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June 17, 2015

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

Re: Pawtucket Water Supply Board – Docket No. 4550

Dear Luly:

This office represents the Town of Cumberland.

Enclosed are an original and nine copies of the Town of Cumberland's prefiled direct testimony of David Russell.

If you have any questions, please feel free to call.

Very truly yours,

Michael R. McElroy

MRMc:tmg
cc: Service List

Cumberland/Pawtucket Water Supply Board 4550/Massaro

DOCKET NO. 4550 - Pawtucket Water Supply Board – Multi-Year Rate Filing
Service List updated 3/12/15

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STATE OF

RHODE ISLAND AND PROVIDENCE PLANTATIONS

RHODE ISLAND PUBLIC UTILITIES COMMISSION

DIRECT TESTIMONY
of
DAVID F. RUSSELL, PE

FILED ON BEHALF OF THE TOWN OF CUMBERLAND, RHODE ISLAND

IN THE MATTER OF

PAWTUCKET WATER SUPPLY BOARD RATE CASE

DOCKET NO. 4550

June 18, 2015

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is David F. Russell, and my business address is 15 Titcomb Street, Suite 300, Newburyport, Massachusetts 01950.

Q. On whose behalf are you testifying in this case?

A. I am testifying on behalf of the Town of Cumberland, Rhode Island (the "Town") who is an Intervener in this case as the only wholesale customer of the Pawtucket Water Supply Board ("PWSB").

Q. What is the nature of your involvement in this case?

A. I am working with the Town as their expert consultant and witness to assist in its intervention in this Docket. Specifically, I have been asked to review the rate filing submitted by the Pawtucket Water Supply Board ("PWSB" or "Pawtucket Water") to the Rhode Island Public Utilities Commission ("PUC" or "Commission"), and to review PWSB's revenue requirements, cost of service and rate design and analyze their impacts on the Town's residents and businesses served by Pawtucket Water.

Q. What is the purpose of your testimony?

A. This testimony presents my findings and conclusions relative to my review of PWSB's rate filing, including; the proposed revenue requirements, the cost allocations to customer classes, and certain rate design and cost issues. It should be noted that my review of this increase request, and my testimony may require supplementation or modification after review of additional discovery and testimony that may be submitted.

Q. What is your present occupation?

A. I am a professional consultant specializing in utility management, economics and rates. I am the owner and founder of my own consulting business -

RUSSELL CONSULTING, LLC. I specialize in providing the following professional services to cities and towns, municipal utilities, regulatory agencies and consumer advocacy groups: management reviews and audits, needs assessment and facilities planning, utility economics and rate studies, determination of component and total revenue requirements, cost-of-service studies, demand management and conservation programs, expert witness services, utility contracts and negotiations, feasibility studies, system appraisals and related regulatory/institutional studies.

Q. Please summarize your training and experience.

A. I have 40 years of experience as a professional engineer, utility manager and consultant. My formal education consists of a B.S. Degree in Electrical Engineering from Rutgers College, an M.S. Degree in Engineering Management from Northeastern University and an M.A. Degree in Economics from Rutgers University. I have also taken numerous professional development courses throughout my career, including the American Management Association's Strategic Planning Program, Competitive Cost and Quality Management - an executive conference sponsored by the American Water Works Association Research Foundation and the Electric Power Research Institute, and the Edison Electric Institute's Rate and Cost-of-Service Seminar at Indiana University. I am a Registered Professional Engineer in the States of Massachusetts (Registration Number 28342), New Jersey (Registration Number 26512) and Florida (Registration Number 75247). For nearly all my career I have been actively involved in the management and control of utility businesses, from small public water systems to large multi-state, fully integrated, private electric companies.

I have provided expert witness testimony on many occasions before several state public utility commissions (including The Rhode Island Public Utilities Commission), Legislative Committees and Superior Courts, including testimony on matters directly related to utility planning, forecasting and

needs assessment, least cost planning, capital improvements, revenue requirements, cost of service studies and rate design, and demand management/conservation programs. I have prepared numerous rate studies for water and wastewater utilities, and both gas and electric utilities within this country and internationally. I have also evaluated and critiqued many other utility rate studies prepared by others as both a regulator and as a consultant. About a year ago I was the expert witness for the Bristol County Water Authority in the last Providence Water Supply Board rate increase request. About 10 years ago I was the Town's expert witness in the PWSB's rate case increase at that time. And, going back about 20 years, I provided testimony in the last five rate cases proposed by the largest private water company in Massachusetts (Aquarion Water Company and its predecessor Massachusetts-American Water Company), representing the five towns served by that company. I recently reviewed and evaluated a utility rate study for two large customers of a utility in South Carolina, and am currently reviewing and evaluating a 5 year financial plan and rate study prepared by the Guam Water Authority for the Public Utility Commission and the Administrative Law Judge on that Island.

Early in my career I was directly employed by two state regulatory agencies – The Massachusetts Department of Public Utilities ("DPU") and the New Jersey Board of Public Utilities. At the Massachusetts DPU, I held the position of Chief Engineer for two years, and I was assigned the role of Hearings Officer in several cases, and I also drafted several Orders for the Commission's consideration and approval. At the New Jersey Board of Public Utilities I was employed as a consultant to the Board's Chief Economist while pursuing a Master's Degree in Economics. Within the private sector, I have worked directly for three electric utility holding companies in the northeast. For these utilities, I have held the positions of Strategic Planner, Senior Engineer, Rate Supervisor, and Director of Regulatory Services. I was also a Principal Management Consultant for a

large engineering company (Camp Dresser & McKee, Inc.), where for several years I provided management and financial consulting services to many municipalities, state agencies and public utilities. As a lead consultant I was actively involved in all phases of the management consulting practice, including marketing, writing proposals, interviewing, negotiating contracts with clients, and both participation in and management of contracted services.

Q: Do you belong to any professional organizations or committees?

A: Yes, for 25 years I have been an active member of the American Water Works Association (AWWA) and its regional affiliate - the New England Water Works Association (NEWWA). As a member of AWWA's Rates and Charges Committee I had responsibility for revising and updating three Chapters of their publication entitled, "Principles of Water Rates, Fees, and Charges," which four years ago, was republished as the sixth edition of that manual ("M1"). For the next edition (7^{th}) of that manual (planned to be issued either this year or next) I have been providing peer review services. For three years ending in September 2012 I held the position of Assistant Treasurer for NEWWA, which included being a member of its Executive Committee and Board of Directors. I have been a member of NEWWA's Investment Committee for several years, and have co-chaired the Financial Management Committee for many years. I am also a member of the Florida section of the AWWA. I am a member of the Water Environment Federation (WEF) and the New England Chapter; a senior member the Institute of Electrical and Electronics Engineers; and the Rutgers Engineering Society. And, for several years, I was a member of the American Public Power Association ("APPA"); the International Water Resources Association; and the National Society of Professional Engineers.

I have written several papers and articles that have been published in professional journals and/or presented at utility industry conferences. Topics

have included rate design and cost of service studies, appraisals of utility systems, energy conservation and other measures to reduce total energy costs, and cost/benefit analysis of alternative ownership options for utilities. Most of these papers have been published in Professional Journals and/or presented at industry conferences.

I have prepared and presented courses on cost of service and rate design studies at industry conferences and seminars. This has included the Cost of Service Study portion of the Annual Rate Seminar sponsored by the New England Water Works Association (NEWWA), and the Revenue Requirement and Rate Design portions of a two-week International Seminar sponsored by the Institute for Public-Private Partnerships in Washington, DC. For the NEWWA I have prepared a two-day training course ("Accounting for the Non-financial Manager") for water utility managers, focusing on the accounting of utility operating costs, and both expansion capital costs and pay-as-you-go capital costs. On a part-time basis, I also taught undergraduate and graduate courses in economics and management science, as an adjunct professor at Boston University.

For additional details I have attached a copy of my resume as Exhibit No. DFR-1.

II. DOCKET OVERVIEW

Q. At the outset how would you characterize this rate increase proposal?

A. The Pawtucket Water Supply Board (PWSB or PW) proposes to increase rates in each of three succeeding years starting in FY2016 at an overall increase of 12.5%, followed by an 8.4% increase in FY2017, and an increase of 3% in FY2018. The increase in FY2016 distributes the increases to each of 3 retail classes and its one wholesale customer (Cumberland) based on a COSS performed by its rate consultant (Mr. Woodcock). The two

subsequent annual increases are proposed to be implemented on an across-the-board basis. Their case-in-chief is centered on their belief that a large percentage (about $1.7 million or 75% of the $2.3 million proposed rate year increase) of their need to increase rate revenues results from historic and continuing declining sales of water. I am not unsympathetic to this dilemma, but it appears that their expectations going forward are overly pessimistic, as sales have leveled off in the past few years, and in fact are showing clear signs of increasing in the near term. The other portion of the need to increase rate revenues (about $600,000 or 25% of $2.3 million) results from cost increases through the rate year totaling about $900,000. The net effect of these cost increases on the need to increase rate revenues in the rate year is offset by about $300,000 of increases in non-operating revenues, resulting in the net increase of 25% due to other factors..

Q. What are your general impressions of this case and the proposed increase?

A. It is this utility's first increase in four years. Because of the four year hiatus and the fact that the rates that are eventually approved in this case will be the only increases allowed over 7 years, the proposed increases on the surface do not appear to be inordinately high. However, after a thorough review of their case-in-chief and PWSB's responses to many information requests, it does appear that the proposed increases are not fully supported and that some modifications to the COSS are warranted. In combination these modifications and other proposed adjustments to their case-in-chief described below should result in very sizable reductions in the proposed increases in rate revenues, particularly in the rate year (FY2016) and the following year's (FY2017) proposed increases. All of these modifications are fully described below.

III. DISCUSSION OF ANALYSIS AND RECOMMENDATIONS

Q. How have you organized the remainder of your testimony?

A. My testimony is separated into seven broad topics – Projected Revenues, Estimated Revenue Requirements, Capital Improvements and Related Funding, Funding of Reserves, Cost Allocations (COSS), Rate Design, and Mitigation Measures.

PROJECTED REVENUES

Decreasing Billable Sales

Q. Please summarize you findings, conclusions and recommendations relative to PWSB's Projected Revenues.

A. PW states that about 75% of its need to collect additional revenues of $2.289 million results from decreasing sales (billed volumes of water) levels. In general, I do not disagree with this statement. However, the level of increase needed to compensate for this one factor has been significantly over-estimated. To justify their proposed increase due to decreasing sales they point to a ten year trend of relatively large decreases in total sales. This ten year trend by itself, however, overshadows or masks the more moderate decreases, and in fact some increases, in the more recent three or four years. Even the three year average that PWSB bases its projection of future sales on is similarly skewed toward the longer term levels of decreases. This is the case because since FY2012 (the last year in the 7 year historic trend shown on Mr. Woodcock's Schedule 2.1 that experienced large decreases in sales for all four classes) the decreases have leveled off considerably, and for 3 of the 4 classes (there are three retail classes and one wholesale class) consumption levels in FY2014 increased over FY2013 levels. Only the small retail class didn't show an increase from FY2013 to FY2014. Furthermore, comparing the first 11 months of FY2015, again 3 of the 4 classes show

sales increases over the first 11 months of FY2014, including the one class that didn't have an increase in FY2014 over FY2013 (small retail class). Only the large retail class didn't have an increase over the same 11 month period. Mr. Bebyn seems to agree with this analysis from his statement on page 4 (lines 20 – 21) of his pre-filed testimony when he states, "Upon further review, when looking at the total retail consumption it appears to have leveled off in the past two years." As does Mr. DeCelles as he responded affirmatively that he agreed with Mr. Bebyn's statement (see his response to Cumb. 1-16). These recent increasing trends of FY2014 over FY2013 and FY2015 over FY2014 also closely correlate with the turnaround in economic conditions (from weak or stagnant growth to positive and improving growth) since FY2011. Given the more recent trends in sales levels (increasing rather than decreasing) and continuing improvements in regional and national economic conditions, it is clear that PWSB's projections of revenues from metered sales are overly pessimistic for the rate year (FY2016).

It is clear that starting with the banking crisis in 2008 national and regional economic conditions began to deteriorate that year and either continued to decline or remained stagnant until around 2011/2012 and have improved significantly since then. Some key indicators that verify these economic trends are summarized below:

The basis for my assessment of national, regional (New England), and local (the State of Rhode Island) are based largely on the following indicators of economic conditions.

First, economic growth vs: recession or stagnation (no change in growth) I refer to the following GDP (Gross Domestic Production) trends in the following Table:

GDP (Source – US Bureau of Economic Analysis)

YEAR	United States	New England	Rhode Island
2007	4.49%	4.79%	0.63%
2008	1.64%	0.52%	-1.06%
2009	-2.09%	-0.8%	0.85%
2010	3.77%	3.54%	3.10%
2011	3.68%	2.37%	1.12%
2012	4.18%	3.23%	2.83%
2013	3.76%	3.02%	3.81%
2014	3.91%	3,48%	3.11%

These statistics clearly show that the United States (US) and New England (NE) experienced significant very low or negative growth in 2008 and 2009, as did Rhode Island (RI), but it was also the same condition in that State in 2007. Since 2010 all 3 areas have experienced significant growth through 2014, except for one year (2011) in RI. So, for a year or 2 following the 2008/2009 downturn in the economy RI's economy didn't experience significant improvement in growth, but since then there has been significant growth. In this same period (2012 to 2014) PWSB's sales began to level off and have started to show on increasing trend. It appears that these trends (economic growth and PWSB's sales) are continuing through the first half of 2015, and most projections call for continued moderate growth in the economy.

Next, consider unemployment levels over this same timeframe. Unemployment is another good indicator of economic growth vs: recession or stagnation (no change in growth). Increasing unemployment indicates worsening economic conditions and a decreasing unemployment level indicates improving economic conditions (inverse relationship). Historic unemployment levels for the same three areas and the associated trends are displayed in the following Table:

Unemployment Rate (Source – US Bureau of Labor Statistics)

YEAR	United States	New England	Rhode Island
2006	4.61%	4.53%	4.92%
2007	4.62%	4.51%	5.23%
2008	5.80%	6.67%	7.80%
2009	9.28%	8.19%	11.06%
2010	9.61%	8.43%	11.18%
2011	8.94%	7.77%	11.08%
2012	8.07%	7.29%	10.36%
2013	7.37%	6.91%	9.19%
2014	6.15%	7.65%	7.65%

These statistics clearly show that the United States (US) and New England (NE) experienced significant increases in unemployment rates between 2009 and 2011, as did Rhode Island (RI), but its unemployment rate didn't start to improve significantly until 2013/2014. The inverse relationship between unemployment and economic conditions are clear from this table. And it matches up closely with the trends in growth. The correlation between declining unemployment and increasing water sales is even more pronounced in this table.

Last, personal income vs: economic growth vs: recession or stagnation (no change in growth). I refer to the following PI (Personal Income) trends in the following Table:

GDP (Source – US Bureau of Economic Analysis)

YEAR	United States	New England	Rhode Island
2007	5.40%	5.30%	4.50%
2008	3.70%	2.60%	2.40%
2009	-2.80%	-2.00%	-1.50%
2010	2.80%	2.90%	4.00%
2011	6.20%	5.40%	3.40%
2012	5.20%	4.80%	3.80%
2013	2.00%	1.60%	1.70%
2014	3.90%	3.80%	4.30%

These statistics clearly show that the US, NE and RI all experienced significant declines in Personal Income between 2008 and 2010, although RI did rebound a year earlier in 2010. Since 2010 all 3 areas have experienced significant increases in PI, except for a one year decline in 2013. However, for each area even in 2013 there were significant increases (about 2%). Again, there is a clear correlation between PI and GDP, and a very close inverse relationship between the Unemployment Rate and PI. Furthermore, the correlation between PI and PWSB's sales is very similar to the relationship between GDP and PWSB's sales.

Based on the forgoing and in an effort to be more realistic about what levels of sales PWSB is likely to realize in the rate year, it is recommended that the Commission adopt sales projections based on a methodology similar to Mr. Woodcock's used in the filing, but that it be modified as follows:

- FY2015 class projections should be based on the percentage increase of the first 11 months of FY2015 over FY2014, or on the actual sales levels after the end of FY2015. And, instead of using estimated sales figures for FY2015, use actual levels for FY2015.

- FY2016 class projections should be based on the average increase/decrease over the average increase between FY2013 and FY2015. Thus, the projected levels will be more reflective of the three most recent years, which have shown a clear departure from decreasing sales prior to FY2013.

Because the final sales levels for all of FY2015 will not be available prior to this testimony being submitted, I have estimated the total sales for each class in FY2015 by applying the increase in the first 11 months of FY2015 over the first 11 months of FY2014 to sales in June of 2014 to derive the estimated sales in June of FY2015. These estimated levels in June FY2105 were then added to the sum of the first 11 months in FY 2015 to derive the estimated total sales in FY2015 for each class.

The first 11 months sales levels in FY2015 compared with the first 11 months of FY2014 results in the following percentage increases/(decreases) by class:

- Small Retail - - - - - - - - 1.4%
- Medium Retail - - - - - - - 3.8%
- Large Retail - - - - - - - - (9.0%)
- Wholesale - - - - - - - - - - 16.0%

The increases/(decreases) in % of FY2014 sales over FY2013 sales are as follows:

- Small Retail - - - - - - - - (0.90%)
- Medium Retail - - - - - - - 1.4%
- Large Retail - - - - - - - - 9.0%
- Wholesale - - - - - - - - - - 15.0%

Thus, the average increase from FY2013 through FY2015 equals the sum of the two annual percentage levels above by class divided by 2. The resulting average annual changes are as follows:

- Small Retail - - - - - - - - (1.4% - 0.9%)/2 = 0.25%
- Medium Retail - - - - - - - (3.8% +1.4%)/2 = 2.6%
- Large Retail - - - - - - - - (9.0% - 9.0%)/2 = 0.0%
- Wholesale - - - - - - - - - - (15.0% + 16.0%)/2 = 15.5%

Multiplying the level of sales in FY 2014 by [(1 + % Increase of 1st 11 months of FY2015 over 1st 11 months of FY2014)] results in the recommended sales levels by class in FY2015

- Small Retail - - 2,566,432 HCF x (1+ 0.014) = 2,602,362 HCF
- Medium Retail - - - 617,496 HCF x (1 + 0.038) = 640,961 HCF
- Large Retail - - - - 199,161 HCF x (1 – 0.09) = 181,237 HCF
- Wholesale - - - - - - 235,483 HCF x (1 + 0.16) = 273,160 HCF

Multiplying the average increase above (FY2013 – FY2015) by the projected sales in FY2015 results in the recommended sales levels by class in the rate year (FY2016). These calculations are summarized below:

- Small Retail - - 2,602,362 HCF x (1+ 0.0025) = 2,608,868 HCF
- Medium Retail - - 640,961 HCF x (1 + 0.026) = 657,626 HCF
- Large Retail - - - - 181,237 HCF x (1 + 0.0) = 181,237 HCF
- Wholesale - - - - - 273,160 HCF x (1 + 0.155) = 315,500 HCF

These modified projected sales levels for each of the retail classes are reasonably close to the estimates relied on by PWSB (Small retail is about 4% higher than PW's estimate; the Medium Retail is only about 0.5% different from PWSB's

estimate; and the modified estimate for the large retail class is about 17% higher than PWSB's estimate . However, the modified estimate of wholesale sales is considerably higher (24% higher). So, for this estimate I have conservatively assumed that wholesale sales will increase by a small amount in FY 2016 to equal the level of purchases that the Town expects to buy at wholesale form PW (274.064 HCF), which is very close the level expected for FY2015.

Using these estimates and assuming the actual sales levels for FY2015 turn out to be close to the same percentage changes from FY2014 as the percentage changes over the first 11 months of FY2015, then the progression over the 3 historic years and the forecasted rate year would be as follows:

Table 1 - Annual Sales in HCF

	FY2013	FY2014	FY2015	FY2016
Small Retail	2,590,436	2,566,432	2,601,079	2,603,991
Medium Retail	609,138	617,496	648,988	650,402
Large Retail	182,344	199,161	190,995	181,237
Subtotal-Retail	3,381,916	3,383,069	3,441,106	3,435,630
Wholesale	204,308	235,483	248,199	274,064
Total System	3,586,224	3,618,572	3,689,261	3,709,694
% Change		0.90%	1.95%	0.55%

Given 2 years of actual results and a projection of FY2015 based on actual results for the first 11 months of FY2015, and continued economic recovery projected for FY2016, the recommended sales projections for the rate year are more reflective of short term trends than the projections included in PWSB's filing. Yet, they still allow for a significant boost in rate revenues by basing the unit consumption rates on lower expected sales than those approved by the Commission in the last rate case. PWSB's projected sales are a reduction of 12.8% from the level approved by the Commission in Docket 4171. The recommended rate year sales are a reduction of 9.6% from the level approved by the Commission in Docket 4171. Additionally, the

recommended total level of sales in the rate year are only 3.7% [(3,709,694 HCF – 3,578,890 HCF)/(3,578,890 HCF)] higher than the total proposed by the PWSB.

Except for the Large Retail Class the percentage difference between what PWSB projects for sales in the rate year and the recommended projections, the percentage differences vary from a low of -1.5% (650,402 HCF vs: 660,333 HCF) for the Medium Retail Class to a high of 8.0% (274,064 HCF vs: 253,719 HCF) for the Wholesale Class, and the Small Retail Class variance is 3.8% (2,603,991 HCF vs: 2,509,723 HCF). The one exception is for the Large Retail Class where the variance is 16.8% (181,237 HCF vs: 155,115 HCF). Additionally, the trend over the past 2 years and 11 months of FY2015 is an average increase of 1.5% as compared to an average decrease of 1.0% over the three year average of FY2012 to FY2014. The more recent trend without FY2012 clearly indicates a leveling off of annual decreases with recent data even showing moderate increases. This combined with expected continued improvements in economic conditions supports levels being close to the 180,000 HCF annual sales level in FY2016 for the Medium Retail Class as opposed to the very large decrease from the 200,000 HCF level down to 155,000 HCF level (a reduction of nearly 25% from levels realized in FY2014 and that continue at comparable levels through the first 11 months of FY2015) proposed by PWSB.

With these recommended projections in sales the need for increased rate revenues are decreased by the following amounts for each rate class:

- Small Retail -(2,603,991 – 2,509,723) HCF x ($3.90/HCF) = $367,645
- Medium Retail -(650,402 – 660,333) HCF x ($3.489/HCF) = ($34,649)
- Large Retail - (181,237 – 155,115) HCF x ($3.286/HCF) = $85,587
- Wholesale - - - (274,064 – 253,719) HCF x ($2.726/HCF) = $55,460
- Total - $474,683

Thus, from this modification to PWSB's proposed increase of $1,702,210 due to decreasing sales, that amount is lowered by $474,683 to $1,227,527 (a 28% reduction). And, the total proposed increase of $2,289,253 is reduced by $474,683 to $1,814,570 (a reduction of 21%). In summary, while it is clear that decreased sales have significantly affected PWSB's realized rate revenues, going forward their projection of future sales levels are far too pessimistic resulting in the need to raise rate revenues by about $1.7 million. By relying more heavily on very recent trends (FY2013 through the first 11 months of FY2015) in actual sales and economic conditions that continue to improve, a less pessimistic and perhaps more reasonable projection of rate year sales lowers that need to increase rate revenues from $1.7 million down to about $1.2 Million. If the last month of FY2015 turns out to be significantly lower (or higher) than the recommended forecast level, the recommended level in FY2016 can and should be adjusted to reflect actual FY2015 levels. Furthermore, if the recommended sales levels are approved, and after the fact actual levels (in FY2016 and succeeding years) turn out to be significantly lower than these modified (and recommended) levels, then PWSB has the option of petitioning the Commission for additional relief.

Non-Operating Revenues

On page 3 (paragraph D, lines 3 to 11) of Mr. Bebyn's testimony he refers to adjustments he made to three sources of non-operating revenues to normalize them for "rate making purposes." The three sources are penalty revenues, service installations and Fees, and miscellaneous revenues. He essentially computed the historic average level over the four years inclusive of FY2011 through FY2014 for each source, and used that value for the adjusted or normalized value for the adjusted test year level (see his Schedule DGB-1). That adjusted value was then carried forward and used as the estimated rate year revenue for each of the three sources (see Mr. Woodcocks Schedule 1.0, page 4 of 4). His general approach seems to be appropriate. However, the first year of his 4 year average is for all three revenue sources, dramatically different than the values for other three (and more recent) years in the average. For example, with the Penalties Water Account

the values of the years between FY2012 and FY2014 have very little variance (between $319,770 to $326,650), while the FY2011 value ($164,650) is much less than the values in any of the three later years (about 50% less). Statistically, the FY2011 revenue level is an outlier compared to the other three years in the sample. Because of this and the relative importance of more recent data when estimating near term future levels, an easy and straightforward adjustment to his analysis for these three revenue sources is recommended. Instead of using his four year average, simply for each of the three sources drop the FY2011 values and use the average of the 3 most recent years as the adjusted test year level. Making this modification to the analysis results the following adjusted test year levels:

- Penalties Water Account - - - - - - - - - - $324,240
- Service Installations & Service Fees - - - $64,171
- Misc. Revenue - - - - - - - - - - - - - - - - - $242,555

Collectively, even without price escalation (from the test year to the rate year), these adjustments to the three revenue sources lowers the proposed increase in total revenue requirements by approximately $49,000.

ESTIMATED REVENUE REQUIREMENTS

Q. Please summarize your findings, conclusions and recommendations relative to PWSB's Estimated Revenue Requirements.

A. This section addresses 5 issues related to PWSB's estimates of future O&M expenses. Each discussion of a particular issue is preceded with a heading label identifying the issue.

Error in Estimating the Cost of the Operating Contract for the WTP

PWSB in their responses to Cumb. 2-23 and Cumb. 2-47 clearly indicate that due to an error in spreadsheet RB-07 they had overestimated the rate year expense for the Operations Contract for the WTP by $159,163. Because of this error their proposed

increase in rate revenues was $159,163 higher that it should have been. Therefore, it is recommended that the proposed increase be reduced by this amount due to PWSB's error in the computing this expense.

Escalation rate applied to the Cost of the Contract to Operate the WTP

In its filing PWSB escalated the cost of the Operating Contract for the Water Treatment Plant (WTP) by the 10 year (2002 to 2013) average increase in the Consumer Price Index (CPI) as measured by the Department of Labor's CPI for All Urban Consumers, Northeast Urban, Size Class B/C, Communities Population less than 1,500,000. They calculated this average to be 2.56%. Use of this index to escalate this annual cost is specified within the contract. However, use of a 10 year average is not specified. So, PWSB's reason for the use of this average is not clear other than it produces a relatively high escalation rate. As can be seen from Schedule RB-7 the rates of increase in the more recent 5 years are considerably less than the earlier 5 years. Thus, while the 5 year average over the period 2009 through 2014 is 1.73%, the 5 year average over the period 2003 through 2008 is 3.51% - more than 2 times the rate of the more recent 5 years. Therefore, by using the 10 year average, the rate of escalation used by PWSB for this expense is skewed in the direction of higher rates of inflation experienced in the 2003 to 2008 timeframe as compared to lower rates of inflation experienced in the years between 2009 and 2013. This fact combined with the predominant expectation that inflation rates are expected to continue to be low in the short run, strongly supports the use of only the more recent years to estimate the escalation of this expense in FY2015 and FY2016 (and exclude the years with relatively high escalation rates). Furthermore, because data is available for 2014, and the fact 2009 was a very unusual year in that the rate for that year was negative (prices decreased), the average inflation rate over the period 2010 through 2014 should be used to estimate this escalation rate. Fortunately, PWSB in its response to Cumb. 3-26 agreed with this assessment (before seeing my testimony), and they estimated that escalation rate to be 2.02%. The corrected value they provided without adjusting the escalation rate was $159,163. In response to Cumb. 3-26 they increased that

number to $182,996, presumably to capture the impact of using the lower escalation rate (2.02%). Thus, the adjustment due solely to applying a lower escalation rate should be the difference or $23,833. This adjustment has a direct impact on the proposed level of rate revenue requirements, and thus, should be a reduction in the proposed increase of $23,833.

The monthly index values for the same index as used on RB-07 are listed below:

January, 2014 - - - -149.186	July, 2014 - - - - - - 151.359
February, 2014 - - - 149.685	August, 2014 - - - - -150.633
March, 2014 - - - - - 150.706	September, 2014 - - 150.559
April, 2014 - - - - - - 150.466	October, 2014 - - - - 150.333
May, 2014 - - - - - - -151.354	November, 2014 - - -149.150
June, 2014 - - - - - - 151.162	December, 2014 - - -148.240

The sum of these values is 1,802.83 and the total for 2013 is 1,778.20, which is an increase of 24.63 resulting in a year over year increase of 1.39%. Thus, the annual rates of inflation as measured by the cited index are as follows:

- 2010 over 2009 - - - - 2.60%
- 2011 over 2010 - - - - 3.50%
- 2012 over 2011 - - - - 1.90%
- 2013 over 2012 - - - - 0.80%
- 2014 over 2013 - - - - 1.39%

The sum over these 5 years is 10.19%, which when divided by 5 equals 2.04%, which is slightly higher than PWSB's calculation (perhaps due to rounding differences so, I will use PWSB's number). Use of his escalation rate for this expense (and others discussed below) is highly recommended because it is much more representative of recent inflationary levels (than the rate proposed by PWSB

to escalate many expenses), and very few economists expect inflation rates to rise rapidly, particularly in the short run (next year or two).

Escalation Rate applied to many Expenses

PWSB has escalated many line item expenses from FY2014 levels for 2 years to derive the expense level for each such line item for the rate year. These line item expenses are identified on Schedule 1.0 (labeled "Sch. 1.1 (i)" under the column titled, "Supporting Schedule") attached to Mr. Woodcock's Testimony. This is, in general, an accepted approach to bringing currently known expenses to expected future amounts (in dollars) where the quantity of the expense (labor and/or materials) is not expected to change. However, the critical issue here is the escalation rate that is used to capture Inflationary price increases. Mr. Woodcock used an annual inflation rate of 3.08%, which when compounded for two years produces expenses in FY 2016 that are calculated by multiplying the expense level in FY2014 by (1.0308) x (1.0308), or the expense level in FY2014 x (1.0624). As Mr. Woodcock states, "This increase is based on the four year average percentage change of the 3rd quarter GDP from 2011 to 2014."

Given the relatively low inflationary price increases in recent years (as indicated by both the CPI – Consumer Price Index and the PPI – Producer Price Index), the use of the particular index used in the filing is not a good benchmark to be used to estimate short term price escalation. As seen above PWSB has used a rate based on recent CPI values in escalating the cost of the Operating contract of the WTP. This rate based on the five year average increase of the CPI is 2.02%. Based on data from the US Bureau of Labor statistics the average rate of increase in the PPI over the three most recent years (2012 to 2014) has been 1.1%. Clearly, the level of price inflation in recent years is significantly less than the level that is indicated by the use of the index used in the filing over the particular quarters from which it was calculated (Going back to the increase of 2011 over 2010). If the value used in the filing (3.08%) is averaged with the 2 price indexes (2.02% and 1.1%), the resulting level would be 2.07% (6.2%/3), which is very close to the 5 years average increase

in the CPI index that has now been used by PWSB to escalate the cost of the operations contract for the WTP. Additionally, if Mr. Woodcock used the average of the first quarter values, the result would be 0.35 or about one-third of 1%. Using the second quarter data this results in a rate of 2.75%. I couldn't compute the fourth quarter average (not on the related table), but using the average of the 3 quarterly averages results in a rate of 2.06%, which again is very close to the CPI average of 2.02%. Thus, given recent price changes and the need to estimate short term inflation (1 or 2 years), a preferred and more current (continuing low inflation during FY2015) proxy for estimating the likely level of price increases for the expenses to which it will be applied is the 5 year (2010 – 2014) average change in the CPI. This rate calculated by PWSB is 2.02%. This rate compounded over 2 years results in a multiplier of 1.041or a 4.1% increase from FY 2014 expense to the FY2016 expense. Using this multiplier instead of 1.0624 reduces the increase of each affected expense in the rate year by about one-third [(0.0624 – 0.041/0.0624 = 34.3%]. Multiplying each of the designated line item expenses on Sch 1.1 by 0.343 lowers the total revenue requirement for all of those expenses by approximately $22,489.

Normalization of Rate Case Expenses

PWSB proposes to normalize expected rate case expenses currently expected to be about $200,000 over 2 years resulting in an annual cost of $100,000. This might be reasonable, if PW hadn't proposed a 3 year rate plan with 2 subsequent annual rate increases (in FY2017 and FY2018) following the initial increase to be effective in FY2016. Should the Commission approve the 3 year rate plan at the proposed levels or at reduced levels in one or more of the three years, there should be an implicit understanding that short of extraordinary circumstances, PWSB would not apply for another base rate increase any time before the end of the three years for which rates have been approved in advance. Therefore, assuming some increases will be approved for all 3 years, a normalization period of 3 years coinciding with the proposed plan is the most appropriate number of years to recover this expense over. Thus, it is recommended that the annual allowed expense for rate case

expenses be set at $66,666 ($200,000/3 years) or one-third of the total allowed by the Commission in this case. At the currently proposed level the recommended normalization would lower PWSB's proposed increase related to this expense by $33,333 in the rate year and the 2 subsequent years.

Power Costs

PWSB's costs of electric power constitute a very sizable portion of their O&M budget in recent years and is expected to increase dramatically in the rate year. Their test year power costs totaled $923,952 in FY2014, and they project those total cost to increase to $1,145,305 in FY2016 – a 24% increase. Like all of us their electric bill consists of two components. The larger portion is for the power supply (paid to an independent power producer or generation company), and represents about 85% of the total in the rate year. The smaller portion is for local delivery or distribution services (paid to the local distribution company).

Starting with the delivery portion of the power costs – PWSB has estimated this cost in the rate year by escalating the test year costs at 3.08% compounded for two years to derive the total delivery costs in FY2016. However, for the same reasons as provided above (see the section labeled - Escalation Rate applied to Many other Expenses), a more appropriate escalation factor to be used at this time for costs such as this is the one based on the CPI. The recommended level for this expense is the same as that recommended to be used for all inflationary adjustments, which is 2.02% per year. Therefore, applying the 2 year compounded rate to the test year total results in total delivery costs in FY2016 of $443,157 (1.041 x $425,703). PWSB's escalation resulted in a total $452,287. Thus, using the recommended escalation rate, lowers PWSB's rate revenue increase by $9,130 ($452,287 - $443,242).

Moving to the supply portion of the bill – PWSB simply increased its FY2014 supply costs by one plus the % increase in the new contract for power supply which took effect on January 1st of 2015. Implicit in that estimate is the assumption that total

electricity usage in the rate year will be exactly the same as in FY 2014. Given this level of price increase (39%) PW should be doing everything it can to lower its Kwh usage and kW demands. Over the 2 years between the end of the test year to the end of the rate year, a very reasonable and doable goal over that time would be to reduce total electricity usage/demands such that its total bill for power supply in FY2016 will be 5% lower than it has projected all else being equal. If accomplished, its power supply bill could be lowered by about $34,651 (5.0% x $693,018). PWSB has indicated that many of its capital improvements to be completed during that timeframe will result in more efficient pumping and significant reductions in losses. Has that been quantified? PW has recently received a sizable grant from National Grid ($67,037 see response to Cumb. 3-5) specifically for installation of energy conservation equipment. What savings can that be expected to accomplish? Has PW exhausted all of the state and federal programs designed to help business and utilities reduce energy usage? If they haven't they should be required to do so. Have they hired an energy efficiency expert in recent years to maximize the efficiency of their pumps? If not, it is likely that significant savings could be realized there. Is the Commission satisfied that PWSB has done all it can to keep its power costs as low as possible? There is little, if any, evidence in the docket to demonstrate that additional savings are not possible. As part of its Order and Decision in this case, the Commission should incentivize PW to take all reasonable and appropriate measures it can to lower its total Power supply costs by 5% or more during the rate year. One way to do this would be by lowering the requested level of power supply costs by $34,650.

Combining these two amounts results in a reduction of the proposed increase by $43,780 ($9,130 +$34,650.

CAPITAL IMPROVEMENTS AND RELATED FUNDING ISSUES

Q. Please summarize you findings, conclusions and recommendations relative to Capital Improvements and related funding.

A. PWSB's capital improvement program has been relatively aggressive in the past and continues to be over the next five years, particularly with respect to replacement/rehabilitation of its T&D mains. This has put them in an enviable position relative to many other water systems. However, because of this they are approaching an end to projects involving the replacement/rehabilitation of their underground pipe facilities. Thus, the urgency of the remaining projects has lessened and some relatively minor delays would lessen the impacts to ratepayers, particularly in the first two years of the rate plan. Two options for accomplishing this are recommended in this section.

IFR Funding

PWSB's infrastructure improvement program was started in the 1990's, and its current formal planning and structure goes back to 2003. Mr. DeCelles indicated that the work pertaining to the replacement of water mains will be complete in about 4 years. This is a worthwhile program and one that should continue. However, as its completion is approaching some of the remaining projects are less critical than those completed in earlier phases. (see responses to Cumb. 1-20, 1-21, and 3-13), Given this relatively short remaining number of years; the current aggressive capital improvement construction schedule; the funds needed to pay for these improvements and the resulting revenue requirements, it is recommended that the funding level for this program be lowered by about 10% or $250,000 per year for the three years of this rate plan. This will allow almost all of the planned projects to proceed as scheduled, and only require short delays in a few projects (or perhaps extend the duration of the current program by about one year). Furthermore, when viewed in the context of the total capital improvement program, this reduction only

amounts to about a 4.4% ($250,000/$5.7 million) reduction per year over the 3 years of the rate plan.

Because 90% of the projects funded with IFR funds will be unaffected (not delayed) and only a few lower priority projects will be delayed or cut back, the overall impact on PW's system improvements and its ability to continue to provide high quality service and water to its customers should be very small, if any (negative impacts). Additionally, as discussed above such delays could have positive impacts on supervision and quality of the remaining projects. Additionally, the short term reduction in funding and revenue requirements will significantly lower the financial burdens on all of PWSB's customers. It will directly lower total revenue requirements by $250,000 each year of the 3 year rate increase plan, or $0.75 million in total. Lastly, while the costs of delayed projects may increase due to delays, for the short delays suggested here, increases, if any, are likely to be relatively small.

Alternatively, if the Commission prefers to keep the funding level at $2.5 million per year, then it is recommended that the total funding over the 3 year rate plan be kept at $7.5 million, but that it be lowered in the first two years and increased in the 3rd year in order to make the annual increases more uniform over the 3 years of the rate plan. A reasonable shift would lower the funding by $400,000 and $200,000 in each of the first two years, respectively; and allow a compensating increase of $600,000 in the 3rd year. This would have only minor impacts on PWSB's total capital Improvement program and to the extent there are some impacts, they would only be short term in nature. This would lower the rate year revenue requirement by $400,000; decrease the revenue requirement by $200,000 in FY2017; and increase the total revenue requirement by $600,000 in FY2018.

<u>Delay Project CL-6</u>

This project is one of the last Projects remaining to be completed as part of PW's multi-year plan (now into the 13th year) to replace/repair its aging infrastructure,

particularly its buried transmission and distribution mains (see responses to Cumb. 1-20 and 1-21 where Mr. DeCelles states, "We are currently in the final phases of this program that has consisted of the lining or replacement of the majority of the transmission and distribution systems in the PWSB's service area."). (Also, see his response the Cumb. 3-13 where he states, "The PWSB has replaced or cleaned and lined all of our transmission and distribution piping in earlier projects.") While it is a worthwhile project, it does not appear to be of a critical nature, or one that if not completed in a year or two after its currently scheduled completion, would result in major customer disruptions or dangerous water quality issues. The intent of my testimony with respect to this project (and one or more others to be funded over the next few years) is in no way to oppose their construction and completion, but simply to delay for a year or perhaps a year and a half the construction and the associated funding of one or more of the remaining lower priority projects. This project has already experienced delays and may be delayed further because it has not been reviewed or approved by the RIDOH. See the response to Cumb. 3-24, where it states, "The PWSB plans on contacting the RIDOH before the end of calendar 2015 to ensure CL-6 is placed on the Project Priority List as an approved project so the loan is approved in the Spring of 2016." The spring of 2016 is very close to FY2017, and if there are delays or complications at any stage of the process, the loan and the construction could be delayed into later FY2017 or early FY2018. Thus, the recommended delay could become a moot question on its own. If such delays extend the process by 6 months or more, the funding and the construction would effectively have been delayed into FY2018. By delaying the project into late FY2017 or early FY2018, its financial impact through debt service payments would be shifted forward one year into the 3rd year (FY2018) of the rate plan. Thus, lowering the relatively large increase in FY2018. Similarly, if it was delayed 2 years to FY2018, its financial impact would be delayed beyond FY2017, and thus lowering the moderately high increase in FY2017. While the costs of the project may increase somewhat with a year or two delay, Mr. DeCelles could not quantify such possible increases. (see his response to Cumb. 3-18). PWSB's planned capital improvement plan over the next few years is fairly aggressive. Delaying one or

more less critical projects would allow Staff to be more diligent in managing the remaining projects, thus, insuring higher quality facilities, and ease the transitioning to long term operations. The new financing of this project with a separate bond (and the new debt service for the MR-10), and a one year delay in the CL-6 project would have the following net impact on debt service payments (versus the filed original combined bond):

- FY2016 Reduction in Debt Service Costs - - - - $57,367
- FY2017 Increase in Debt Service Costs - - - - - $120,177
- FY2018 Reduction in Debt Service Costs - - - - $261,842

FUNDING OF RESERVES

Q. Please summarize you findings, conclusions and recommendations relative to Capital Improvements and related funding.

A. PWSB has many reserve funds that collectively have cash reserves totaling about $22.3 million (see response to Cumb. 1-7). Most of the funds in these reserves have tight restrictions on their use related to bond indenture requirements and other regulatory restrictions. The one reserve that appears to have few restrictions is discussed in this section.

Funding of the Revenue Stabilization/Operating Revenue Allowance

It appears that PWSB is entitled to establish and fund a Revenue Stabilization Account. Furthermore, such a rainy day fund comports with sound management practices, and will provide significant benefits to both this utility and its ratepayers, particularly in the long run. I do believe, however, that given the particular circumstances of PWSB and its ratepayers at this time it would be much better to phase in its funding differently over the rate period, but reach the requested funding

level in the last year of the three year rate plan increase. I base this assertion on three key points, summarized below:

1. The benefits associated with a stabilization fund are long term, and there is no set time period over which the funding level needs to be completed or partially completed. PWSB has gotten along without such a fund or the ability increase its funded level for many years. While PWSB is currently allowed to fund this reserve up to 1.5 % of operating costs, it is not required to do so.

2. The principles of rate gradualism and rate continuity support a gradual phase in of the funding. These closely related principles of ratemaking call for phasing-in or spreading increases over longer periods of time, thus, avoiding or minimizing large swings in utility rates, in favor of more gradual increases over time.

3. A somewhat more gradual phase-in of funding levels will result in the annual increases being spread out more evenly over the rate plan period and thereby reduce the financial impacts to all customers. This benefit is particularly helpful to the wholesale customer whose rates are proposed to increase by 24% in the rate year, or over two times (100% greater increase) the percentage increases of retail customers.

To accomplish this, the following phase-in approach to funding the Revenue Stabilization Fund is recommended:

- Instead of funding this reserve at 1.5% of annual revenues in both FY 2016 and FY2017, fund it at 0.75% in both years. (The only difference from PWSB's proposal is that in FY2016 and FY 2017 the funding level would by 50% of the level proposed by PWSB).

- Keep the funding of this reserve at 3.0% of annual revenues in FY2018. (This is the same as PWSB's proposal. So, by the third year PWSB would be at the level of annual funding requested).

- Beyond the three year rate plan PWSB would be free to propose increasing the annual funding to a higher percentage level.

While the final numbers depend on many factors to be decided by the Commission, based on PWSB's filed proposal, my estimates of how the proposed phase-in recommended here would change the required revenues in each of the 3 years of the rate plan as filed are listed below:

- Rate Year (FY2016) - - - The proposed $294,374 would be decreased to about $147,187
- Rate Year (FY2017) - - - The proposed $25,658 would be decreased to about $12,830
- Rate Year (FY2018) - - - The proposed $358,840 would be Increased to about $524,840

The net changes in Revenue Requirements (RR) from PWSB's proposed increases are estimated as follows:

- FY2016 reduced RR = ($294,374 - $147,187) = $147,847
- FY2017 reduced RR = ($25,658 - $12,830) = $12,828
- FY2018 increased RR = ($524,840 - $358,840) = $166,000

COST ALLOCATIONS

Q. Please summarize you findings, conclusions and recommendations relative to PWSB's Cost Allocations.

A. One adjustment to how some costs are allocated to customer classes is recommended below.

Allocation of Unbilled Water to Cumberland

The cost of service model includes an allocation of unbilled water costs to retail and wholesale customers. The allocation methodology seems to be appropriate, but it is based on a five year (FY2010 to FY2014) average of system production and estimated unbilled losses, that by PWSB's own admission, have been erroneously recorded for all but one of the years included in the average. The production meter at the WTP had been "underreporting water production by a factor of 10%" (see response to Div. 1-12). As a result, both the reported production levels and the estimate unbilled revenues prior to 2014 were off by about a factor of 2. After discovering the reason for what turned out to be erroneously low percentages for those years, PW determined that a more accurate and likely level of losses should have been about 10% (nearly double what the erroneously low readings from the production meter indicated). Therefore, the COS model should be modified to bring the losses to a level that more accurately reflects the actual level of losses. To test whether or not this would significantly affect the allocations of the costs related to losses between retail and wholesale customers one modification was made to the model. Specifically, this consisted of simply increasing the average production level in the model until the total unbilled losses equaled 9.7%. This was the level reported in FY 2014, which was the first full year that reliable date was available after the metering error was corrected. Thus, it is the level that should have been used in the COSS. No other changes were made to the model for this test. The result was an increase of $32,983 allocated to the retail classes and a corresponding reduction in the allocation to the wholesale class. As a check on the

counterbalancing of this reallocation the value of the total pro-forma revenue was noted both without and with this one change. Out of a total of over $20 million of total pro-forma revenues with and without the change the difference between this value only changed by about $200 (well within the accuracy of the analysis). This modification, if made, would have very little impact on the retail classes, but would have a significant impact on the wholesale class. Because this modification puts the level of losses at a level that reflects actual losses, it is strongly recommended that the Commission require that it be made before the final rates are approved.

RATE DESIGN

Q. Please summarize you findings, conclusions and recommendations relative to PWSB's Proposed Rate Design.

A. Three recommendations with respect to rate design are outlined below:

1. As a means of increasing revenue stability consider increasing the level of fixed charges by assigning the debt service costs associated with projects/facilities (special benefit facilities) that are designed to serve and that only benefit retail distribution customers. For example, the debt service costs of the MR-10 Replacement Project and the CL-6 Cleaning and Lining Project could be added to meter and service costs to design a significantly higher fixed service charge. This would result in rates that are more stable with respect to declining sales. This would also have the added advantage of insuring that none of the cost associated with facilities (Specific Benefit Facilities that only provide service to, and thus, only benefit retail customers) that neither provide service to nor provide any benefit to wholesale customers, are not allocated (even if the allocation percentages are relatively low) to wholesale customers.

2. The current uniform consumption rates by class do not provide additional incentives (other than the price itself) to customers in each class to use less or be more efficient with usage. In fact, the current structure is in effect a decreasing block rate structure. If sales continue to increase, as they have over the past few years, consider converting the uniform rate structure from class uniform rates to increasing block rates either by class or one increasing block rate structure to all customers.

3. The medium and large size customer classes consist by and large of only commercial and industrial customers with perhaps a few residential customers that use relatively large amounts of waters. The costs to service customers in these two classes probably has considerable variance, but the average user in these two classes (and the cost to serve them) are much different (use and costs) from the average customer in the small retail class. Thus, it is recommended that PWSB combine these two classes into a large user class (or call it a C&I class), leaving the small user class (or call it the residential class) as the only other retail class.

MITIGATION MEASURES

Q. Please summarize you findings, conclusions and recommendations relative to Mitigation Measures.

A. In an effort to maximize rate gradualism and to limit large price increases to any of PWSB's customers in any one year, the following mitigation measures are recommended in certain circumstances discussed with each such recommendation. It is hoped that none of these recommendations will need to be implemented.

- After all of the adjustments are made, and if there are still significant differences between each annual rate increase, adjust capital programs and/or funding of reserves to make the annual percentage increases fairly close or uniform. For example, if the Commission approves annual increases of 10%, 7% and 2%, adjust the capital improvement plan and/or funding of reserve accounts so that the annual increases are more like 8%, 6% and 5%. Ideally, the percentage difference between the smallest and largest increase should not exceed 2% or 3%. This will provide ratepayers with a more gradual or uniform annual increases for each of the 3 years.

- If the increase to any customer class (except for the public fire protection class – considered in the next bullet) is greater than 10% in any of the 3 years, phase in the increase to that class by allowing some temporary departure from the COSS class allocations (allowing some cross subsidization for one or two additional years). The reallocation should be just sufficient to bring that classes' rate increase to 9.9% in the year that such an adjustment becomes necessary.

- If the increase to public fire protection class is greater than 50% in any of the 3 years, phase in the increase to that class by allowing some temporary departure from the COSS class allocations (allowing some cross subsidization for one or two additional years). The reallocation should be just sufficient to bring that classes' rate increase to 49.9% in the year that such an adjustment becomes necessary.

IV. SUMMARY

The following Table summarizes my estimates of reductions to the proposed increase that would result from each of the recommendations provided above. Most of these estimates depend on many variables that will only be known near the end of the hearing process. Thus, each will need to be re-estimated as those variables become known.

Table summarizing the impacts of the recommendations on the proposed Revenue Requirements

Reason for Recommended Adjustment	**Change in Rate Year Revenue Increase**
Underestimated Rate Year Sales	-$474,683
Underestimated Non-Operating Revenues	-$49,000
Corrected Cost of the WTP Operating Contract	-$159,163
Escalation Rate Applied to the Cost of the WTP Operating Contract	-$23,833
Escalation Rate Applied to Many Other Expenses	-22,489
Normalization of Rate Case Exps.	-$33,333
High Electric Power Costs	-$43,780
IFR Funding Level	(a) -$250,000 (b) FY16 -$400K, FY17 -$200K FY2018 +$600K
Delay Project CL-6	-$57,367 (FY17 +$120,177 FY18 -$261,842)
Funding the Revenue Stabilization Account	-$147,850 (FY17 -$12,830 FY18 +$166,000)
Allocation of UAW	-$32,983 (From Wholesale to Retail)

TOTAL (RateYear) Reduction	**$1,306,498**

Q. Mr. Russell, do you anticipate having to file or provide supplemental testimony in this case?

A. Yes, I do. My testimony provided herein may require supplementation or modification after review of additional discovery, and consideration of further testimony submitted by other parties in this Docket. Furthermore, because there are many corrections/adjustments to the filed proposal, it is impossible to know the final increases to each of the customer classes that PWSB will seek in this case. Thus, I may have to supplement my pre-filed direct testimony in sur-rebuttal testimony and hearing testimony, and I would like to reserve the right to do so.

Q. Mr. Russell, does that conclude your testimony at this time?

A. Yes, it does.

Exhibit No. DFR-1

Resume

DAVID F. RUSSELL, P.E.

CAREER SUMMARY:

Since the early 1970s Mr. Russell has been professionally involved in the management, control and regulation of public utilities in the Northeast. He has also successfully completed many related projects throughout the United States and Internationally. He has worked for two regulatory agencies; in MA. – the Department of Public Utilities – as its Chief Engineer; and in NJ. – the Board of Public Utilities – as a special consultant to the Chief Economist. He has held senior engineering and management positions for two New England electric utilities (Eastern Utilities Associates and Unitil Service Corp.), and one in NJ./PA.(General Public Utilities). He has also been a Principal Management Consultant for a major engineering company (Camp, Dresser & McKee, Inc.) at its headquarters in Boston/Cambridge, MA. for several years. Over the past 20 years he founded and developed a successful consulting business (***RUSSELL CONSULTING, LLC***) with an office centrally located in New England, about 30 minutes north of Boston, in Newburyport, MA. A second office was recently opened in Venice, Florida to serve clients in the southeast.

He is an Engineer and Economist by training (BSEE from Rutgers College), and has advanced degrees in Engineering Management (MS. from Northeastern Univ.) and Economics (MA. from Rutgers Univ.) specializing in resource and regulatory economics. He has testified before three of the six Public Utility Commissions in New England (and several others nationally) on many occasions as an expert on utility management, finance, rate design and cost of service studies, and related industry issues. He is a Registered Professional Engineer in MA. (License No. 28324) and NJ. (License No. 26512) and the State of Florida (License No. 75247). He has authored several papers published in professional journals, and has presented his work at many professional seminars and industry conferences.

Mr. Russell has been a lead technical negotiator for several municipal clients in negotiating multi-million dollar contracts with private utilities and energy customers. He has prepared numerous reports and technical presentations for utility CEO's; and municipal, regional and state governments. He has been responsible for the planning, review and feasibility analysis of numerous utility capital improvement projects, totaling many billions of dollars. This included a broad spectrum of utility facilities (electric, gas, water, sewer and solid waste facilities) - production plants, transmission facilities, and distribution systems. He has also led teams of consultants in the appraisal of utility system components and entire systems (all assets). He has considerable international experience having worked for many other countries, including Mexico, Columbia, Egypt, Sri Lanka, Guam and the Bahamas. For the Government of Egypt he has worked on several projects each of which involved the feasibility and implementation of public-private partnerships in both the water and wastewater sectors.

PROFESSIONAL EXPERIENCE:

RUSSELL CONSULTING ,LLC
Public and Private Utility Consultant, 1994-Present

Provides management and financial consulting services to public and private utilities, municipalities, governmental agencies and private companies. Areas of expertise include management consulting, management reviews and audits, rate design and cost of service studies, expert witness services, appraisals of utility plant and equipment, assistance to owners of large residential developments in obtaining utility services at least costs (initial costs of extensions and long term rates for service), utility contracts and negotiations, performance enhancement and benchmarking, utility economics, power markets and deregulation, and the feasibility and implementation of public-private partnerships. ***RUSSELL CONSULTING*** has teamed with other firms to successfully complete multi-disciplinary projects for International clients.

Unitil Service Corp.
Director of Regulatory Services, 1993-1994

Managed the staff and resources of the Regulatory Services Department for this regional utility holding company. Areas of functional responsibility included sales and load forecasting, customer and load research, rate research and analysis, rate design, rate and tariff administration, revenue requirements and cost of service studies, economic analysis, demand side management (DSM) planning, program design and evaluation, and related analytical services. Responsible for insuring that rates and cost recovery for the retail companies contributed positively to the continued financial strength of the corporation and that positive regulatory relations were maintained. Successfully developed and maintained expanded DSM programs in Massachusetts and New Hampshire. Also responsible for preparing and filing each retail company's Least Cost Integrated Resource Plans, covering a 10 year planning horizon, including the first Integrated Gas Resource Plan. Successfully managed and coordinated an external (PUC) audit of the accounting and control of all DSM expenditures by the affiliated retail companies in New Hampshire.

Camp, Dresser and McKee, Inc.
Principal Management Consultant, 1985-1993

Took a lead role in many projects including management audits, financial feasibility reports, privatization studies and rate/cost of service studies for a wide range of municipal and private utilities. Gained international experience as a financial advisor to the World Bank, the Governments of Egypt and Mexico, and the Water and Sewerage Authority of the Bahamas. Served as project manager for management audits. As Assistant Team Leader for the Management and Financial Services Group helped to expand its size and capabilities from four professional consultants to nearly 20 over a two year period.

Eastern Utilities Associates
Section Manager, 1982-1985

Responsible in the Rate Department for the development and implementation of several pass-through rate clauses designed to recover specific capital and operating costs based on customer demands and/or total use. These cost recovery mechanisms included fuel, purchased power and oil-conservation adjustment clauses. Was lead engineer for cost of service and rate design studies prepared for rate cases involving affiliated retail electric companies. Also played a key role in rate filings before the Federal Energy Regulatory Commission for the Company's wholesale affiliate. Responsible for all PURPA-related programs for the Company's retail affiliates in Massachusetts

and Rhode Island.

New Jersey Board of Public Utilities
Consultant, 1981-1982

Participated in the development of standard purchase and sale rates for cogeneration facilities and small powerplants as required by PURPA. Presented the staff's case on rate-of-return issues involving proposed rate increases by major electric and gas utilities. Assisted the Board's Chief Economist in the evaluation of mergers and acquisitions, and a major financing proposed by the State's largest electric utility needed to fund its capital improvement program.

General Public Utilities
Senior Engineer, 1978-1980

Provided in-house consulting services to the Corporate Planning Division. Instrumental in implementing the system-wide strategic planning process. Also assisted the Forecasting, Load Research and Supply Planning Groups in determining the need for new power plants and least-cost alternatives. This work included the development of the firm's conservation and load-management programs (the first in the industry).

Commonwealth of Massachusetts, Department of Public Utilities
Chief Engineer, 1971-1978

Reviewed, conducted public hearings and reported on the need for and costs of major construction projects proposed by electric and gas utilities including power plants, substations, transmission lines and gas storage facilities (LNG, SNG and Propane) and gas pipelines. Was instrumental in developing the State's gas-pipeline safety code and was responsible for the gas-pipeline safety program funded by the U.S. Department of Transportation. Also helped to design and implement the Cost of Gas Adjustment clause for all retail gas utilities. Managed the environmental review process, which included writing internal procedures, the Scope of Work for major facilities, and Statewide rules and regulations. Was appointed by the Governor to the Cogeneration Commission and the Public Power Commission.

RELATED PROFESSIONAL EXPERIENCE:

- Registered Professional Engineer in Massachusetts (28342) and New Jersey (26512) and Florida (75247).
- Author of several papers published in professional journals.
- Numerous presentations at regional and national meetings of professional organizations.
- Provided expert testimony in numerous quasi-judicial proceedings before several state public utility commissions, state legislative committees and a state Superior Court.
- Part-time instructor at Boston University teaching undergraduate and graduate courses in Economics, Management Science and Finance.

PROFESSIONAL MEMBERSHIPS:

- American Public Power Association
- American Water Works Association, Member of the Rates and Charges Committee

(responsible for 3 Chapters. of the revised M1, "Rates" Manual), also a member of the Florida Section.

- City of Newburyport Chamber of Commerce
- International Water Resources Association (Peer Review Editor)
- Inst. of Electrical and Electronics Engineers (Power Engr. & Engr. Management Sections)
- National Society of Professional Engineers
- New England Water Works Association, Assistant Treasurer (Assoc. Officer) - Member of the Executive Committee and the Board of Directors; Member of the Financial Mngt. (Co-Chairman) Comm., the Conservation (Chairman) Comm., and the Investment Comm.
- Rutgers Engineering Society
- Water Environment Federation (Member of the Management & Admin. Committee)

EDUCATION:

- Rutgers University, MA in Economics (Resource and Regulatory Economics), Research Assistantship with Full Scholarship, 1984
- Northeastern University, MS in Engineering Management (Operations Research and Finance), 1977
- Rutgers College, BS in Electrical Engineering, Alumni Scholarship (full tuition and expenses), 1971

PUBLICATIONS\PRESENTATIONS: Author of several papers published in professional journals and presentations given at regional and national conventions.

EXPERT WITNESS SERVICES: Provided expert testimony in numerous quasi-judicial proceedings before several State Public Utility Commissions, and Legislative Committees. Also, presented expert testimony in litigated proceedings before the New Hampshire Superior Court and the Massachusetts Superior Court. Areas of expertise include many of the issues and topics outlined above.

COMMUNITY SERVICE: Chairman of the Planning Board, City of Newburyport, Ma.; Commissioner – Newburyport Harbor Commission; Chairman of the Mayor's Special Task Force on Police Facilities (rebuilt and doubled the size of the City's 70 year old Police Station); Member of the Merrimack Valley Planning Commission; I.C. Parish Council; Member of American Legion - Post 150; Treasurer for the City Committee (Major Political Party); and Treas. for a State Representative.

ADJUNCT PROFESSOR: Part-time instructor at Boston University teaching Undergraduate and Graduate courses in Economics, Management Science and Finance.

WHO'S WHO IN AMERICA: His biography was included in the Millennium and subsequent Editions of Marquis' Who's Who in the America.

PERSONAL: U.S. Citizen - Married, three children - Golfer/Runner/Coach (youth athletics)
FED. ID#: 46-4250630 1st Lt., U.S Army NG (Inactive Res.)