adjustments to Navy's Allocated Cost of Service</u>	
<u>Description</u>	<u>Total Company</u>
Newport Water Proposed Cost of Service for Navy	\$1,036,415
Adjustment for Removal of Navy Hydrant Flushing Usage in 2012 Demand Study	\$(40,628)
Adjustment for Allocation of Treatment Capital Costs	<u>\$(119,178)</u>
Adjusted Navy Cost of Service	\$876,609

3 **Q HAVE YOU PREPARED AN EXHIBIT SHOWING THE RESULTS OF THE COST**
4 **OF SERVICE STUDY MODIFIED BY BOTH OF YOUR ADJUSTMENTS?**

5 A Yes. BCC Schedule 1, page 1, contains the allocated costs for each class as a result
6 of my adjustments to Newport Water's cost of service study. For comparison, I have
7 included Newport Water's cost of service study results as page 2 of my schedule.

8 **Q DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

9 A Yes, it does.

Qualifications of Brian C. Collins

1 **Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A Brian C. Collins. My business address is 16690 Swingley Ridge Road, Suite 140,
3 Chesterfield, MO 63017.

4 **Q WHAT IS YOUR OCCUPATION AND BY WHOM ARE YOU EMPLOYED?**

5 A I am an Associate in the field of public utility regulation with the firm of Brubaker &
6 Associates, Inc. ("BAI"), energy, economic and regulatory consultants.

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

8 A I graduated from Southern Illinois University Carbondale with a Bachelor of Science
9 degree in Electrical Engineering. I also graduated from the University of Illinois at
10 Springfield with a Master of Business Administration degree. Prior to joining BAI, I
11 was employed by the Illinois Commerce Commission and City Water Light & Power
12 ("CWLP") in Springfield, Illinois.

13 My responsibilities at the Illinois Commerce Commission included the review
14 of the prudence of utilities' fuel costs in fuel adjustment reconciliation cases before
15 the Commission as well as the review of utilities' requests for certificates of public
16 convenience and necessity for new electric transmission lines. My responsibilities at
17 CWLP included generation and transmission system planning. While at CWLP, I
18 completed several thermal and voltage studies in support of CWLP's operating and
19 planning decisions. I also performed duties for CWLP's Operations Department,
20 including calculating CWLP's monthly cost of production. I also determined CWLP's

1 allocation of wholesale purchased power costs to retail and wholesale customers for
2 use in the monthly fuel adjustment.

3 In June 2001, I joined BAI as a Consultant. Since that time, I have
4 participated in the analysis of various utility rate and other matters in several states
5 and before FERC. I have filed or presented testimony before the Florida Public
6 Service Commission, the Idaho Public Utilities Commission, the Illinois Commerce
7 Commission, the Indiana Utility Regulatory Commission, the Minnesota Public Utilities
8 Commission, the Missouri Public Service Commission, and the Public Service
9 Commission of Wisconsin. I have also assisted in the analysis of transmission line
10 routes proposed in certificate of convenience and necessity proceedings before the
11 Public Utility Commission of Texas.

12 In 2009, I completed the University of Wisconsin – Madison High Voltage
13 Direct Current (“HVDC”) Transmission Course for Planners that was sponsored by
14 the Midwest Independent Transmission System Operator, Inc. (“MISO”).

15 BAI was formed in April 1995. BAI and its predecessor firm has participated in
16 more than 700 regulatory proceeding in forty states and Canada.

17 BAI provides consulting services in the economic, technical, accounting, and
18 financial aspects of public utility rates and in the acquisition of utility and energy
19 services through RFPs and negotiations, in both regulated and unregulated markets.
20 Our clients include large industrial and institutional customers, some utilities and, on
21 occasion, state regulatory agencies. We also prepare special studies and reports,
22 forecasts, surveys and siting studies, and present seminars on utility-related issues.

23 In general, we are engaged in energy and regulatory consulting, economic
24 analysis and contract negotiation. In addition to our main office in St. Louis, the firm
25 also has branch offices in Phoenix, Arizona and Corpus Christi, Texas.

ALLOCATION PERCENTAGES		Commodity Charges						Total % Allocated
		Base Charge	Retail		Navy	Portsmouth	Fire	
Allocation Basis	Residential		Non-Residential					
Base	Average annual demand	41%	32%	9%	18%	0%	100%	
Base Excluding PWFD		50%	40%	10%	0%	0%	100%	
Base Excluding PWFD & 50% Navy		53%	42%	6%	0%	0%	100%	
Water Quality Protection Fees		56%	44%	0%	0%	0%	100%	
Total Base to Class		43%	34%	8%	14%	0%	100%	
Max Day	Estimated customer peaking factors	28%	35%	3%	15%	19%	100%	
Base Excluding PWFD		34%	41%	3%	0%	22%	100%	
Max Day Excluding PWFD & 50% Navy		34%	42%	2%	0%	23%	100%	
Total Max Day to Class		32%	39%	2%	7%	21%	100%	
Max Hour	Estimated customer peaking factors	17%	25%	3%	8%	46%	100%	
Base Excluding PWFD		19%	28%	3%	0%	51%	100%	
Max Hour Excluding PWFD & 50% Navy		19%	28%	2%	0%	51%	100%	
Total Max Hour to Class		19%	28%	2%	0%	51%	100%	
Metering	Direct Assignment	100%					100%	
Billing	Direct Assignment	100%					100%	
Services	Direct Assignment	100%					100%	
Fire	Direct Assignment					100%	100%	
Treatment Plant Avg. Day	Base	41%	32%	9%	18%		100%	
Treatment Plant Max. Day	Max Day	28%	35%	3%	15%	19%	100%	

ALLOCATION RESULTS		Commodity Charges						Total \$ Allocated
		Rate Year	Base Charge	Retail		Navy	Portsmouth	
	Residential			Commercial				
Base								
Base excluding T&D&WQPF & Pumping	5,421,435	2,214,692	1,756,083	465,762	984,898		5,421,435	
Transmission & Distribution	1,426,897	751,759	596,088	79,050	-		1,426,897	
Pumping	30,213	15,082	11,959	3,172	-		30,213	
Water Quality Protection Fees	(22,500)	(12,549)	(9,951)	-	-		(22,500)	
Revenue Offsets	(179,280)	(77,709)	(61,618)	(14,282)	(25,670)		(179,280)	
Administrative Charges	1,469,535	636,976	505,074	117,071	210,414		1,469,535	
Max Day								
Max Day Except T&D & Pumping	691,440	196,520	239,999	19,031	105,177	130,713	691,440	
Transmission & Distribution	868,327	295,872	361,333	14,326	-	196,796	868,327	
Pumping	40,433	13,553	16,552	1,313	-	9,015	40,433	
Revenue Offsets	(52,699)	(16,662)	(20,349)	(1,142)	(3,464)	(11,083)	(52,699)	
Administrative Charges	480,775	152,010	185,641	10,416	31,600	101,108	480,775	
Max Hour								
Max Hr. Except T&D & Pumping	-	-	-	-	-	-	-	
Transmission & Distribution	258,611	49,206	72,769	3,916	-	132,720	258,611	
Pumping	12,042	2,257	3,338	359	-	6,088	12,042	
Revenue Offsets	(5,319)	(1,011)	(1,496)	(84)	-	(2,728)	(5,319)	
Administrative Charges	48,041	9,135	13,509	759	-	24,638	48,041	
Metering	299,061	299,061	-	-	-	-	299,061	
Revenue Offsets	(234,118)	(234,118)					(234,118)	
Administrative Charges	117,872	117,872					117,872	
Services	115,652	115,652					115,652	
Revenue Offsets	(4,695)	(4,695)					(4,695)	
Administrative Charges	37,747	37,747					37,747	
Billing	481,147	481,147					481,147	
Revenue Offsets	(233,975)	(233,975)					(233,975)	
Administrative Charges	163,328	163,328					163,328	
Fire	73,619					73,619	73,619	
Revenue Offsets	(2,444)					(2,444)	(2,444)	
Administrative Charges	13,315					13,315	13,315	
Treatment Plant Capital Costs								
Treatment Plant Avg. Day	1,723,560	704,086	558,287	148,073	313,115	-	1,723,560	
Treatment Plant Max. Day	1,048,859	298,105	364,060	28,868	159,544	198,282	1,048,859	
Total To Recover through Rates	\$ 14,086,881	\$ 742,019	\$ 5,231,321	\$ 4,591,279	\$ 876,609	\$ 1,775,613	\$ 870,039	\$ 14,086,881

COST OF SERVICE PER UNIT	Metering						Total
	(1)	(2)	(2)	(2)	(2)	(3)	
Description of Billing Units	equivalent meters x 12 months	1000's of gallons annually	Equivalent Connections				
Percentage of Dollars Allocated	1.3%	37.1%	32.6%	6.2%	12.6%	5.6%	100.0%
Allocated Cost	\$ 182,815	\$ 5,231,321	\$ 4,591,279	\$ 876,609	\$ 1,775,613	\$ 785,549	\$ 14,086,881
Divided by: Number of Units	207,132	630,132	499,647	178,971	428,519	161,036	
Unit Cost of Service	\$0.8826	\$8.30	\$9.19	\$4.90	\$4.14	\$4.88	
	per equiv per month	per 1000 gallons	per 1000 gallons	per 1000 gallons	per 1000 gallons	Equivalent connections	

Description of Billing Units	Billing		Services		Hydrants	
	No. of bills per year	Equivalent Connections	No. of Hydrants			
Percentage of Dollars Allocated	2.9%	1.1%	0.6%			
Allocated Cost	\$ 410,500	\$ 148,705	\$ 84,490			
Divided by: Number of Units	65,094	275,639	1,036			
Unit Cost of Service	\$6.3063	\$0.5395	\$81.5540			
	per bill	per equiv	per Hydrant			

(1) From HJS Schedule D-1 Update, 'Water Accounts, by Size and Class'.
 (2) From HJS Schedule B-6 Update, 'Water Demand History'.
 (3) From HJS Schedule D-2 Update, 'Fire Protection Accounts'.

ALLOCATION PERCENTAGES		Commodity Charges						Total % Allocated
		Base Charge	Retail		Navy	Portsmouth	Fire	
Allocation Basis	Residential		Non-Residential					
Base	Average annual demand		41%	32%	9%	18%	0%	100%
Base Excluding PWFD			50%	40%	10%	0%	0%	100%
Base Excluding PWFD & 50% Navy			53%	42%	6%	0%	0%	100%
Water Quality Protection Fees			56%	44%	0%	0%	0%	100%
Total Base to Class			43%	34%	8%	14%	0%	100%
Max Day	Estimated customer peaking factors		28%	34%	5%	15%	18%	100%
Base Excluding PWFD			33%	40%	6%	0%	22%	100%
Max Day Excluding PWFD & 50% Navy			34%	41%	3%	0%	22%	100%
Total Max Day to Class			31%	38%	4%	6%	21%	100%
Max Hour	Estimated customer peaking factors		17%	25%	3%	8%	46%	100%
Base Excluding PWFD			19%	28%	4%	0%	50%	100%
Max Hour Excluding PWFD & 50% Navy			19%	28%	2%	0%	51%	100%
Total Max Hour to Class			19%	28%	2%	0%	51%	100%
Metering	Direct Assignment	100%						100%
Billing	Direct Assignment	100%						100%
Services	Direct Assignment	100%						100%
Fire	Direct Assignment						100%	100%
Treatment Plant Avg. Day	Assured Capacity		38%	30%	12%	21%		100%
Treatment Plant Max. Day	Assured Capacity		32%	32%	9%	19%	9%	100%

ALLOCATION RESULTS		Commodity Charges						Total \$ Allocated
		Rate Year	Base Charge	Retail		Navy	Portsmouth	
	Residential			Commercial				
Base								
Base excluding T&D&WQPF & Pumping	5,421,435	2,214,692	1,756,083	465,762	984,898			5,421,435
Transmission & Distribution	1,426,897	751,759	596,088	79,050	-			1,426,897
Pumping	30,213	15,082	11,959	3,172	-			30,213
Water Quality Protection Fees	(22,500)	(12,549)	(9,951)	-	-			(22,500)
Revenue Offsets	(179,280)	(77,709)	(61,618)	(14,282)	(25,670)			(179,280)
Administrative Charges	1,469,535	636,976	505,074	117,071	210,414			1,469,535
Max Day								
Max Day Except T&D & Pumping	691,440	191,578	233,964	35,941	102,531	127,426		691,440
Transmission & Distribution	868,327	291,367	355,830	27,331	-	193,799		868,327
Pumping	40,433	13,153	16,063	2,468	-	8,749		40,433
Revenue Offsets	(52,699)	(16,338)	(19,953)	(2,165)	(3,377)	(10,867)		(52,699)
Administrative Charges	480,775	149,051	182,028	19,751	30,805	99,140		480,775
Max Hour								
Max Hr. Except T&D & Pumping	-	-	-	-	-	-		-
Transmission & Distribution	258,611	49,015	72,487	4,903	-	132,205		258,611
Pumping	12,042	2,240	3,313	448	-	6,041		12,042
Revenue Offsets	(5,319)	(1,007)	(1,490)	(105)	-	(2,717)		(5,319)
Administrative Charges	48,041	9,098	13,455	950	-	24,539		48,041
Metering	299,061	299,061	-	-	-	-		299,061
Revenue Offsets	(234,118)	(234,118)						(234,118)
Administrative Charges	117,872	117,872						117,872
Services	115,652	115,652						115,652
Revenue Offsets	(4,695)	(4,695)						(4,695)
Administrative Charges	37,747	37,747						37,747
Billing	481,147	481,147						481,147
Revenue Offsets	(233,975)	(233,975)						(233,975)
Administrative Charges	163,328	163,328						163,328
Fire	73,619					73,619		73,619
Revenue Offsets	(2,444)					(2,444)		(2,444)
Administrative Charges	13,315					13,315		13,315
Treatment Plant Capital Costs								
Treatment Plant Avg. Day	1,723,560	650,087	515,470	204,673	353,330	-		1,723,560
Treatment Plant Max. Day	1,048,859	335,540	330,813	91,447	196,661	94,397		1,048,859
Total To Recover through Rates	\$ 14,086,881	\$ 742,019	\$ 5,202,035	\$ 4,499,616	\$ 1,036,415	\$ 1,849,593	\$ 757,203	\$ 14,086,881

COST OF SERVICE PER UNIT	Metering						Total
	(1)	(2)	(2)	(2)	(2)	(3)	
Description of Billing Units	equivalent meters x 12 months	1000's of gallons annually	Equivalent Connections				
Percentage of Dollars Allocated	1.3%	36.9%	31.9%	7.4%	13.1%	4.8%	100.0%
Allocated Cost	\$ 182,815	\$ 5,202,035	\$ 4,499,616	\$ 1,036,415	\$ 1,849,593	\$ 672,714	\$ 14,086,881
Divided by: Number of Units	207,132	630,132	499,647	178,971	428,519	161,036	
Unit Cost of Service	\$0.8826	\$8.26	\$9.01	\$5.79	\$4.32	\$4.18	
	per equiv per month	per 1000 gallons	per 1000 gallons	per 1000 gallons	per 1000 gallons	Equivalent connections	

Description of Billing Units	Billing		Services		Hydrants	
	No. of bills per year	Equivalent Connections	No. of Hydrants			
Percentage of Dollars Allocated	2.9%	1.1%	0.6%			
Allocated Cost	\$ 410,500	\$ 148,705	\$ 84,490			
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Unit Cost of Service	\$6.3063	\$0.5395	\$81.5540			
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(1)

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