



October 17, 2018

The Hon. Jorge O. Elorza  
Mayor

Ricky Caruolo  
General Manager

Mrs. Luly Massaro, Clerk  
Public Utilities Commission  
89 Jefferson Boulevard  
Warwick, RI 02888

RE: Docket 4618 – Revenue Reserve Supplemental Filing Request

---

**BOARD OF DIRECTORS**

Xaykham Khamsyvoravong  
Chairperson

Joseph D. Cataldi  
Vice Chairperson

Sabina Matos  
Councilperson

Michael J. Correia  
Councilperson

Lawrence J. Mancini  
Ex-Officio

Cristen L. Raucci, Esq.  
Member

Kerri Lynn Thurber  
Member

Carissa R. Richard  
Secretary

William E. O'Gara, Esq.  
Legal Advisor

Dear Mrs. Massaro:

Enclosed for filing are an original and nine copies of Providence Water's Supplemental Filing to address comments expressed by the Commission at the May 31, 2018 open meeting regarding the transfer of funds from the Revenue Reserve Account.

Electronic copies of this filing have been sent to the service list. If you have any questions, I can be reached at 521-6300 ext.7217.

Respectfully,

  
Mary L. Deignan-White  
Senior Manager of Regulatory

cc:

Dk 4618 service list (via email)  
File

---

**MEMBER**

Rhode Island Water Works Assn.  
New England Water Works Assn.  
American Water Works Assn.  
Water Research Foundation

An EPA WaterSense Partner

**(401) 521-6300**

125 Dupont Drive  
Providence, RI 02907

**www.provwater.com**

 Follow us @provwater

 Like us at:  
facebook.com/Providencewater

i:\fin\crandata\pwshare\chalkall\regulatory & budget\2017 revenue reserve filing\lm\_support2018.docx

**SUPPLEMENTAL DIRECT TESTIMONY OF  
HAROLD J. SMITH, VICE PRESIDENT  
RAFTELIS FINANCIAL CONSULTANTS, INC.**

**for**

**PROVIDENCE WATER SUPPLY BOARD  
DOCKET # 4618**

**October 2018**

1 **INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is Harold J. Smith and my business address is, 227 W. Trade Street. Suite 1400,  
4 Charlotte, North Carolina 28202.

5  
6 **Q. Are you the same Harold Smith who submitted pre-filed direct testimony, rebuttal and**  
7 **surrebuttal testimony in support of Providence Water's application to collect additional**  
8 **revenues initially filed on May 16, 2016?**

9 A. Yes I am.

10  
11 **Q. Have you had an opportunity to review all of the documents related to Providence Water's**  
12 **request to transfer funds from the restricted revenue reserve filed on October 27, 2017?**

13 A. Yes. I have reviewed Providence Water's initial request to transfer funds, the responses of  
14 Bristol County Water Authority (BCWA) and the City of Warwick and the Division of Public  
15 Utilities and Carriers' (Division) position statement. Further I have reviewed the minutes from  
16 the Open Meeting held by the Rhode Island Public Utilities Commission (Commission) on May  
17 31, 2018.

18  
19 **Q. Please describe the purpose of your testimony.**

20 A. The purpose of my testimony is to supplement and revise the initial request submitted by  
21 Providence Water with additional context and updated information. In its Open Meeting on May  
22 31, 2018 the Commission voted to table Providence Water's request until after the fiscal year  
23 ending June 30, 2018 so that a full year of current consumption revenues could be analyzed.<sup>1</sup> I  
24 will address the historical context and Commission precedent regarding the establishment of the  
25 restricted reserve and the requirements for transfers. I will then provide testimony in support of  
26 Providence Water's current transfer request of \$5,526,671, or the entire balance in the restricted  
27 revenue reserve fund at the time the Commission approves the transfer request, whichever is less.

28  

---

<sup>1</sup> See Minutes of Open Meeting Held May 31, 2018, Item III.

**HISTORICAL CONTEXT: TRANSFER FROM RESTRICTED REVENUE RESERVE**

**Q. What Commission order is applicable to Providence Water's most recent request to transfer funds from the restricted revenue reserve?**

A. The Commission's Order No. 20160, issued on October 12, 2010, established the requirements for the 3 percent operating reserve. Of this 3 percent, 2 percent was restricted and could only be used "to cover shortfalls in allowed revenues upon a showing by Providence Water Supply Board that the shortfall resulted from reduced consumption."

**Q. Is this the first time the Commission has issued an order with this language?**

A. No. The Commission issued Order No. 19145 on December 13, 2007, which had language identical to that included in Order No. 20160.

**Q. How has the Commission handled requests to transfer funds by utilities under its jurisdiction in recent years?**

A. There are three decisions which demonstrate the Commission's handling of such requests in recent years:

1. In 2009, in Providence Water's Docket No. 3832-A, Providence Water sought to transfer \$1,565,650 from its restricted revenue reserve to the operating fund. This was the entire balance that was in the restricted fund as of June 30, 2009. The Commission allowed Providence Water to transfer \$1,933,549, because the balance in the restricted revenue reserve had increased while the case was pending (see Order No. 20159, effective on October 5, 2009). The Division submitted a memorandum recommending approval of the transfer.
2. In 2011, in an Order involving the City of Newport Water Division (Newport Water) Docket No. 4025-A, Newport Water filed a Petition seeking to recover from its restricted operating reserve allowance account a portion of a revenue shortfall. Newport Water demonstrated that its allowed revenue requirement from Docket No. 4025 was \$10,788,288 but actual revenues were only \$9,826,320. The Division supported Newport Water's request. Accordingly, the Commission approved a transfer of \$122,032, the full amount in the restricted reserve at the time (see Order No. 20387, effective on June 16, 2011)
3. In 2012, Kent County Water Authority (KCWA) asked for permission to withdraw \$607,077 from its restricted operating revenue allowance due to revenue shortfalls.

1 KCWA demonstrated that its allowed revenues were \$20,299,309, and its actual revenues  
2 were only 19,692,232, a shortfall of \$607,077. The City of Warwick objected to the  
3 transfer indicating that "KCWA did not make a showing that it attempted to cut expenses."  
4 The Division supported KCWA's recommendation and stated that "there is no requirement  
5 in the Commission's order that withdrawals from the Operating Reserve Allowance be  
6 made only after showing that a utility reduced expenses." Accordingly, the Commission  
7 approved KCWA's transfer request (see Order No. 20973, effective on January 31, 2013).  
8  
9

10 **Q. What do you observe about these decisions?**

11 A. It appears the intent of the Commission both in establishing the reserves, as well as approving  
12 the transfers, was to ensure that utilities under its jurisdiction had a dedicated source of funding to  
13 address situations where there is shortfall between the revenues approved by the Commission and  
14 actual revenues. In other words, transfers from the restricted revenue reserve are focused on  
15 revenues, not expenses.  
16

17 **Q. Only the orders related to Providence Water explicitly mention consumption as a factor**  
18 **in demonstrating the need for a transfer. Do you believe the Commission's intent for the**  
19 **restricted revenue reserve is different for Providence Water than it is for either Newport**  
20 **Water or KCWA?**

21 A. No, I do not. While consumption is not explicitly mentioned in the requirements for either  
22 Newport Water or KCWA, it is fundamental to those requirements.  
23

24 **Q. Please explain why consumption is a fundamental consideration in determining the**  
25 **necessity of the transfers.**

26 A. In the cases cited above the overarching requirement is to demonstrate that the revenues  
27 allowed by the Commission in a rate case were not ultimately realized over the period of time  
28 during which the rates were effective. The only reason actual revenues would vary significantly  
29 from allowed revenues is that the consumption which actually occurred while the rates were  
30 effective was lower than the projected consumption used to develop the approved rates.

1  
2 **Q. Is it correct that the only factor which can significantly contribute to a shortfall in allowed**  
3 **revenues, is a shortfall in consumption?**

4 A. Yes. The vast majority of revenues (both allowed, and actual) are generated from volumetric  
5 charges based on customer consumption. Allowed fixed charge revenues are—in most cases—  
6 based on the existing customer count, which does not vary significantly from year to year.  
7 Accordingly, there is no reason to expect that actual revenues observed from fixed charges will  
8 vary significantly from what was assumed when the charges were developed and approved.

9  
10 Consumption, on the other hand, does vary from year to year. Accordingly, the actual consumption  
11 observed may vary significantly from the projections used to develop the approved rates. If the  
12 projected consumption used to develop the rates is higher than what ultimately occurs, the utility  
13 will under-recover the allowed revenues.

14  
15 **Q. The Commission's past orders indicate that Providence Water must demonstrate that**  
16 **"the shortfall resulted from reduced consumption." Are there situations where a shortfall**  
17 **in revenue is unrelated to reduced consumption?**

18 A. This is not very likely. Volumetric revenues are directly related to the volumes customers  
19 purchase from Providence Water. In other words, once the rates are established, Providence Water  
20 reads customer meters, and bills the customer for every hundred cubic feet (HCF) they use. These  
21 billings are then recorded as revenues in Providence Water's financial statements. The only way  
22 for a material shortfall in revenues to occur without a shortfall in consumption would be for fixed  
23 charge revenues to decrease, which could only occur if Providence Water experienced a significant  
24 decrease in customers. Even then, a reduction in customers would most likely also result in a  
25 reduction in consumption.

26  
27 Ultimately, the intent of a revenue reserve is to account for the fact that actual consumption may  
28 vary from what was forecast in the rate case. The very existence of such a reserve is predicated  
29 on the fact that over 90 percent of Providence Water's revenues are directly related to customer  
30 volumes. The remaining revenues are generated by fixed service charges (8.5 percent) and

1 miscellaneous revenues (1.5 percent), neither of which vary significantly from year to year.  
2 Accordingly, the focus should be on a shortfall in consumption revenues, which is directly related  
3 to a reduction in consumption.

4  
5 Further, customer consumption projections are used to develop the Commission approved rates.  
6 These rates are designed to generate the revenue needed for Providence Water to continue to  
7 provide safe and reliable water service to its customers. If consumption is sufficiently related to  
8 revenue generation to make it appropriate for ratemaking, it should be similarly appropriate to use  
9 it to establish a shortfall in rate revenues.

10  
11 **Q. How did Providence Water demonstrate the need for a transfer in its previous request**  
12 **(in 2009)?**

13 A. Providence Water established the need for the transfer with two primary sets of calculations.  
14 First, actual consumption for FY 2009 was compared to the allowed consumption used to develop  
15 the rates which were in effect at the time (i.e., Docket 3832), to establish a shortfall in consumption  
16 of 9.6 percent. Second, Providence Water determined the revenue impact of the shortfall which  
17 was \$4,345,864. The revenue impact was determined by multiplying the shortfall in consumption,  
18 by customer class, by the rates in effect at the time. Note that this approach, which was approved  
19 by the Commission, focused on consumption revenues.

**REQUEST TO TRANSFER FUNDS FROM THE RESTRICTED REVENUE RESERVE**

**Q. Why is Providence Water refiling its request to transfer from the restricted revenue reserve to the operating reserve?**

A. The original request was tabled<sup>2</sup> to allow for additional analysis of the consumption shortfall under one Docket (4618) upon the completion of FY 2018.

**Q. What amount is Providence Water requesting to transfer from the restricted revenue reserve to the operating reserve?**

A. Providence Water is requesting to transfer \$5,526,671, or the entire balance in the restricted revenue reserve fund at the time the Commission approves the transfer request, whichever is less.

**Q. What is the current balance of the restricted revenue reserve?**

A. The current balance is \$5,159,437.17 as of September 30, 2018<sup>3</sup>

**Q. Would this transfer reduce the balance in the restricted revenue reserve to \$0?**

A. It would.

**Q. Would drawing the restricted revenue reserve down to \$0 pose any potential problems for Providence Water?**

A. It would not pose any issues. The intent of the reserve is to address the very issue identified in this request. Namely, situations where actual revenues are less than what was projected when water rates were established. If the reserve cannot be used for its defined purpose, then there is no reason to restrict the money in the first place.

---

<sup>2</sup> See Minutes of Open Meeting Held May 31, 2018, Item III

<sup>3</sup> Providence Water transferred \$30,176.58 per month into the restricted revenue reserve fund through June 2018. The amounts for July and August were not transferred but booked as a "due to revenue reserve fund." If they had been transferred, the balance would have been \$5,219,790.29

1 **Q. Has the Commission approved a complete drawdown of a utility's restricted revenue**  
2 **reserve in the past?**

3 A. Yes, in 2009 for Providence Water and in 2011 for Newport Water as discussed above.  
4

5 **Q. How will Providence Water continue to fund the restricted revenue reserve going**  
6 **forward?**

7 A. Providence Water will continue to fund the reserve in accordance with the applicable  
8 Commission order regarding the reserve.  
9

10 **Q. On what bases should the Commission approve this transfer?**

11 A. The Commission's most recent order requires that Providence Water demonstrate that there  
12 has been a shortfall in revenues, resulting from a reduction in consumption. In Docket 4618 the  
13 projected annual consumption used to develop the rates was 25,850,849 hundred cubic feet (HCF).  
14 In FY 2018 Providence Water's customers only consumed 24,230,740 HCF representing a  
15 consumption shortfall of 1,620,109 HCF or 6.3 percent. The revenue shortfall caused by this  
16 reduction is \$3,597,320. In addition, the Docket 4618 rates were effective for 5 months of FY  
17 2017. The projected consumption for those 5 months was 9,608,957 HCF, while the actual  
18 consumption for those 5 months was only 8,788,125 HCF, which represents a shortfall in  
19 consumption of 820,832 HCF, or 8.5 percent. The revenue shortfall caused by this reduction is  
20 \$1,929,351. The combined revenue shortfall resulting from the reduction in consumption from  
21 the time the Docket 4618 rates went into effect until the end of FY 2018 is \$5,526,671. HJS-1  
22 summarizes the detailed calculations used to determine the shortfall.  
23

24 **Q. Why has the shortfall in revenues and transfer request increased from Providence**  
25 **Water's filing of October 27, 2017?**

26 A. The primary reason is that this request is based on the entire period during which the Docket  
27 4618 rates have been in effect, versus the prior request which focused on one fiscal year (FY 2017).  
28 This has two implications. First, the time period during which the gap in revenues has occurred is  
29 longer (i.e., 17 months versus 12 months) resulting in a greater overall shortfall than the previous  
30 filing. Second, shortfall in consumption is greater than the previous filing. The consumption

1 shortfall identified in Providence Water's previous filing was 711,182 HCF, or 2.74 percent.<sup>4</sup> The  
2 shortfall in FY 2018 alone was 1,620,109 HCF or 6.3 percent. Added to this is the shortfall in  
3 consumption from the first 5 months that Docket 4618 was effective (820,832 HCF or 8.5 percent)  
4 for a total shortfall of 2,440,941 or 6.9 percent, over double the shortfall identified in the previous  
5 filing.

6  
7 **Q. Is this reduction indicative of a long-term trend in Providence Water's consumption?**

8 A. Yes. Providence Water's sales have, on average, decreased 0.7 percent per year since FY 2010  
9 as indicated on HJS-2. That said, it is important to understand the distinction between the reduction  
10 in consumption from what was projected (at issue in this transfer request) and a long-term decline  
11 in consumption generally. In the historical cases noted above, the Commission has approved such  
12 transfers based on a reduction in consumption as compared to the projections used to develop the  
13 rates. In other words, the issue is not the general trend in consumption (up or down). Rather, it is  
14 the level of consumption which actually occurred relative to what was projected when the rates  
15 were established. In Docket 4618, the projected consumption was based on a 3-year average for  
16 most customers,<sup>5</sup> with adjustments for known and measurable changes that were anticipated to  
17 occur once the rates became effective.<sup>6</sup> This projection has proven to be too high, resulting in rates  
18 that are too low, and ultimately a shortfall in revenues from what was allowed in Docket 4618.

19  
20 **Q. Have you performed any calculations which demonstrate that consumption has a direct**  
21 **relationship with consumption revenues?**

22 A. Yes. HJS-3 indicates consumption related revenues for FY 2017 and FY 2018. The calculated  
23 revenues are the result of multiplying the rates by the volumes consumed for each customer class.  
24 The reported revenues are those which were actually recorded by Providence Water and will be  
25 reported in its annual reports to the Commission.<sup>7</sup> As indicated there is only a small variance (0.21  
26 percent) between the calculated and reported revenues.

27  

---

<sup>4</sup> See p. 2 of Testimony of Nancy E. Parrillo Filed on October 27, 2017.

<sup>5</sup> KCWA argued for using FY 2016 volumes only for their consumption, which Providence Water accepted.

<sup>6</sup> Notably, the acquisition of East Smithfield Water District

<sup>7</sup> FY 2018 revenues are unaudited preliminary amounts.

1 **Q. Given that Docket 4618 was only in effect for 5 months of FY 2017, how did you establish**  
2 **the reduction in consumption for this period?**

3 A. As noted above, the projected consumption used to develop the Docket 4618 rates was  
4 25,850,849 HCF, which—at the time—was established based on the following factors:

- 5 • Retail
    - 6 ○ Average of FY 2014 through FY 2016 consumption
    - 7 ○ Plus, average of FY 2014 through FY 2016 consumption for East Smithfield Retail
    - 8 Customers
  - 9 • Wholesale
    - 10 ○ FY 2016 Actual Consumption for Kent County Water Authority
    - 11 ○ 0 HCF for East Smithfield Wholesale
    - 12 ○ Average of FY 2014 through FY 2016 for all other customers
- 13

14 The combination of these factors resulted in the consumption used in Docket 4618 to establish the  
15 volumetric rates. In order to establish the allowed consumption for February 2017 through June  
16 of 2017, I first expressed the entire Docket 4618 forecast on a monthly basis. This is indicated in  
17 the first column of HJS-4 (“Pro-Forma Full Year”). For example, February is based on the same  
18 factors identified above but just for the month of February. In other words, I broke down the  
19 annual forecast assumed for Docket 4618 into monthly increments, to determine the shortfall in  
20 each month, for each customer class.

21

22 Once I determined the allowed consumption on a monthly basis, I compared it to the actual  
23 consumption for the same months to determine the shortfall for the portion of Docket 4618 which  
24 fell in the last 5 months of FY 2017.

25

26 **Q. How did you determine the reduction in consumption for FY 2018?**

27 A. The Docket 4618 rates were in effect for all of FY 2018. Accordingly, the reduction in  
28 consumption is based on the consumption projected in Docket 4618, which assumed a full year of  
29 customer usage, as compared to what actually occurred.

30

31 **Q. How did you determine the revenue shortfall for FY 2017 and FY 2018?**

32 A. I multiplied the consumption which actually occurred over this period by the rates which were  
33 in effect to determine the actual revenues. I then determined the allowed revenues by multiplying

1 the consumption projected in Docket 4618 by the approved rates. Finally, I subtracted the allowed  
2 revenues from the actual revenues to determine the revenue shortfall and transfer request. These  
3 calculations are demonstrated in detail on HJS-1 and HJS-5.

4  
5 **Q. Does this conclude your testimony?**

6 A. Yes it does.

Schedule HJS - 1  
Calculation of Revenue Shortfall

Line	Description	Total	Residential	Commercial	Industrial	Wholesale
1	<b>Allowed Consumption</b>					
2	FY 2017 (Feb. 2016 - Jun. 2017) - 5 Months	9,608,957	3,091,277	1,479,635	77,326	4,960,720
3	FY 2018 (Jul. 2017 - June 2018) - Full Year	25,850,849	8,634,613	4,135,153	189,477	12,891,606
4	<b>Actual Consumption</b>					
5	FY 2017 (Feb. 2016 - Jun. 2017) - 5 Months	8,788,125	2,843,601	1,315,028	75,076	4,554,421
6	FY 2018 (Jul. 2017 - June 2018) - Full Year	24,230,740	8,030,974	4,043,827	189,997	11,965,943
7	<b>Shortfall in Consumption</b>					
8	FY 2017 (Feb. 2016 - Jun. 2017) - 5 Months	(820,832)	(247,675)	(164,607)	(2,250)	(406,299)
9	FY 2018 (Jul. 2017 - June 2018) - Full Year	(1,620,109)	(603,639)	(91,326)	520	(925,664)
10	<b>Total Shortfall in Consumption</b>	(2,440,940)	(851,315)	(255,933)	(1,730)	(1,331,963)
11	<b>Rates (\$/hcf)</b>		\$ 3.403	\$ 3.223	\$ 3.169	\$ 1.351
12	<b>Allowed Revenues</b>					
13	FY 2017 (Feb. 2016 - Jun. 2017) - 5 Months	22,234,750	10,519,615	4,768,863	245,045	6,701,228
14	FY 2018 (Jul. 2017 - June 2018) - Full Year	60,726,367	29,383,588	13,327,598	600,452	17,414,730
15	<b>Actual Revenues</b>					
16	FY 2017 (Feb. 2016 - Jun. 2017) - 5 Months	20,305,400	9,676,776	4,238,334	237,915	6,152,375
17	FY 2018 (Jul. 2017 - June 2018) - Full Year	57,129,047	27,329,404	13,033,254	602,100	16,164,289
18	<b>Shortfall in Allowed Revenues</b>					
19	FY 2017 (Feb. 2016 - Jun. 2017) - 5 Months	(1,929,351)	(842,839)	(530,529)	(7,130)	(548,852)
20	FY 2018 (Jul. 2017 - June 2018) - Full Year	(3,597,320)	(2,054,184)	(294,344)	1,648	(1,250,440)
21	<b>Total Shortfall in Allowed Revenues</b>	\$ (5,526,671)	\$ (2,897,024)	\$ (824,873)	\$ (5,482)	\$ (1,799,292)

**Schedule HJS - 2**  
**Trend in Water Consumption (FY 2010 - FY 2018)**

	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
	HCF	HCF	HCF	HCF	HCF	HCF	HCF	HCF	HCF
<b>Retail</b>									
Residential	8,482,954	8,754,316	8,487,320	8,345,520	8,627,628	8,347,958	8,269,834	8,190,206	8,030,974
Commercial	4,465,417	4,284,895	4,392,712	4,565,034	3,903,139	4,230,647	4,251,054	3,923,978	4,043,827
Industrial	190,880	181,838	201,227	184,632	185,888	171,644	164,367	175,696	189,997
<b>Total Retail</b>	13,139,251	13,221,050	13,081,259	13,095,186	12,716,655	12,750,249	12,685,256	12,289,881	12,264,797
						Total % Change (2010 to 2018)			-6.66%
						Avg. Annual % Change (2010 to 2018)			-0.86%
<b>Wholesale</b>									
	12,415,678	13,525,669	13,213,689	12,440,424	13,145,345	13,694,224	13,073,852	12,971,255	11,965,943
						Total % Change (2010 to 2018)			-3.62%
						Avg. Annual % Change (2010 to 2018)			-0.46%
<b>Total System</b>	25,554,929	26,746,719	26,294,948	25,535,610	25,862,001	26,444,473	25,759,107	25,261,135	24,230,740
						Total % Change (2010 to 2018)			-5.18%
						Avg. Annual % Change (2010 to 2018)			-0.66%

**Schedule HJS - 3**  
**Water Consumption Revenues**

	FY 2017	
	Calculated	Reported
<b>Retail</b>		
Residential	\$ 25,951,841	\$ 26,164,915
Commercial	11,806,900	11,862,811
Industrial	524,481	578,329
<b>Total Retail</b>	\$ 38,283,223	\$ 38,606,055
<b>Wholesale</b>		
	\$ 17,051,368	\$ 17,007,837
<b>Total System</b>	\$ 55,334,590	\$ 55,613,892
<i>Variance</i>		-0.50%

Providence Water Supply Board Docket # 4618  
Harold J. Smith Supplemental Direct Testimony

**Schedule HJS - 4**

**Detailed Calculation of Consumption Shortfall**

**All Customers**

	Docket 4618						
	Pro-Forma	Allowed		Actual		Shortfall	
	Full Year HCF	5 mos. HCF	12 mos. HCF	5 mos. HCF	12 mos. HCF	5 mos. HCF	12 mos. HCF
July	2,685,718	-	2,685,718	-	2,541,306	-	(144,412)
August	2,607,035	-	2,607,035	-	2,830,121	-	223,086
September	3,005,805	-	3,005,805	-	2,434,205	-	(571,601)
October	2,270,507	-	2,270,507	-	2,035,384	-	(235,122)
November	1,678,518	-	1,678,518	-	1,558,030	-	(120,488)
December	1,522,473	-	1,522,473	-	1,945,495	-	423,021
January	2,471,836	-	2,471,836	-	1,737,127	-	(734,710)
February	1,317,019	1,317,019	1,317,019	1,487,227	1,557,369	170,207	240,349
March	2,096,867	2,096,867	2,096,867	1,626,533	1,635,999	(470,334)	(460,867)
April	1,789,193	1,789,193	1,789,193	1,554,488	1,630,124	(234,705)	(159,069)
May	1,920,343	1,920,343	1,920,343	1,813,994	1,975,888	(106,348)	55,545
June	2,485,535	2,485,535	2,485,535	2,305,884	2,349,693	(179,651)	(135,843)
<b>Total</b>	<b>25,850,849</b>	<b>9,608,957</b>	<b>25,850,849</b>	<b>8,788,125</b>	<b>24,230,740</b>	<b>(820,832)</b>	<b>(1,620,109)</b>

**Schedule HJS - 4**

**Detailed Calculation of Consumption Shortfall**

**Residential**

	Docket 4618						
	Pro-Forma	Allowed		Actual		Shortfall	
	Full Year HCF	5 mos. HCF	12 mos. HCF	5 mos. HCF	12 mos. HCF	5 mos. HCF	12 mos. HCF
July	775,326	-	775,326	-	829,095	-	53,769
August	868,941	-	868,941	-	874,467	-	5,526
September	986,593	-	986,593	-	867,659	-	(118,934)
October	797,900	-	797,900	-	734,875	-	(63,025)
November	623,968	-	623,968	-	517,944	-	(106,024)
December	430,736	-	430,736	-	568,890	-	138,154
January	1,059,872	-	1,059,872	-	631,014	-	(428,858)
February	510,694	510,694	510,694	506,869	496,747	(3,825)	(13,946)
March	607,327	607,327	607,327	587,071	590,195	(20,255)	(17,131)
April	604,070	604,070	604,070	444,909	588,637	(159,160)	(15,433)
May	573,833	573,833	573,833	610,876	603,450	37,043	29,617
June	795,354	795,354	795,354	693,876	728,000	(101,478)	(67,354)
<b>Total</b>	<b>8,634,613</b>	<b>3,091,277</b>	<b>8,634,613</b>	<b>2,843,601</b>	<b>8,030,974</b>	<b>(247,675)</b>	<b>(603,639)</b>

Providence Water Supply Board Docket # 4618  
Harold J. Smith Supplemental Direct Testimony

**Schedule HJS - 4**

**Detailed Calculation of Consumption Shortfall  
Commercial**

Docket 4618							
	Pro-Forma	Allowed		Actual		Shortfall	
	Full Year HCF	5 mos. HCF	12 mos. HCF	5 mos. HCF	12 mos. HCF	5 mos. HCF	12 mos. HCF
July	354,902	-	354,902		374,768	-	19,866
August	377,553	-	377,553		420,841	-	43,288
September	537,067	-	537,067		453,952	-	(83,115)
October	385,013	-	385,013		372,403	-	(12,610)
November	307,082	-	307,082		303,864	-	(3,218)
December	206,715	-	206,715		332,388	-	125,673
January	487,186	-	487,186		294,320	-	(192,865)
February	270,597	270,597	270,597	221,719	290,663	(48,878)	20,066
March	352,383	352,383	352,383	288,525	285,782	(63,858)	(66,601)
April	302,716	302,716	302,716	164,158	267,953	(138,558)	(34,763)
May	276,205	276,205	276,205	288,351	296,802	12,146	20,598
June	277,735	277,735	277,735	352,275	350,089	74,541	72,355
<b>Total</b>	<b>4,135,153</b>	<b>1,479,635</b>	<b>4,135,153</b>	<b>1,315,028</b>	<b>4,043,827</b>	<b>(164,607)</b>	<b>(91,326)</b>

**Schedule HJS - 4**

**Detailed Calculation of Consumption Shortfall  
Industrial**

Docket 4618							
	Pro-Forma	Allowed		Actual		Shortfall	
	Full Year HCF	5 mos. HCF	12 mos. HCF	5 mos. HCF	12 mos. HCF	5 mos. HCF	12 mos. HCF
July	15,979	-	15,979		15,672	-	(307)
August	17,061	-	17,061		18,281	-	1,220
September	17,771	-	17,771		16,380	-	(1,391)
October	15,509	-	15,509		19,674	-	4,165
November	16,433	-	16,433		14,478	-	(1,955)
December	9,927	-	9,927		16,095	-	6,168
January	19,471	-	19,471		17,012	-	(2,460)
February	13,298	13,298	13,298	14,531	15,892	1,233	2,593
March	15,713	15,713	15,713	13,033	14,119	(2,679)	(1,594)
April	16,193	16,193	16,193	14,066	14,145	(2,127)	(2,048)
May	14,834	14,834	14,834	13,479	14,015	(1,355)	(819)
June	17,288	17,288	17,288	19,966	14,235	2,678	(3,053)
<b>Total</b>	<b>189,477</b>	<b>77,326</b>	<b>189,477</b>	<b>75,076</b>	<b>189,997</b>	<b>(2,250)</b>	<b>520</b>

Providence Water Supply Board Docket # 4618  
Harold J. Smith Supplemental Direct Testimony

Schedule HJS - 4

Detailed Calculation of Consumption Shortfall

Wholesale

Docket 4618							
	Pro-Forma	Allowed		Actual		Shortfall	
	Full Year HCF	5 mos. HCF	12 mos. HCF	5 mos. HCF	12 mos. HCF	5 mos. HCF	12 mos. HCF
July	1,539,510	-	1,539,510		1,321,770	-	(217,740)
August	1,343,480	-	1,343,480		1,516,532	-	173,052
September	1,464,374	-	1,464,374		1,096,214	-	(368,161)
October	1,072,085	-	1,072,085		908,432	-	(163,652)
November	731,035	-	731,035		721,743	-	(9,292)
December	875,096	-	875,096		1,028,122	-	153,026
January	905,307	-	905,307		794,781	-	(110,526)
February	522,431	522,431	522,431	744,108	754,067	221,677	231,636
March	1,121,444	1,121,444	1,121,444	737,903	745,903	(383,541)	(375,541)
April	866,215	866,215	866,215	931,355	759,389	65,140	(106,826)
May	1,055,471	1,055,471	1,055,471	901,289	1,061,622	(154,183)	6,150
June	1,395,159	1,395,159	1,395,159	1,239,766	1,257,368	(155,393)	(137,791)
<b>Total</b>	<b>12,891,606</b>	<b>4,960,720</b>	<b>12,891,606</b>	<b>4,554,421</b>	<b>11,965,943</b>	<b>(406,299)</b>	<b>(925,664)</b>

Schedule HJS - 5  
Rates, Consumption, and Revenues (FY 2017 and FY 2018)

CY	FY	Month	Docket	Residential			Commercial			Industrial			Wholesale			All Customers		
				Rate (\$/HCF)	Usage (HCF)	Revenue	Rate (\$/HCF)	Usage (HCF)	Revenue	Rate (\$/HCF)	Usage (HCF)	Revenue	Rate (\$/HCF)	Usage (HCF)	Revenue	Rate (\$/HCF)	Usage (HCF)	Revenue
2016	2017	July	4571	\$ 3.044	865,280	\$ 2,633,913	\$ 2.901	389,703	\$ 1,130,528	\$ 2.848	14,073	\$ 40,080	\$ 1.294904	1,710,084	\$ 2,214,394	2,979,140	\$ 6,018,916	
2016	2017	August	4571	\$ 3.044	986,204	\$ 3,002,004	\$ 2.901	450,593	\$ 1,307,171	\$ 2.848	15,656	\$ 44,587	\$ 1.294904	1,697,409	\$ 2,197,982	3,149,862	\$ 6,551,744	
2016	2017	September	4571	\$ 3.044	878,547	\$ 2,674,298	\$ 2.901	440,024	\$ 1,276,511	\$ 2.848	16,839	\$ 47,958	\$ 1.294904	1,330,410	\$ 1,772,753	2,665,821	\$ 5,721,520	
2016	2017	October	4571	\$ 3.044	764,403	\$ 2,326,842	\$ 2.901	390,051	\$ 1,131,537	\$ 2.848	15,100	\$ 43,004	\$ 1.294904	1,065,036	\$ 1,379,120	2,234,590	\$ 4,880,504	
2016	2017	November	4571	\$ 3.044	601,242	\$ 1,830,181	\$ 2.901	336,529	\$ 976,271	\$ 2.848	14,552	\$ 41,445	\$ 1.294904	741,951	\$ 960,755	1,694,274	\$ 3,808,651	
2016	2017	December	4571	\$ 3.044	635,524	\$ 1,934,534	\$ 2.901	301,842	\$ 875,642	\$ 2.848	12,710	\$ 36,197	\$ 1.294904	950,813	\$ 1,231,211	1,900,888	\$ 4,077,586	
2017	2017	January	4571	\$ 3.044	615,405	\$ 1,873,292	\$ 2.901	300,209	\$ 870,907	\$ 2.848	11,691	\$ 33,295	\$ 1.294904	921,131	\$ 1,192,777	1,848,436	\$ 3,970,270	
2017	2017	February	4618	\$ 3.403	506,869	\$ 1,724,874	\$ 3.223	221,719	\$ 714,601	\$ 3.169	14,531	\$ 46,049	\$ 1.350858	744,108	\$ 1,005,184	1,487,227	\$ 3,490,708	
2017	2017	March	4618	\$ 3.403	587,071	\$ 1,997,803	\$ 3.223	288,525	\$ 929,916	\$ 3.169	13,033	\$ 41,303	\$ 1.350858	737,903	\$ 996,802	1,626,533	\$ 3,965,824	
2017	2017	April	4618	\$ 3.403	444,909	\$ 1,514,027	\$ 3.223	164,158	\$ 529,080	\$ 3.169	14,066	\$ 44,574	\$ 1.350858	931,355	\$ 1,258,128	1,554,488	\$ 3,345,809	
2017	2017	May	4618	\$ 3.403	610,876	\$ 2,078,810	\$ 3.223	288,351	\$ 929,354	\$ 3.169	13,479	\$ 42,716	\$ 1.350858	901,289	\$ 1,217,513	1,813,994	\$ 4,268,393	
2017	2017	June	4618	\$ 3.403	693,876	\$ 2,361,262	\$ 3.223	352,275	\$ 1,135,383	\$ 3.169	19,966	\$ 63,273	\$ 1.350858	1,239,766	\$ 1,674,748	2,305,884	\$ 5,234,665	
2017	2017	July	4618	\$ 3.403	829,095	\$ 2,821,411	\$ 3.223	374,768	\$ 1,207,878	\$ 3.169	15,672	\$ 49,665	\$ 1.350858	1,321,770	\$ 1,785,523	2,541,306	\$ 5,864,478	
2017	2018	August	4618	\$ 3.403	874,467	\$ 2,975,812	\$ 3.223	420,841	\$ 1,356,372	\$ 3.169	18,281	\$ 57,933	\$ 1.350858	1,516,532	\$ 2,048,619	2,830,121	\$ 6,438,735	
2017	2018	September	4618	\$ 3.403	867,659	\$ 2,952,643	\$ 3.223	453,952	\$ 1,463,088	\$ 3.169	16,380	\$ 51,908	\$ 1.350858	1,096,214	\$ 1,480,829	2,434,205	\$ 5,948,468	
2017	2018	October	4618	\$ 3.403	734,875	\$ 2,500,780	\$ 3.223	372,403	\$ 1,200,254	\$ 3.169	19,674	\$ 62,347	\$ 1.350858	908,432	\$ 1,227,163	2,035,384	\$ 4,990,544	
2017	2018	November	4618	\$ 3.403	517,944	\$ 1,762,563	\$ 3.223	303,864	\$ 979,355	\$ 3.169	14,478	\$ 45,882	\$ 1.350858	721,743	\$ 974,973	1,558,030	\$ 3,762,772	
2017	2018	December	4618	\$ 3.403	568,890	\$ 1,935,932	\$ 3.223	332,388	\$ 1,071,286	\$ 3.169	16,095	\$ 51,004	\$ 1.350858	1,028,122	\$ 1,388,847	1,945,495	\$ 4,447,069	
2018	2018	January	4618	\$ 3.403	631,014	\$ 2,147,341	\$ 3.223	294,320	\$ 948,594	\$ 3.169	17,012	\$ 53,910	\$ 1.350858	794,781	\$ 1,073,636	1,737,127	\$ 4,223,481	
2018	2018	February	4618	\$ 3.403	496,747	\$ 1,690,432	\$ 3.223	290,663	\$ 936,807	\$ 3.169	15,892	\$ 50,361	\$ 1.350858	754,067	\$ 1,018,637	1,557,369	\$ 3,696,236	
2018	2018	March	4618	\$ 3.403	590,195	\$ 2,008,434	\$ 3.223	285,782	\$ 921,077	\$ 3.169	14,119	\$ 44,743	\$ 1.350858	745,903	\$ 1,007,609	1,635,999	\$ 3,981,863	
2018	2018	April	4618	\$ 3.403	588,637	\$ 2,003,132	\$ 3.223	267,953	\$ 863,613	\$ 3.169	14,145	\$ 44,826	\$ 1.350858	759,389	\$ 1,025,827	1,630,124	\$ 3,937,396	
2018	2018	May	4618	\$ 3.403	603,450	\$ 2,063,539	\$ 3.223	296,802	\$ 956,593	\$ 3.169	14,015	\$ 44,413	\$ 1.350858	1,061,622	\$ 1,434,100	1,975,888	\$ 4,488,645	
2018	2018	June	4618	\$ 3.403	728,000	\$ 2,477,386	\$ 3.223	350,089	\$ 1,128,338	\$ 3.169	14,235	\$ 45,110	\$ 1.350858	1,257,368	\$ 1,698,525	2,349,693	\$ 5,349,360	