DIRECT TESTIMONY
OF
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RAFTELIS FINANCIAL CONSULTING, INC.
ON BEHALF OF THE CITY OF NEWPORT, UTILITIES DEPARTMENT, WATER DIVISION

In re: City of Newport Utilities Department, Water Division

Docket No.

November 2, 2009

INTRODUCTION

Q. Please state your name and business address.

A. My name is Harold J. Smith and my business address is, 1031 South Caldwell Street, Suite 100, Charlotte, North Carolina 28203.

Q. By whom are you employed and in what capacity.

A. I am a Vice President of Raftelis Financial Consultants, Inc. (RFC), a consulting firm specializing in the areas of water and wastewater finance and pricing. RFC was established in 1993 in Charlotte, North Carolina, by George A. Raftelis to provide environmental and management consulting services to public and private sector clients. RFC is a national leader in the development of water and wastewater rates that satisfy local government objectives.

Q. Please describe your educational background and work experience.

A. I obtained a Master of Business Administration from Wake Forest University in 1997 and a Bachelor of Science in Natural Resources from the University of the South in 1987. As an employee of RFC, I have been involved in numerous projects for public utilities including a number of studies involving transition to new rate structures designed to address specific pricing objectives. I have also served on engagements involving a wide range of technical specialties including:

- Utility Cost of Service and Rate Structure Studies
- Privatization Feasibility Studies
- Privatization Procurements
- Utility Financial Planning Studies
- Municipal Financial Planning Studies

Q. Have you previously testified before any regulatory agencies or in court on utility rate related matters?

A. Yes. I provided testimony in Newport's four previous rate filings (Docket Nos. 3578, 3675, 3818 and 4025). I also provided testimony in the Providence Water Supply Board's two most recent rate filings (Docket Nos. 3832 and 4061).

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

A. Yes. I am a member of the American Water Works Association where I serve am the immediate past chairman of the Strategic Management Practices Committee and I am a member of the Financial Management Committee of the New England Water Works Association.

Q Please describe your role in this proceeding?

A. I have used the revenue requirements allowed by the Commission in Docket No. 4025 and performed a cost of service analysis using the Base/Extra Capacity cost allocation approach to develop cost of service based rates for each of Newport Water's customer classes. The results of my analyses are included in the schedules incorporated herein with my testimony.

Q. Please describe the purpose of your testimony.

A. This testimony provides a description of the cost allocation and rate calculation process that was used to calculate the proposed rates and to explain each of the schedules attached to my testimony. The schedules are used to calculate the Commodity Rates for retail customers of Newport Water, and rates for the United States Navy ("Navy") and the Portsmouth Water and Fire District ("PWFD"). Other charges calculated in the model include a Base Charge, and both public and private fire protection charges for Newport and portions of Middletown and Portsmouth. The testimony also serves as a guide to other sources where assumptions are used, the logic that was used in the development of the model, and the flow of empirical and calculated information.

Q. What are your general conclusions?

A. The cost of service analysis prepared for this rate filing indicates that adjustments need to be made to all of the existing rates and charges in order to have rates that accurately recover costs from each customer class based on the class demand characteristics. Specifically, the current Billing Charge over recovers costs from customers billed monthly and under recovers from customers billed quarterly. Additionally, an analysis of each customer class' demand characteristics indicates that the Commodity Rates assessed to both the Residential and Commercial classes are not truly reflective of the demands these customer classes place on

system and should be reduced slightly to recover cost from these customers in a more equitable manner. Conversely, the analysis also indicates that the rates assessed to both the Navy and PWFD are slightly lower than their respective demand characteristics would justify. It also appears that the existing Public Fire Protection Charges are too high and that the Private fire Protection Charges are not only too low, but are most likely calculated using connection demand factors that do not accurately reflect the demand that each connection size places on the system.

CONTENT OF SCHEDULES

Q. Please provide a brief description of your prefiled schedules.

A. There are eleven main schedules (A and B schedules) and nine support schedules (D schedules) in this filing.

The main schedules are as follows:

RFC Schedule A-1- Revenue Requirements: Provides line item detail of the Rate Year revenue requirements approved in Docket No. 4025 for each of Newport Water's primary cost accounts. RFC Schedule A-1 also shows the Rate Year contributions to the Capital Spending and Debt Service restricted accounts and revenues from sources other than rates which serve as offsets to the revenue requirements.

RFC Schedule A-2 - Proposed Rates and Charges: Summary of the proposed cost of service based rates and a comparison with the existing rates. This schedule also shows the projected Rate Year revenues from each charge.

RFC Schedule A-3 – Bill Impacts: This schedule compares typical customer bills from each customer class under the current rates and proposed rates.

RFC Schedule A-4 – Revenue Proof: This schedule shows the Rate Year revenue that is projected to be generated from the projected consumption, number of bills, and fire protection accounts based on proposed rates and charges and compares this revenue to the Rate Year revenue requirements to demonstrate that the proposed rates generate enough revenue to meet the revenue requirements.

RFC Schedule B-1 – Base Extra Capacity Cost Allocations: This schedule demonstrates the assignment of Newport Water's revenue requirements to Base/Extra Capacity cost categories.

RFC Schedule B-2 – Allocation of Costs to Water Rate Classes: This schedule shows the allocation of costs from the Base/Extra Capacity cost categories to each customer class and the Base Charge based on the percentages developed in RFC Schedule B-9.

RFC Schedule B-3 – Cost Allocation Bases: This schedule displays the allocation factors used to assign costs to Base/Extra Capacity cost categories.

RFC Schedule B-4 – Allocation Analyses: This schedule shows the analyses performed to develop some of the allocation factors shown on RFC Schedule B-3.

RFC Schedule B-5 – Capital Functionalization: This schedule assigns the two components of Newport Water's Rate Year capital costs, Debt Service and the contribution to the Capital Spending restricted account, to functional categories based on the breakdown of the utility's existing fixed assets. This allows for the assignment of these costs to the appropriate Base/Extra Capacity cost categories.

RFC Schedule B-6 – Water Demand History: This schedule shows the water demand history by customer class for fiscal years (FY) 2000 through 2009. It also shows the projected Rate Year demand approved in Docket No. 4025 and the 3 year average consumption over the period beginning with FY 2007 and ending with FY 2009.

RFC Schedule B-7 – Water Production Peaking Analysis: This schedule demonstrates the development of system peaking factors based on historical treatment plant production data.

RFC Schedule B-8 – Billed Demand Peaking Analysis: Determination of Customer Class Peaking Factors: This schedule demonstrates the development of customer class peaking factors

based on historical billing records and the results of the daily meter reading performed on a sample of Newport Water's customers. The electronic version of this schedule allows for the use of different data sources in the development of the customer class peaking factors.

RFC Schedule B-9 – System Demands Imposed by Each Customer Class' Peaking Behavior: This schedule demonstrates the peak demands, both Max Day and Max Hour, that each customer class places on the system. The percentages developed in this schedule are used in RFC Schedule B-2 to allocate costs from the Base/Extra Capacity cost components to each customer class based on the demands that each class places on the system. This schedule also demonstrates how each class' demands are adjusted to account for unaccounted for water that is produced at the treatment plants, but is not sold to customers.

RFC Schedule B-10 – Summary of Peak Load Distributions: This schedule shows each rate class' share of system peaks and the Base/Extra Capacity distribution of system peaks. The percentages derived in these schedules are used to develop the allocation factors shown in RFC Schedule B-3 that are used to assign revenue requirements to each Base/Extra Capacity cost category.

RFC Schedule B-11 – Fire Protection Demand Analysis: This schedule demonstrates the implied demands that the fire protection system places on the system.

The support schedules include:

RFC Schedule D-1 – Water Accounts, by Size and Class: This schedule shows the number of Newport Water's customer accounts by customer class and meter size.

RFC Schedule D-2 – Fire Protection Accounts: This schedule shows the number of fire hydrants in the Newport Water service area and the number and connection size of Newport Water's fire protection accounts.

RFC Schedule D-3 – Production Summary: This schedule provides a summary of water plant production data for the past three fiscal years.

RFC Schedule D-4 – Demand Summary: This schedule provides a summary of system demand patterns over the past three fiscal years and also shows the calculation of Newport Water's unaccounted for water percentage.

RFC Schedule D-5 – Development of Pumping Costs: This schedule shows the build up of costs associated with the operation and maintenance of pumps used to pump treated water at the two water treatment facilities. These costs are allocated differently that the other treatment plant costs so must be identified separately.

REVENUE REQUIREMENTS

Q. How were the revenue requirements developed for this rate filing?

A. The revenue requirements shown on RFC Schedule A-1 are the Rate Year revenue requirements approved by the Commission in Newport Water's last rate filing, Docket No. 4025. Since this filing is focused on the development of cost of service based rates, no changes to the revenue requirements approved in Docket No. 4025 are being requested.

RATE YEAR WATER SALES PROJECTIONS

Q. How were the projected Rate Year water sales determined for this filing?

A. Projected Rate Year water sales are the same as those approved in Docket No. 4025. Projected Rate Years sales volumes are shown on RFC Schedule B-6.

RATE ALLOCATION

Q. In the Report and Order for Docket # 3818 Newport was directed to perform a full cost of service study. Has Newport prepared such a study?

A. Yes, Newport has performed a full cost of service study that allocates costs to the different customer classes based on the way in which each customer class demands service.

Q. Was the full cost of service study used in the preparation of this rate filing?

A. Yes, the proposed rates presented in this filing are based on a Base/Extra Capacity cost allocation study prepared using data obtained from Newport Water's customer billing system and data obtained from a daily meter reading program performed during the summer of 2009.

DEMAND STUDY

Q. Does Newport's Cost of Service Study include a demand study?

A. Yes. As the Commission may recall, the Settlement Agreement in Docket No. 3578 directed Newport to submit a demand study with any cost allocation study if Newport sought to charge Portsmouth with any transmission, distribution, or peak costs associated with supply or treatment. Thus, while Newport could not know if it would seek to charge Portsmouth with these costs until the cost of service study was completed, Newport conducted a demand study in conjunction with the Cost of Service Study.

Q. Can you explain the difference between a cost of service study and a demand study?

A. Yes, a demand study involves the collection and analysis of customer demand data such that one is able to draw conclusions about the way in which specific customer classes demand service. A cost of service study uses the results of the demand study to develop water rates and charges that recover costs from specific customer classes in relation to the way in which each customer class demands service.

Q. How is data usually collected when preparing a cost of service study?

A. In the vast majority of cost of service studies conclusions regarding demand characteristics are usually based on customer billing data that utilities collect during the routine meter reading and billing process. In this case however, the demand study was based on customer billing data and on daily demand data collected during a daily read program involving a representative sample of Newport Water's customers during the summer of 2009.

Q. Is the use of daily demand data in a cost of service study common within the water industry?

A. No, since until recently the collection of daily water demand data required that a person actually read each water meter included in the study on a daily basis, the collection of such data was cost prohibitive and therefore the use of such data in a cost of service analysis is unusual.

It should also be noted that the most recent cost of service filings submitted to the Commission by Pawtucket, Providence, and the Kent County Water Authority make no use whatsoever of actual daily demand data.

Q. Please describe the daily read program undertaken by Newport as part of the demand study?

A. This program involved the collection of daily consumption data from water meters for a randomly selected sample of Newport Water's customers during the months of May through September 2009.

Q. How did you develop the sample of Newport's customers for the daily read program?

A. In consultation with representatives from the Division, Portsmouth and the Navy, Chris Woodcock, Portsmouth's rate consultant, suggested a sample selection methodology which is basically a form of multistage sampling. First, Newport Water's customer base was divided by customer class (Residential, Commercial, and Wholesale). For the Residential and Commercial classes, the population was stratified by dividing each customer class into deciles based on annual consumption in Fiscal Year 2008. After stratification, the sample population for the Residential class was determined by randomly selecting one percent (1%) of the customers in each stratum. For the Commercial class, three accounts from each decile were randomly selected. This resulted in a sample population of 30 customers from the Commercial class and 130 customers from the Residential class. The initial list of accounts generated by the random sampling methodology were reviewed by Newport Water staff to verify that the selected accounts were active and would most likely have some consumption during the daily read period since it would not be productive to gather data from a large number

with no consumption during the study period. Based on this review nine of the accounts on the original list were removed from the sample and replaced with randomly selected accounts from the appropriate customer class and stratum within the class.

Q. How was data collected from the sample group?

A. The testimony of Ken Mason provides more details about the data collection process, but in general, data collection devices that record daily water consumption were attached to the meters for the sample group. During the course of the sampling period, and at the end of the sampling period, data was downloaded from these sampling devices such that a record of daily water consumption for each account could be developed.

Q. Were the wholesale customers included in the daily read sample?

A. Yes, nine of the ten meters used to serve the Navy were read manually each day during the sampling period. One of the meters used to serve the Navy is inaccessible for daily reads, and the Navy did not give Newport Water approval to install a new meter prior to the commencement of the daily read study. With respect to PWFD, Newport receives a daily feed of meter readings from the PWFD meter.

Q. Was data collected successfully from each of the accounts included in the randomly selected sample?

A. Unfortunately, there were some technical problems associated with the installation of some of the data collection devices such that daily consumption data was not collected from every one of the accounts in the randomly selected daily read sample described above. These problems are addressed in more detail in the testimony of Ken Mason.

Q. Did these data collection problems compromise the quality of the data collected during the daily read study?

A. No, Newport Water was still able to collect daily read data from a representative sample of customers from each of its customer classes. Daily read data was collected from 107 residential

accounts, 38 commercial accounts and 9 Navy meters. This data provided valuable insights into each customer class' demand characteristics.

Q. Was the cost of service study presented in this filing based solely on the data gathered during the daily demand study?

A. No, since the daily demand study only provided data from a sample of Newport Water's customers for a portion of the year, it would not be appropriate to base a cost of service study solely on the data collected for the daily demand study. However, the data did provide valuable information about peak daily demands for each customer class and about variability of demand during the week. For instance, the peak day demand for each customer class during the daily read period was compared to the average daily demand in FY 2009 for the accounts included in the demand study to determine a Max Day to Average Day peaking factor. These peaking factors were then compared to the Max Day to Average Day peaking factors that were developed for each customer class using data from Newport Water's customer billing system. This comparison verifies that the peaking factors developed using the monthly billing data are representative of the demand characteristics of each customer class. More importantly, the comparison of peaking factors determined using the daily demand data and those developed using billing data also confirms that Newport Water's Residential class has a relatively low peaking factor when compared to the residential classes of many other water utilities.

Q. Why is the fact that Newport's residential class has a relatively low peaking factor important?

A. In Docket 3578, which was the last docket in which Newport Water filed cost of service based rates, both the Navy and PWFD cast doubt on the validity of the data used to support the cost of service study presented in that docket and pointed to the relatively low residential class peaking factor as an indicator of the flawed nature of the data. For instance, Mr. Ernest Harwig, rate expert for the Navy, stated in his direct testimony in Docket No. 3578:

> "RFC's attempt to estimate class non-coincident Maximum Day demands is clearly flawed. It results in a Residential class Maximum Day ratio that is **less** than the

corresponding ratios for other customer classes, and thus under-allocates costs to this class. This result conflicts with empirical class demand studies for other water utilities and general cost of service practice, where Residential Maximum Day demand ratios are consistently **higher** than those of other classes. This is why RFC's method, by its own admission on page 13 of its direct testimony, fails the reasonableness test when comparing total class non-coincident demands to total class coincident demands."
(Emphasis added by Mr. Harwig)

The daily demand study data supports the fact that Newport Water's residential class has a relatively low peaking factor when compared to the other customer classes and with the residential classes of other utilities. In fact, the analysis that compared the peak day of the daily sample residential accounts during the sampling period to the average day consumption of the same accounts during FY 2009 actually yielded a lower peaking factor than the peaking factor developed using monthly billing data. This indicates that instead of underestimating the residential class peak demands, as Mr. Harwig implied in his Docket 3578 testimony, the analysis of peak demands based on monthly billing data may slightly over estimate the peak demands of the residential class.

Q. What information did the daily demand study data provide with respect to variability of demand during the week?

A. The daily demand data allows for a comparison of consumption by day of the week to asses the variability of demand by day.

Q. Why is information regarding the variability of demand by day important?

A. The American Water Works Association's (AWWA) Manual M-1 "Principles of Water Rates, Fees, and Charges" suggests that Max Day demand ratios developed based on monthly billing data should recognize that Max Day ratios developed by comparing the average day demand in the Max Month to the Annual Average Day demand understate the true Max Day because they do not take into account the daily variability of demand. Therefore, the availability

of actual data on daily demand variability allows for the calculation of more accurate Max Day demand factors for each customer class.

Q. Was this daily demand variability data used in the cost of service analysis?

A. Yes, instead of using the example weekly adjustment factors provided in the M-1 Manual or simply making a guess about actual demand variability, weekly adjustment factors were calculated for each customer class and used in the development of demand factors as shown on RFC Schedule B-8.

Q. If the customer class demand characteristics were not based solely on the daily demand study data , what data was used?

A. Customer class demand factors for each class were calculated independently using three different sets of data:

1. Daily read data collected between May and September 2009;
2. Customer billing data for monthly accounts from FY07 through FY09; and,
3. Customer billing data for all other accounts from FY07 though FY09.

As discussed above, Max Day and Max Hour peaking factors were calculated for the daily sampling accounts using the daily demand data and FY 09 billing data for the daily read sample accounts. Demand factors were also calculated using only data from accounts billed monthly during FY07 through FY09. Since the majority of Newport Water's customers were not billed on a monthly basis during this period, the number of accounts used in this analysis was relatively small. Finally, demand factors were also calculated using Newport Water's customer billing data from FY07 through FY09. As described earlier, this data was supplemented with information derived from the daily read data. The table below shows the Max Day and Max Hour demand factors calculated using each of the three data sets.

Customer Class	Daily Data		FY 07-FY09 Billing Data		FY 07-08 Monthly Accounts Only	
	Max Day	Max Hr.	Max Day	Max Hr.	Max Day	Max Hr.
Residential	1.67	2.00	1.91	2.29	1.80	2.16
Commercial	2.28	3.05	2.09	2.78	2.09	2.79
Navy	2.40	3.03	1.84	2.33	1.84	2.33
PWFD	1.81	2.26	2.01	2.52	2.01	2.52

Ultimately it was decided that the demand factors based on all of the billing data, supplemented with information derived from the daily read data, were the most representative of the demand characteristics of each class and these demand factors were used in the cost of service analysis.

Q. Why was it decided to use the demand factors that are used in the analysis?

A. First, the demand factors that are used in the analysis are based on much more comprehensive data than the other demand factors based solely on daily read data or solely on data from accounts billed on a monthly basis. The demand factors based on monthly data only took into account a small fraction of the bills issued during FY 07 through FY 09. For example, in FY 09, only 16 percent of the bills issued were monthly bills. As a result, the demand factors based on monthly bills only did not take into account the demand characteristics of more than 80 percent of Newport Water's customers. Similarly, the daily demand data involved an even smaller sample of Newport Water's customers and while we are confident that the daily read sample was representative of Newport Water's customer base, it would be hard to justify basing the cost of service analysis solely on data gathered from less than two percent of Newport Water's customers.

Q. How would the proposed rates have differed if the demand factors were not based primarily on the data from Newport Water's billing records?

A. The proposed rates would have differed. For instance, if the demand factors based on monthly bills only had been used, the rate decrease for the Residential class would have been greater and the increase in rates for wholesale customers would have been greater. If demand factors based on the daily read sample only had been used, the Residential rate would have decreased by 16 percent and the Commercial rate would increase by 6 percent. Additionally, the

Navy would have seen a 23 percent increase in rates while PWFD's rate would have dropped by 2 percent.

Q. Please describe in more detail how the demand factors that were used in the cost of service analysis were developed?

A. As discussed above, the demand factors were developed using the billing data for FY 07 through FY 09, supplemented with information derived from the daily demand study performed in the summer of 2009. Using this data, the demand factors were developed using the methodology described in Appendix A of AWWA's M-1 Manual as shown on RFC Schedule B-8. First, the ratio of the average day consumption for the maximum month to the annual average day consumption for each class was determined. For this analysis the maximum month demand for each class was assumed to be the average of each class' maximum month demand for the most recent three fiscal years. The average day of the maximum month was determined by dividing the assumed maximum month demand for each class by 30. These ratios were then multiplied by the ratio of the overall system coincident maximum-day demand to the average daily demand for the system maximum month. As described earlier, the resulting ratios for each class were then adjusted using weekly adjustment factors derived from the daily demand study data to arrive at the Max Day demand factor for each class. The Max Hour demand factors were developed by multiplying the Max Day demand factor for each class by an estimated Max Day to Max Hour ratio.

Q. What are estimated Max Day to Max Hour ratios?

A. The Max Day to Max Hour ratio recognizes that demand fluctuates during the course of a day, but since there is no data on hourly demand, these ratios must be developed based on assumptions about the way in which each class demands water during the course of a day.

Q. How were the estimated Max Day to Max Hour ratios developed and how are they used to determine the Max Hour demand factors?

A. For the Residential class, the ratio was developed based on the assumption that no water is consumed by the Residential class during a four hour period of each day. The estimated ratio for the Commercial class was based on the assumption that Commercial accounts consumed very

little or no water during a six hour period of each day. Since the customer bases of PWFD and the Navy are composed of both customers that exhibit residential demand patterns and customers that exhibit commercial demand patterns the estimated Max Day to Max Hour ratios are based on assumptions regarding the make up of their customer bases. For the Navy it was assumed that 50 percent of their demand was for customers that exhibit residential demand patterns and 50 percent that exhibit commercial demand patterns. For PWFD it was that 60 percent of their customer base is residential and 40 percent is commercial. These percentages were applied to the estimated Max Day to Max Hour ratios developed for Newport Water's retail customer base to arrive at estimated Max Day to Max Hour ratios for the Navy and PWFD. The estimated Max Day to Max Hour ratios for each class were then multiplied by the Max Day demand factors for each class to arrive at the Max Hour demand ratio for each class.

ALLOCATION OF REVENUE REQUIREMENTS

Q. Once the demand factors for each class have been developed, what is the next step in determining the cost of service by class?

A. The next step is the allocation of revenue requirements to cost categories and customer classes.

Q. How are revenue requirements allocated to cost categories and customer classes?

A. Costs are allocated using the Base/Extra Capacity cost allocation methodology which is usually a three step process that involves first assigning costs to functional categories, then assigning the costs from each functional category to Base/Extra Capacity cost categories based on system demand characteristics and then allocating the Base/Extra Capacity cost categories to customer classes based on customer class demand patterns. However, since Newport Water budgets and tracks O&M costs within nine major accounts that correspond to the primary functions that the utility performs, the assignment of costs to functional categories was not necessary.

Allocation of O&M Costs

Q. Please described how O&M costs were assigned to the Base/Extra Capacity cost categories.

A. O&M costs are assigned to one or more of six Base/Extra Capacity costs categories based on how costs are incurred to meet the demands of the water system as a whole. The assignment of costs to the Base/Extra Capacity categories is shown on RFC Schedule B-1, Base Extra Capacity Cost Allocations.

The six cost categories consist of:

- Base – Base costs are those costs that are incurred to meet the average or "base" demands of the system.
- Max Day – Max Day costs are those costs that are incurred to meet peak daily demands of the system.
- Max Hour – Max Hour costs are those costs that are incurred to meet peak hourly demands of the system.
- Meters – Meter costs are the costs associated with installing, maintaining, repairing and replacing water meters.
- Billing – Billing costs are those costs associated with the determining each customers consumption and then billing them for that consumption.
- Fire Protection –Fire protection costs are the costs associated with providing and maintaining the hydrants and associated infrastructure throughout the system and ensuring that the system is capable of meeting fire flow demands when needed.

Costs are assigned to cost categories using the allocation factors shown on RFC Schedule B-3. Most of the allocation factors are developed using system wide demand data and others are developed based on other analyses.

Q. Please describe how each of the allocation factors shown on RFC Schedule B-3 was developed.

A. The Average Day Demand allocator simply assigns all of the costs that are used to allocate to the Base cost category in recognition that these costs are incurred to meet the average demands placed on the system.

The Max Day Demand factor recognizes the way in which costs are incurred to meet the peak day demands placed on the system by all of the customer classes and the potential peak day demands placed on the system by the public fire protection system and private fire protection accounts. One way of developing this allocator would be to simply look at plant production data and base the allocations on the average day and peak day plant production. However, the approach used in this study was used because it takes into account water that is produced at the plant but is not billed to customers and ensures that the costs associated with the production and transmission of this unaccounted for water is not recovered from Newport Water's wholesale customers. For this study the Max Day allocation factor was developed by first determining the Max Day demands that are expected to be placed on the system by all customer classes during the Rate Year. This is done by first determining the average day demands that are expected from each class by dividing each class' Rate Year demand by 365. This average day demand for each class is then adjusted to account for water lost water such that PWFD and the Navy are not allocated costs associated with the production of water that is produced at the plants but is not billed to customers. This adjustment effectively increases the demands of both retail classes and reduces the demands of the Navy and PWFD such that a smaller portion of costs are allocated to the Navy and PWFD.

The adjusted average day demand for each class is then multiplied by the Max Day demand factor for each class to determine the incremental demand that each class places on the system as a result of its peak day demands. The incremental demands for each class are then totaled to arrive at the system wide incremental Max Day demand.

As mentioned earlier, the Max Day allocation factor must also recognize that the public fire protection system and private fire accounts also place potential peak day demands on the system. This demand is dependent upon the systems fire flow requirements. In this case fire flow demands were determined based on a 4,000 gallon per minute fire flow and an average fire event of 6 hours. This results in an implied peak day demand for the fire system of 1,440 thousand gallons.

The system wide average day demand, the system wide peak day demand and the implied fire protection peak day demand are then totaled to arrive at the total system wide peak day demand. The allocation factor is then determined by each component of the total peak day demand by the total peak day demand to arrive at the allocation percentage shown on RFC Schedule B-3.

The Max Hour allocation factor was developed in the same way as the Max Day allocation factor except that it also takes into account the incremental peak hour demands placed on the system by all of the customers and the fire protection system.

The Fire Protection allocation factor assigns all costs it is used to allocate to the Fire Protection category in recognition that these costs are incurred to meet the potential demands placed on the system by the public fire protection system and private fire connections.

The Salary Cost allocation factor is used to allocate salaries of personnel whose costs are tracked in the Administration and Customer Service accounts. The development of these allocation factors is shown on RFC Schedule B-4. For the Administration account salaries are allocated between Base, Meters and Billing in recognition that the personnel in this department spend time ensuring that the system is capable of meeting average day demands, but also spend time ensuring that customers are billed appropriately for the water that they consume.

The allocation factor for Customer Service salaries recognizes that personnel in this department spend a portion of their time ensuring that water meters are in place and properly maintained and calibrated and another portion of their time gathering the data necessary to prepare customer

bills. This allocation factor allocates their costs between these two categories based on estimates of the portion of their time they spend performing each function.

The Other Costs allocation factor is used to allocate costs that do not readily fall into a specific functional category. This allocation factor is based the percentages of overall costs that are allocated to each Base/Extra Capacity cost categories once all allocations have been performed.

Q. Once all of the allocation factors have been determined, what was the next step in the cost allocation process?

A. The next step was the allocation of O&M costs to the Base/Extra Capacity cost categories using the previously described allocation factors. This step is shown on RFC Schedule B-1.

Q. Please describe how Administration O&M costs were allocated.

A. Administration salaries were allocated using the Salary Costs-Administration cost allocation factor described earlier. All other Administration costs were allocated using the Other Costs allocation factor described above.

Q. Please describe how Customer Service O&M costs were allocated.

A. Customer Service salaries were allocated using the Salary Costs-Customer Service allocation factor described earlier. As shown on RFC Schedule B-4, other Customer Service costs were allocated between the Meters and Billing categories based on an analysis of Newport Water's budget and consultation with Newport Water staff regarding the way in which costs are incurred.

Q. Please describe how Source of Supply O&M costs were allocated.

A. Costs tracked in both source of supply accounts, Source of Supply-Island and Source of Supply-Mainland are associated with the operation and maintenance of the systems reservoirs and raw water pumps and mains in a way that ensures average day demand is met. Therefore these costs were allocated using the Average Day cost allocation factor which results in all of these costs being assigned to the Base category.

Q. Please describe how Treatment O&M costs were allocated.

A. Costs tracked in the two treatment accounts, Station One and Lawton Valley, include costs associated with treating raw water to produce potable water and costs associated with pumping that treated water to storage tanks from which it is then distributed throughout the utility's transmission and distribution system. As such, a portion of these costs, the treatment related costs, are incurred to meet average day and peak day demands. The other portion of the costs in these accounts, the pumping related costs, is incurred to meet average day, peak day and peak hour demands. However, for the past several years Newport Water has not tracked the treatment costs and pumping costs separately. Therefore, it was necessary to perform an analysis to determine the costs associated with pumping. This analysis is described in the testimony of Ken Mason and the results of the analysis are shown on RFC Schedule D-5. Based on this analysis, pumping related cost were separated from treatment costs and allocated separately. The treatment costs were assigned to the Base, Max Day and Fire Protection categories using the Max Day allocation factor described earlier and the pumping related costs were assigned to the Base, Max Day, Max Hour and Fire protection categories using the Max Hour allocation factor.

Q. What impact does the separation of pumping costs from treatment costs have on the allocation of costs?

A. As mentioned above, this separation of costs allows for the appropriate allocation of pumping costs to the Max Hour cost category such that the rates charged to each customer class can reflect the peak hour demands that each class places on the system.

Q. Please describe how Laboratory O&M costs were allocated.

A. Costs in this account are related to water quality tests that are performed periodically to ensure that the water produced is in compliance with regulatory requirements. Since the costs associated with performing these test is not affected by peak day or peak hour demands, all of these costs were assigned to the Base cost category.

Q. Please describe how Transmission and Distribution O&M costs were allocated.

A. Costs tracked in the Transmission and Distribution account are incurred to deliver water to customers in such a way as to meet their average day, peak day, peak hour demands and fire protection demands. Therefore, these costs were assigned to the Base, Max Day, Max Hour and Fire Protection categories using the Max Hour allocation factor.

Q. Please describe how Fire Protection O&M costs were allocated.

A. Costs tracked in the Fire Protection account are solely related to ensuring that the system is capable of meet fire protection demands and therefore these costs have been assigned to the Fire Protection category using the Fire Protection allocation factor.

Allocation of Capital Costs

Q. What is the next step in the cost allocation process?

A. The next step is the assignment of Newport Water's capital costs to the appropriate cost categories.

Q. Please describe how Newport Water's capital costs were allocated.

A. Newport Water's capital costs consist of two components. The contribution to the Capital Spending restricted account from which cash funded capital projects are funded and debt service on bonds used to fund capital projects. In order to properly assign these costs to Base/Extra Capacity cost categories they must first be assigned to functional categories. The capital costs are assigned to functions based on the make up of the fixed assets that currently comprise the system. This process involved assigning each of Newport Water's fixed assets to the appropriate functional category such that a break down of fixed assets by functional categories was created as shown on RFC Schedule B-5. The assets in each functional category were then assigned to categories that correspond to Newport Water's accounts such that they could then be assigned to Base/Extra Capacity categories using the same allocation factors that were used to assign the O&M costs. This assignment to functional categories is also shown on RFC Schedule B-5 and the assignment to Base/Extra Capacity categories in shown on RFC Schedule B-1.

BASE, COMMODITY AND FIRE PROTECTION CHARGES

Q. Now that all of the O&M and capital costs have been assigned to Base/Extra Capacity cost categories, what was the next step in the cost allocation process?

A. The next step is the allocation of costs from the Base/Extra Capacity cost categories to class specific Commodity Charges and to the Base Charge and Fire Protection Charges and the subsequent calculation of rates and charges. This process is shown on RFC Schedule B-2.

Base Charge

Q. Please describe how costs are allocated to the Base Charge?

A. All costs assigned to the Meters and Billing cost categories are assigned to the Base Charge.

Q. How is the Base Charge calculated?

A. The calculation of the Base Charge is shown on RFC Schedules B-2 and A-2. The Base Charge is designed to recover the utility's fixed customer related costs such as costs of responding to customer questions and complaints and the costs of installing and maintaining water meters. Additionally, the Base Charge is designed to recover the costs associated with preparing a customer's bill. These costs include the costs associated with reading meters and the costs associated with the preparation and mailing of the actual bill. Since these costs do not vary based on how much water a customer consumes, it is appropriate to recover these costs through a fixed charge that is assessed each time the customer is billed. However, these costs vary by customer depending on the frequency of billing. While the cost of meeting typical customer service requirements and installing and maintaining meters is the same regardless of billing frequency, the costs associated with meter reading and bill preparation vary depending on billing frequency. Therefore, the Base Charge must be comprised of two components. One component that recovers the monthly costs associated with customer service and meter installation and maintenance and another component that recovers the costs associated with meter reading and bill preparation. The customer service and meter component is calculated by dividing the costs allocated to Meters by the total number of accounts multiplied by twelve as shown on RFC Schedule B-2. The billing component is determined by dividing the total costs assigned to the Billing category by the total number of bills that Newport Water is projected to prepare during

the Rate Year as shown on RFC Schedule B-2. The Base Charge for customers billed quarterly is then determined on RFC Schedule A-2 by combining three monthly meter components with one billing component. The monthly Base Charge includes one monthly meter component and one billing component.

Q. Why is the monthly Base Charge decreasing while the quarterly charge is increasing?

A. Currently the same Billing Charge is assessed to all customers with each bill regardless of their billing frequency. While the cost basis for the current charge is not known, it is likely that the existing charge is over recovering customer and meter related costs from those customers that are billed monthly.

Commodity Charge

Q. Please describe how costs are allocated to each customer class and how the commodity charge for each class is calculated.

A. The allocation of costs to the class specific commodity charges is performed using the allocation percentages shown at the top of RFC Schedule B-2. These percentages are developed based on each customer class' demand characteristics.

Q. How are these allocation percentages determined?

A. The development of these percentages is shown on RFC Schedule B-9. As shown, the percentages reflect each class' share of each type of demand placed on the system as determined by applying the demand factors that were developed earlier. The exception is that certain percentages are developed excluding the demands placed on the system by PWFD. This exclusion of PWFD demands prevents costs associated with the transmission and distribution system from being allocated to the PWFD commodity charge. This is done because PWFD takes its water directly from a storage tank located at the Lawton Valley treatment plant and therefore does not receive the benefits of meeting peak hour demands offered by Newport Water's transmission and distribution system.

Q. Does the allocation of costs result in costs associated with treatment at the Station 1 treatment plant being allocated to PWFD?

A. Yes they do.

Q. But doesn't PWFD take all of the water it purchases from Newport from a tank at the Lawton Valley treatment plant?

A. Yes, but since as described in the testimony of Julia Forgue and Ken Mason, Newport Water operates its two treatment plants in concert to meet the average day and peak day demands placed on the system, including those placed on the system by PWFD, it is appropriate for PWFD to share in the costs of the Station 1 plant as well.

Q. How are these percentages used to allocate costs?

A. These allocation percentages are applied to the costs within each Base/Extra Capacity cost category such that costs are allocated to the Commodity Charge for each class based on the way in which each class demands service. As shown on RFC Schedule B-2, all transmission and distribution costs and Max Hour pumping costs are allocated with the allocation percentages that exclude PWFD such that these costs are not allocated to PWFD. The resulting total cost allocated to each customer class is the amount that needs to be recovered through the commodity Rate for that class in the Rate Year.

Q. How is the Commodity Rate for each class calculated?

A. The Commodity Rate per thousand gallons is calculated by dividing the total costs allocated to each class by that class' projected Rate Year demand in thousands of gallons. For the retail classes, the result is rounded up to the nearest cent to arrive at the Commodity Rate for that class. For the Navy, the result is rounded to the nearest one hundredth of a cent and for PWFD to the nearest tenth of a cent. The resulting rates and the percent change from the existing rates are shown on RFC Schedule A-2.

Q. Why are the Commodity Rates for the Residential and commercial classes decreasing while the rates for the two wholesale customers are increasing?

A. These changes are due to the fact that the current rates are not based on a cost of service study designed to determine rates by customer class. Newport Water has not had a cost of service study performed in at least ten years and it is likely that any study that was performed more than ten years ago was designed to develop rates under Newport Water's former declining block rate structure. Such a study would not necessarily yield rates that recover costs from each class according to its demand characteristics.

Fire Protection Charges

Q. Please explain how costs are allocated to the Fire Protection Charges and how the charges are calculated?

A. All costs assigned to the Fire Protection cost category are allocated to the Fire Protection Charges. These costs are them divided by the total number of 5/8 inch meter or connection equivalents that are represented by the public fire hydrants and the private fire connections to arrive at the charge per equivalent 5/8" connection. Meter equivalents are calculated using demand factors based on the principles of the Hazen-Williams equation for flow through pressure conduits as shown on RFC Schedule D-2. The charge for each private fire protection connection size is determined by multiplying the calculated charge per 5/8" equivalent by the appropriate demand factor. Public Fire Protection Charges are calculated using the demand factor for a four inch connection. Te proposed Fire Protection Charges are shown on RFC Schedule A-2 along with the percent change from the existing charge.

Q. Why are some of the Private Fire Protection Charges decreasing while the Public Fire Protection Charge and other Private Fire Protection Charges are increasing?

A. Again, the cost basis of the current charges is unknown, but it is apparent based on the relationship of the charges for different connection sizes to one another that the current rates were calculated using connection size demand factors that understate the potential demand placed on the system by connection sizes of 6-inches and greater. As a result it appears that the current rates for these larger connection sizes are under recovering fire protection costs while the

current rates are recovering costs in proportion to the implied demands that these connection sizes place on the system.

RATE IMPACT

Q. Have you provided information on what the impact of the proposed rates and charges on customer's bills are projected to be?

A. Yes, RFC Schedule A-3 shows bills for different customer classes at a variety of consumption levels under both the existing rates and charges and the proposed rates and charges.

Q. What consideration has been given as to whether the revenues from the proposed rates and charges are sufficient to cover Newport Water's revenue requirements?

A. RFC Schedule A-4 serves as a revenue proof to determine revenue sufficiency of the proposed rates and charges. This schedule shows the revenue that is expected from each customer class or charge under the proposed rates as well as revenues from other non-rate sources. This revenue is compared to Newport Water's Rate Year revenue requirements to determine whether revenue will be sufficient to cover costs. As shown, it is anticipated that the proposed rates and charges will generate surplus revenue of approximately $5,600. This surplus is attributable to rounding within the cost allocation model.

Does this conclude your testimony?

Yes.

Newport Water Cost of Service Model

Index of Model Schedules

Raftelis Financial Consultants

Summary Schedules

Core Model Schedules

Supporting Data

Newport Water Division
Cost Of Service Analysis
RFC Schedule A-1
Revenue Requirements

Docket No. XXXX

	Rate Year Approved in Docket 4025
O&M COSTS	
Administration	
Salaries & Wages	$ 265,000
AFSCME retro	-
NEA retro	-
AFSCME benefits on retro pay	-
NEA benefits on retro pay	-
Standby Salaries	12,500
Accrued Benefits Buyout	175,000
Employee Benefits	96,500
Retiree Insurance Coverage	347,200
Workers Compensation	114,000
Annual Leave Buyback	2,400
Advertisement	9,000
Membership Dues & Subscriptions	2,500
Conferences & Training	2,500
Tuition Reimbursement	2,000
Consultant Fees	201,500
Postage	1,000
Fire & Liability Insurance	86,000
Telephone & Communication	8,300
Water	1,050
Electricity	8,000
Natural Gas	8,000
Property Taxes	229,000
Legal & Administrative	301,400
Data Processing	137,000
Mileage Allowance	2,000
Gasoline & Vehicle Allowance	8,481
Repairs & Maintenance	1,200
Regulatory Expense	10,000
Regulatory Assessment	46,770
Office Supplies	30,000
Self Insurance	10,000
Unemployment Claims	12,000
Subtotal:	**$ 2,130,301**

Newport Water Division
Cost Of Service Analysis
RFC Schedule A-1
Revenue Requirements

Docket No. XXXX

	Rate Year Approved in Docket 4025
Customer Service	
Salaries & Wages	$ 326,100
Overtime	21,218
Temp Salaries	22,800
Injury Pay	-
Employee Benefits	175,200
Annual Leave Buyback	4,950
Copying & binding	1,000
Conferences & Training	5,000
Support Services	21,000
Postage	34,300
Gasoline & Vehicle Allowance	27,852
Repairs & Maintenance	41,500
Meter Maintenance	11,000
Operating Supplies	9,000
Uniforms & protective Gear	1,000
Customer Service Supplies	15,000
Subtotal:	**$ 716,920**
Source of Supply - Island	
Salaries & Wages	$ 216,900
Overtime	28,200
Temp Salaries	10,000
Injury Pay	-
Employee Benefits	111,296
Annual Leave Buyback	6,300
Electricity	34,100
Gas/Vehicle Maintenance	48,300
Repairs & Maintenance	8,300
Reservoir Maintenance	25,000
Operating Supplies	3,750
Uniforms & protective Gear	750
Chemicals	54,000
Subtotal:	**$ 546,896**
Source of Supply - Mainland	
Overtime	$ 4,500
Temp Salaries	15,300
Permanent Part time	13,000
Employee Benefits	2,600
Electricity	92,600
Repairs & Maintenance	8,800
Reservoir Maintenance	6,000
Operating Supplies	500
Subtotal:	**$ 143,300**

	Rate Year Approved in Docket 4025
Station One	
Salaries & Wages	$ 441,500
Overtime	58,100
Holiday Pay	19,100
Employee Benefits	237,000
Annual Leave Buyback	4,950
Conferences & Training	5,500
Fire & Liability Insurance	12,700
Electricity	247,500
Natural Gas	23,300
Rental of Equipment	1,000
Sewer Charge	184,000
Gas/Vehicle Maintenance	8,100
Repairs & Maintenance	35,000
Operating Supplies	27,800
Uniforms & protective Gear	1,350
Chemicals	399,000
Subtotal:	**$ 1,705,900**
Lawton Valley	
Salaries & Wages	$ 500,100
Overtime	42,400
Holiday Pay	20,000
Employee Benefits	275,500
Annual Leave Buyback	3,850
Conferences & Training	3,500
Fire & Liability Insurance	13,600
Electricity	180,600
Natural Gas	28,900
Rental of Equipment	500
Sewer Charge	242,000
Gas/Vehicle Maintenance	8,400
Repairs & Maintenance	43,400
Operating Supplies	22,000
Uniforms & protective Gear	1,000
Chemicals	216,000
Subtotal:	**$ 1,601,750**
Laboratory	
Salaries & Wages	$ 127,700
Employee Benefits	62,400
Annual Leave Buyback	2,750
Repairs & Maintenance	1,000
Regulatory Assessment	36,500
Laboratory Supplies	18,500
Subtotal:	**$ 248,850**

Newport Water Division
Cost Of Service Analysis
RFC Schedule A-1
Revenue Requirements

Docket No. XXXX

		Rate Year Approved in Docket 4025
Transmission & Distribution		
Salaries & Wages		$ 416,200
Overtime		52,000
Temp Salaries		10,000
Injury Pay		-
Employee Benefits		224,996
Annual Leave Buyback		5,900
Conferences & Training		4,000
Contract Services		12,500
Fire & Liability Insurance		2,400
Electricity		19,600
Heavy Equipment Rental		8,900
Gas/Vehicle Maintenance		99,400
Repairs & Maintenance		32,000
Main Maintenance		84,800
Service Maintenance		33,500
Operating Supplies		11,000
Uniforms & protective Gear		1,500
Subtotal:		**$ 1,018,696**
Fire Protection		
Repair & Maintenance - Equipment		$ 14,500
Subtotal:		**$ 14,500**
	Total O&M Costs	**$ 8,127,113**

Newport Water Division
Cost Of Service Analysis
RFC Schedule A-1
Revenue Requirements

Docket No. XXXX

	Rate Year Approved in Docket 4025
CAPITAL COSTS	
Contribution to Capital Spending Acct.	$ 1,146,918
Existing Debt Service	
Revenue Bonds	$ 910,552
SRF Loans	$ 413,954
New Debt Service	
Revenue Bonds	$ -
SRF Loans	$ 686,317
Total Debt Service	2,010,823
	-
Total Capital Costs	**$ 3,157,741**
Contribution to Repayment to City Account	
Operating Revenue Allowance	$ 243,813
Total Costs before Offsets	**$ 11,528,667**
OFFSETS	
Nonrate Revenues	
Sundry charges	$ 140,016
WPC cost share on customer service	269,842
Middletown cost share on customer service	134,819
Rental of Property	81,000
Water Penalty	42,320
Miscellaneous	7,515
Investment Interest Income	39,191
Water Quality Protection Fees	25,676
Total Nonrate Revenues	**$ 740,378**
Net Costs to Be Recovered through Rates	**$ 10,788,289**

Rate Year costs are those approved in Docket No. 4025.

Newport Water
Cost Of Service Analysis
RFC Schedule A-2
Proposed Rates and Charges

	(1) Docket 4025 Rates	Cost of Service	Proposed Rates	% Change	Projected Revenues
Base Charge (per bill)					
Monthly	$ 15.31	$ 10.4829	**$ 10.49**	*-31%*	$ 102,970
Quarterly	$ 15.31	$ 17.5092	**$ 17.51**	*14%*	972,809
					$ 1,075,778
Volume Charge (per 1,000 gallons)					
Retail					
Residential	$ 5.25	$ 4.7973	**$ 4.80**	*-9%*	3,616,397
Commercial	$ 5.25	$ 5.2125	**$ 5.22**	*-1%*	2,542,054
					$ 6,158,451
Wholesale					
Navy	$ 3.2280	$ 3.2672	**$ 3.2672**	*1%*	909,238
Portsmouth Water & Fire District	$ 2.573	$ 2.659	**$ 2.659**	*3%*	1,200,970
					$ 2,110,208
Fire Protection					
Public (per hydrant)	$ 869.00	$ 1,028.66	**$ 1,028.67**	*18%*	$ 1,027,641
Private (by Connection Size) (2)					
<2	$17.05	$ 13.55	**$ 13.55**	*-21%*	
2	$72.00	$ 57.20	**$ 57.21**	*-21%*	57
4	$442.00	$ 354.13	**$ 354.14**	*-20%*	20,186
6	$884.00	$ 1,028.66	**$ 1,028.67**	*16%*	253,053
8	$2,023.00	$ 2,192.16	**$ 2,192.16**	*8%*	135,914
10	$3,340.00	$ 3,942.20	**$ 3,942.21**	*18%*	-
12	$5,362.00	$ 6,367.71	**$ 6,367.71**	*19%*	12,735
					$ 409,210
				Total Projected Rate Revenues	**$ 10,794,024**

Connection Size	Existing Charge Differential
<2	
2	6.19
4	38.32
6	111.31
8	237.21
10	426.58
12	689.04

(1) From RFC Schedule B-2, 'Allocation of Costs to Water Rate Classes'.
(2) From RFC Schedule D-2, 'Fire Protection Accounts'.

Newport Water
Cost Of Service Analysis
RFC Schedule A-3
Bill Impacts
Page 1 of 2

Customer Class	Monthly Consumption (gallons)	Bill at Current Rates	Proposed		
			Bill at Proposed Rates	$ Change	% Change
Residential (Monthly)					
	1,000	$20.56	$15.29	-$5.27	-25.6%
	2,000	$25.81	$20.09	-$5.72	-22.2%
	4,000	$36.31	$29.69	-$6.62	-18.2%
Avg. Monthly Bill	5,000	$41.56	$34.49	-$7.07	-17.0%
	7,500	$54.69	$46.49	-$8.20	-15.0%
	10,000	$67.81	$58.49	-$9.32	-13.7%
	15,000	$94.06	$82.49	-$11.57	-12.3%
	20,000	$120.31	$106.49	-$13.82	-11.5%
	25,000	$146.56	$130.49	-$16.07	-11.0%
	30,000	$172.81	$154.49	-$18.32	-10.6%
Residential(Quarterly)					
	4,000	$36.31	$36.71	$0.40	1.1%
	8,000	$57.31	$55.91	-$1.40	-2.4%
Avg. Quarterly Bill	15,000	$94.06	$89.51	-$4.55	-4.8%
	20,000	$120.31	$113.51	-$6.80	-5.7%
	30,000	$172.81	$161.51	-$11.30	-6.5%
	40,000	$225.31	$209.51	-$15.80	-7.0%
	60,000	$330.31	$305.51	-$24.80	-7.5%
	80,000	$435.31	$401.51	-$33.80	-7.8%
	100,000	$540.31	$497.51	-$42.80	-7.9%
	120,000	$645.31	$593.51	-$51.80	-8.0%

Customer Class	Monthly Consumption (gallons)	Bill at Current Rates	Proposed		
			Bill at Proposed Rates	$ Change	% Change
Commercial (Monthly)					
	2,000	$25.81	$20.93	-$4.88	-18.9%
	5,000	$41.56	$36.59	-$4.97	-12.0%
Avg. Monthly Bill	15,000	$94.06	$88.79	-$5.27	-5.6%
	20,000	$120.31	$114.89	-$5.42	-4.5%
	30,000	$172.81	$167.09	-$5.72	-3.3%
	40,000	$225.31	$219.29	-$6.02	-2.7%
	50,000	$277.81	$271.49	-$6.32	-2.3%
	75,000	$409.06	$401.99	-$7.07	-1.7%
	100,000	$540.31	$532.49	-$7.82	-1.4%

Customer Class	Annual Consumption (gallons)	Annual Bill at Current Rates	Proposed		
			Annual Bill at Proposed Rates	$ Change	% Change
Commercial with 6" Fire Connection(Monthly Account)					
Base Charge and Commodity Charges	180,000	$1,128.72	$1,065.48	-$63.24	-5.6%
Fire Protection Charge		$884.00	$1,028.67	$144.67	16.4%
Total Annual Charges		$2,012.72	$2,094.15	$81.43	4.0%

Newport Water
Cost Of Service Analysis
RFC Schedule A-3
Bill Impacts
Page 2 of 2

Customer Class	Monthly Consumption (gallons)	Bill at Current Rates	Proposed		
			Bill at Proposed Rates	$ Change	% Change
Portsmouth (Monthly)					
	10,000,000	$25,745.31	$26,601.80	$856.49	3.3%
	20,000,000	$51,475.31	$53,193.10	$1,717.79	3.3%
Avg. Monthly Bill	38,000,000	$97,789.31	$101,057.46	$3,268.15	3.3%
	40,000,000	$102,935.31	$106,375.72	$3,440.41	3.3%
	75,000,000	$192,990.31	$199,445.30	$6,454.99	3.3%
	100,000,000	$257,315.31	$265,923.56	$8,608.25	3.3%
	150,000,000	$385,965.31	$398,880.10	$12,914.79	3.3%
Navy (Monthly)					
	10,000,000	$32,295.31	$32,682.93	$387.62	1.2%
Avg. Monthly Bill (All Meters)	20,000,000	$64,575.31	$65,355.36	$780.05	1.2%
	38,000,000	$122,679.31	$124,165.75	$1,486.44	1.2%
	50,000,000	$161,415.31	$163,372.67	$1,957.36	1.2%
	75,000,000	$242,115.31	$245,053.76	$2,938.45	1.2%
	100,000,000	$322,815.31	$326,734.86	$3,919.55	1.2%

Newport Water Division
Cost Of Service Analysis
RFC Schedule A-4
Revenue Proof

	Rate Year Revenue	
	Existing Rates	Proposed Rates
REVENUES		
Water Rates		
Base Charge (Billing Charge)	$ 1,000,907	$ 1,075,778
Volume Charge		
Residential	3,955,435	3,616,397
Commercial	2,556,663	2,542,054
Navy	898,317	909,238
Portsmouth Water & Fire District	1,162,070	1,200,970
Fire Protection		
Public	868,131	1,027,641
Private	378,880	421,945
Total Rate Revenues	$ 10,820,402	$ 10,794,024
Other Operating Revenues		
Sundry charges	$ 140,016	140,016
WPC cost share on customer service	$ 269,842	269,842
Middletown cost share on customer service	$ 134,819	134,819
Rental of Property	$ 81,000	81,000
Total Other Operating Revenues	$ 625,676	625,676
Total Operating Revenues	**$ 11,446,078**	**$ 11,419,700**
Add: Non-Operating Revenues		
Water Penalty	42,320	42,320
Miscellaneous	7,515	7,515
Investment Interest Income	39,191	39,191
Water Quality Protection Fees	25,676	25,676
Total Non Operating Revenues	$ 114,702	$ 114,702
Total Revenues	**$ 11,560,780**	**$ 11,534,402**
COSTS		
Departmental O&M	$ (8,127,113)	(8,127,113)
Capital Costs		
Contribution to Capital Spending Acct.	(1,146,918)	(1,146,918)
Existing Debt Service	(1,324,506)	(1,324,506)
New Debt Service	(686,317)	(686,317)
Total Capital Costs	$ (3,157,741)	**(3,157,741)**
Operating Revenue Allowance	(243,813)	(243,813)
Total Costs	**$ (11,528,667)**	**$ (11,528,667)**
Revenue Surplus (Deficit)	**$ 32,113**	**$ 5,735**

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-1
Base Extra Capacity Cost Allocations

Docket No. XXXX

	Docket 4025 Rate Year	Allocation Notes	Base	Max Day	Max Hour	Metering	Billing	Fire	Total % Allocated
O&M COSTS									
Administration									
Salaries, Wages, & Benefits	1,012,600	RFC Schedule B-4, 'Allocation Analyses.'	50%	0%	0%	25%	25%	0%	**100%**
All other admin costs	1,117,701	RFC Schedule B-3, 'Cost Allocation Bases.'	45%	28%	7%	6%	5%	8%	**100%**
Subtotal:	**2,130,301**								
Customer Service									
Salaries, Wages, & Benefits	550,268	RFC Schedule B-4, 'Allocation Analyses.'	0%	0%	0%	56%	44%	0%	**100%**
Copying & binding	1,000	100% billing (based on budget analysis)					100%		**100%**
Conferences & Training	5,000	100% billing (based on budget analysis)					100%		**100%**
Support Services	21,000	100% billing (software support & printing/mailing)					100%		**100%**
Postage	34,300	100% billing (based on budget analysis)					100%		**100%**
Gasoline & Vehicle Allowance	27,852	RFC Schedule B-4, 'Allocation Analyses.'	0%	0%	0%	56%	44%	0%	**100%**
Repairs & Maintenance	41,500	100% metering (meter repairs)				100%			**100%**
Meter Maintenance	11,000	100% metering (based on budget analysis)				100%			**100%**
Operating Supplies	9,000	100% metering (based on budget analysis)				100%			**100%**
Uniforms & protective Gear	1,000	100% metering (based on budget analysis)				100%			**100%**
Customer Service Supplies	15,000	100% billing (based on budget analysis)					100%		**100%**
Subtotal:	**716,920**								
Source of Supply - Island	546,896	Average Day Demand Patterns	100%	0%	0%	0%	0%	0%	**100%**
Source of Supply - Mainland	143,300	Average Day Demand Patterns	100%	0%	0%	0%	0%	0%	**100%**
Station One (Excludes pumping)	1,693,577	Maximum Day Demand Patterns	45%	43%	0%	0%	0%	12%	**100%**
Station One Pumping	$12,323	Maximum Hour Demand Patterns	27%	26%	39%	0%	0%	8%	**100%**
Lawton Valley (Excludes pumping)	1,570,061	Maximum Day Demand Patterns	45%	43%	0%	0%	0%	12%	**100%**
Lawton Valley Pumping	$31,689	Maximum Hour Demand Patterns	27%	26%	39%	0%	0%	8%	**100%**
Laboratory	248,850	100% Base	100%						**100%**
Transmission and Distribution	1,018,696	Maximum Hour Demand Patterns	27%	26%	39%	0%	0%	8%	**100%**
Fire Protection	14,500	100% Fire	0%	0%	0%	0%	0%	100%	**100%**
Total O&M Costs	**8,127,113**								

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-1
Base Extra Capacity Cost Allocations

Docket No. XXXX

CAPITAL COSTS	**Docket 4025 Rate Year**	Allocation Notes	Base	Max Day	Max Hour	Metering	Billing	Fire	Total % Allocated
Water Supply	729,124	Average Day Demand Patterns	100%	0%	0%	0%	0%	0%	**100%**
Treatment Station 1	995,412	Maximum Day Demand Patterns	45%	43%	0%	0%	0%	12%	**100%**
Treatment Lawton Valley	236,578	Maximum Day Demand Patterns	45%	43%	0%	0%	0%	12%	**100%**
Treatment Both Plants	120,521	Maximum Day Demand Patterns	45%	43%	0%	0%	0%	12%	**100%**
T&D	889,869	Maximum Hour Demand Patterns	27%	26%	39%	0%	0%	8%	**100%**
Fire	22,574	100% Fire	0%	0%	0%	0%	0%	100%	**100%**
Meters	131,591	100% Meters	0%	0%	0%	100%	0%	0%	**100%**
Billing	32,072	100% Billing	0%	0%	0%	0%	100%	0%	**100%**
Total Capital Costs	**3,157,741**								
Revenue Allowance	243,813	100% base	100%						**100%**
Total Costs before Offsets	**11,528,667**								
OFFSETS									
Nonrate Revenues									
Sundry charges	140,016	Admin. Non-Salary	45%	28%	7%	6%	5%	8%	**100%**
WPC cost share on customer service	269,842	50/50 Split between Metering and Billing	0%	0%	0%	50%	50%	0%	**100%**
Middletown cost share on customer service	134,819	50/50 Split between Metering and Billing	0%	0%	0%	50%	50%	0%	**100%**
Rental of Property	81,000	Admin. Non-Salary	45%	28%	7%	6%	5%	8%	**100%**
Water Penalty	42,320	Admin. Non-Salary	45%	28%	7%	6%	5%	8%	**100%**
Miscellaneous	7,515	Admin. Non-Salary	45%	28%	7%	6%	5%	8%	**100%**
Investment Interest Income	39,191	Admin. Non-Salary	45%	28%	7%	6%	5%	8%	**100%**
Water Quality Protection Fees	25,676	Admin. Non-Salary	45%	28%	7%	6%	5%	8%	**100%**
Total Nonrate Revenues	**740,378**								
Net Costs To Recover Through Rates	**$ 10,788,289**								

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-1
Base Extra Capacity Cost Allocations

Docket No. XXXX

	Base	Max Day	Max Hour	Metering	Billing	Fire	Total $ Allocated
O&M COSTS							
Administration							
Salaries, Wages, & Benefits	506,300	-	-	253,150	253,150	-	1,012,600
All other admin costs	499,864	314,773	77,740	72,159	61,462	91,703	1,117,701
Subtotal:							
Customer Service							
Salaries, Wages, & Benefits	-	-	-	309,015	241,253	-	550,268
Copying & binding	-	-	-	-	1,000	-	1,000
Conferences & Training	-	-	-	-	5,000	-	5,000
Support Services	-	-	-	-	21,000	-	21,000
Postage	-	-	-	-	34,300	-	34,300
Gasoline & Vehicle Allowance	-	-	-	15,641	12,211	-	27,852
Repairs & Maintenance	-	-	-	41,500	-	-	41,500
Meter Maintenance	-	-	-	11,000	-	-	11,000
Operating Supplies	-	-	-	9,000	-	-	9,000
Uniforms & protective Gear	-	-	-	1,000	-	-	1,000
Customer Service Supplies	-	-	-	-	15,000	-	15,000
Subtotal:							
Source of Supply - Island	546,896	-	-	-	-	-	546,896
Source of Supply - Mainland	143,300	-	-	-	-	-	143,300
Station One (Excludes pumping)	757,494	734,016	-	-	-	202,067	1,693,577
Station One Pumping	3,283	3,181	4,837	-	-	1,022	12,323
Lawton Valley (Excludes pumping)	702,248	680,482	-	-	-	187,330	1,570,061
Lawton Valley Pumping	8,443	8,181	12,438	-	-	2,628	31,689
Laboratory	248,850	-	-	-	-	-	248,850
Transmission and Distribution	271,409	262,996	399,824	-	-	84,467	1,018,696
Fire Protection	-	-	-	-	-	14,500	14,500
Total O&M Costs	**3,688,087**	**2,003,630**	**494,838**	**712,464**	**644,377**	**583,717**	**8,127,113**

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-1
Base Extra Capacity Cost Allocations

Docket No. XXXX

CAPITAL COSTS	Base	Max Day	Max Hour	Metering	Billing	Fire	Total $ Allocated
Water Supply	729,124	-	-	-	-	-	729,124
Treatment Station 1	445,223	431,423	-	-	-	118,766	995,412
Treatment Lawton Valley	105,815	102,536	-	-	-	28,227	236,578
Treatment Both Plants	53,906	52,235	-	-	-	14,380	120,521
T&D	237,086	229,737	349,261	-	-	73,785	889,869
Fire	-	-	-	-	-	22,574	22,574
Meters	-	-	-	131,591	-	-	131,591
Billing	-	-	-	-	32,072	-	32,072
Total Capital Costs	**1,571,154**	**815,931**	**349,261**	**131,591**	**32,072**	**257,732**	**3,157,741**
Revenue Allowance	243,813	-	-	-	-	-	243,813
Total Costs before Offsets	**5,503,054**	**2,819,561**	**844,099**	**844,056**	**676,448**	**841,449**	**11,528,667**
OFFSETS							
Nonrate Revenues							
Sundry charges	62,619	39,432	9,739	9,039	7,699	11,488	140,016
WPC cost share on customer service	-	-	-	134,921	134,921	-	269,842
Middletown cost share on customer service	-	-	-	67,409	67,409	-	134,819
Rental of Property	36,225	22,812	5,634	5,229	4,454	6,646	81,000
Water Penalty	18,926	11,918	2,943	2,732	2,327	3,472	42,320
Miscellaneous	3,361	2,116	523	485	413	617	7,515
Investment Interest Income	17,527	11,037	2,726	2,530	2,155	3,215	39,191
Water Quality Protection Fees	11,483	7,231	1,786	1,658	1,412	2,107	25,676
Total Nonrate Revenues	**150,141**	**94,547**	**23,350**	**224,004**	**220,791**	**27,544**	**740,378**
Net Costs To Recover Through Rates	**$ 5,352,913**	**$ 2,725,014**	**$ 820,748**	**$ 620,052**	**$ 455,657**	**$ 813,904**	**$ 10,788,289**
Other Departmental Costs	$ 2,681,924	$ 1,688,857	$ 417,098	$ 387,155	$ 329,765	$ 492,014	**$ 5,996,812**
	45%	**28%**	**7%**	**6%**	**5%**	**8%**	

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-2
Allocation of Costs to Water Rate Classes

ALLOCATION PERCENTAGES

			Commodity Charges					
			Retail		Navy	Portsmouth		
Cost Category	Allocation Basis	**Base Charge**	Residential	Commercial & Governmental			Fire	Total % Allocated
Base	*Average annual demand*		43%	28%	11%	18%		100%
Base Excluding PWFD			53%	34%	13%	0%		
Max Day	*Estimated customer peaking factors*		32%	25%	7%	15%	22%	100%
Max Day Excluding PWFD			37%	29%	9%	0%	25%	100%
Max Hour	*Estimated customer peaking factors*		37%	33%	10%	18%	3%	100%
Max Hour Excluding PWFD			45%	40%	12%	0%	4%	100%
Metering	*Direct Assignment*	100%						100%
Billing	*Direct Assignment*	100%						100%
Fire	*Direct Assignment*						100%	100%

ALLOCATION RESULTS

			Commodity Charges					
			Retail		Navy	Portsmouth		
Cost Category	Docket 4025 Rate Year	**Base Charge**	Residential	Commercial			Fire	Total $ Allocated
Base								
Base excluding T&D	$ 4,844,418		$ 2,090,118	$ 1,350,983	$ 535,022	$ 868,296		4,844,418
T&D to Base	$ 508,495		$ 267,299	$ 172,773	$ 68,422	$ -		508,495
Max Day								
Max Day Except T&D	2,232,281		708,600	547,369	166,737	327,704	481,871	2,232,281
Transmission & Distribution	492,734		183,322	141,610	43,137	-	124,665	492,734
Max Hour								
Max Hr. Except T&D & Pumping	27,651	-	10,149	9,055	2,667	4,970	810	27,651
Pumping	44,012	-	19,694	17,571	5,175	-	1,572	44,012
Transmission & Distribution	749,085	-	335,190	299,062	88,079	-	26,754	749,085
Metering	620,052	620,052	-	-	-	-	-	620,052
Billing	455,657	455,657	-	-	-	-	-	455,657
Fire	813,904	-	-	-	-	-	813,904	813,904
Total To Recover through Rates	**$ 10,788,289**	**$ 1,075,709**	**$ 3,614,372**	**$ 2,538,425**	**$ 909,238**	**$ 1,200,970**	**$ 1,449,576**	**$ 10,788,289**

COST OF SERVICE PER UNIT

	(1)	(2)	(2)	(2)	(2)	(3)	
Description of Billing Units	# of accounts x 12 months	1000's of gallons annually	1000's of gallons annually	1000's of gallons annually	1000's of gallons annually	Equivalent Connections	Total
Percentage of Dollars Allocated	10.0%	33.5%	23.5%	8.4%	11.1%	13.4%	100.0%
Allocated Cost	$ 620,052	$ 3,614,372	$ 2,538,425	$ 909,238	$ 1,200,970	$ 1,449,576	$ 10,332,631
Divided by: Number of Units	176,496	753,416	486,983	278,289	451,640	156,856	
Unit Cost of Service	**$3.51** *per account per month*	**$4.80** *per 1000 gallons*	**$5.21** *per 1000 gallons*	**$3.27** *per 1000 gallons*	**$2.66** *per 1000 gallons*	**$9.24** *Equivalent connections*	

Description of Billing Units	No. of bills per year
Percentage of Dollars Allocated	1.6%
Allocated Cost	$ 455,657
Divided by: Number of Units	65,376
Unit Cost of Service	**$6.97** *per bill*
	(1)

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

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-3
Cost Allocation Bases

Allocation Basis	Used to allocate the following cost categories	Source Schedule	Base	Max Day	Max Hour	Metering	Billing	Fire Protection	**Total % Allocated**
Average Day Demand Patterns	*Supply, Laboratory*	N/A	100%						100%
Maximum Day Demand Patterns	*Treatment*	B-1	45%	43%	0%			12%	100%
Maximum Hour Demand Patterns	*Pumping, Transmission/Distribution, Storage*	B-1	27%	26%	39%			8%	100%
Fire Protection	*Public/Private Fire Protection Costs*	D-2						100%	100%
Salary Costs									
Administration	*Administration Salaries, Wages, & Benefits*	B-4	50%	0%	0%	25%	25%	0%	100%
Customer Service	*Customer Service Salaries, Wages, & Benefits*	B-4	0%	0%	0%	56%	44%	0%	100%
Other Costs	*Administration Non-Salary Costs*	B-1	45%	28%	7%	6%	5%	8%	100%

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-4
Allocation Analyses

	FY 2010 Salary	Allocation of Salary Costs: Base	Max Day	Max Hour	Metering	Billing	Fire Protection	Total Allocated
Administration 15-500-2200								
Salaries by Staff Position								
Director of Utilities	$ 60,298	50%			25%	25%		100%
Administrative Secretary	$ 32,441	50%			25%	25%		100%
Deputy Director - Finance	$ 52,865	50%			25%	25%		100%
Deputy Director - Engineering	$ 55,294	50%			25%	25%		100%
Financial Analyst	$ 67,594	50%			25%	25%		100%
Salary $ Allocation Results	$ 268,492	$ 134,246	$ -	$ -	$ 67,123	$ 67,123	$ -	**$ 268,492**
Resulting % Allocation of Administration Salaries, Wages, & Benefits		**50%**	**0%**	**0%**	**25%**	**25%**	**0%**	**100%**
Customer Service 15-500-2209								
Salaries by Staff Position								
Meter Repairman/Reader	$ 40,934				50%	50%		100%
Meter Repairman/Reader	45,601				50%	50%		100%
Principal Account Clerk	49,491					100%		100%
Meter Repairman/Reader	42,818				100%			100%
Maintenance Mechanic	48,879				50%	50%		100%
SAE - Sr. Maintenance Mechanic	46,822				100%			100%
Water Meter Foreman	51,493				50%	50%		100%
Salary $ Allocation Results	$ 326,038				$ 183,094	$ 142,945		**$ 326,038**
Resulting % Allocation of Customer Service Salaries, Wages, & Benefits		**0%**	**0%**	**0%**	**56%**	**44%**	**0%**	**100%**

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-5
Capital Functionalization

Functional Break Down of Existing Fixed Assets

		Supply	Treatment Station 1	Treatment Lawton Valley	Treatment Both Plants	T&D	Fire	Meters	Billing	
TRANSMISSION/DISTRIBUTION	$ 18,817,129					100%				100%
LAWTON VALLEY	$ 5,351,452			100%						100%
STATION 1	$ 22,516,441		100%							100%
TREATMENT BOTH	$ 2,726,208				100%					100%
STORAGE	$ 1,311,908					100%				100%
SOURCE OF SUPPLY	$ 16,492,953	100%								100%
METERS	$ 2,976,622							100%		100%
BILLING	$ 725,466								100%	100%
FIRE	$ 510,621						100%			100%
Total	$ 71,428,801									
LABORATORY	$ 80,000	23%	32%	7%	4%	28%	1%	4%	1%	100%
LAND AND ROW	$ 3,594,491	23%	32%	7%	4%	28%	1%	4%	1%	100%
	$ 3,674,491									
Total Fixed Assets	**$ 75,103,292**									

		Supply	Treatment Station 1	Treatment Lawton Valley	Treatment Both Plants	T&D	Fire	Meters	Billing	Total
TRANSMISSION/DISTRIBUTION	$ 18,817,129	$ -	$ -	$ -	$ -	$ 18,817,129	$ -	$ -	$ -	$ 18,817,129
LAWTON VALLEY	$ 5,351,452	-	-	5,351,452	-	-	-	-	-	5,351,452
STATION 1	$ 22,516,441	-	22,516,441	-	-	-	-	-	-	22,516,441
TREATMENT BOTH	$ 2,726,208	-	-	-	2,726,208	-	-	-	-	2,726,208
STORAGE	$ 1,311,908	-	-	-	-	1,311,908	-	-	-	1,311,908
SOURCE OF SUPPLY	$ 16,492,953	16,492,953	-	-	-	-	-	-	-	16,492,953
METERS	$ 2,976,622	-	-	-	-	-	-	2,976,622	-	2,976,622
BILLING	$ 725,466	-	-	-	-	-	-	-	725,466	725,466
FIRE	$ 510,621	-	-	-	-	-	510,621	-	-	510,621
Total	$ 71,428,801	$ 16,492,953	$ 22,516,441	$ 5,351,452	$ 2,726,208	$ 20,129,037	$ 510,621	$ 2,976,622	$ 725,466	$ 71,428,801
		23%	32%	7%	4%	28%	1%	4%	1%	
LABORATORY	$ 80,000	18,472	25,218	5,994	3,053	22,544	572	3,334	813	80,000
LAND AND ROW	$ 3,594,491	829,970	1,133,088	269,300	137,190	1,012,948	25,696	149,792	36,507	3,594,491
	$ 3,674,491	$ 848,442	$ 1,158,307	$ 275,293	$ 140,244	$ 1,035,492	$ 26,268	$ 153,126	$ 37,320	$ 3,674,491
		23%	32%	7%	4%	28%	1%	4%	1%	
	Total Allocated	$ 17,341,396	$ 23,674,748	$ 5,626,745	$ 2,866,451	$ 21,164,529	$ 536,889	$ 3,129,748	$ 762,786	$ 75,103,292
		23%	32%	7%	4%	28%	1%	4%	1%	

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-5
Capital Functionalization

Functionalization of Capital Costs

		Supply	Treatment Station 1	Treatment Lawton Valley	Treatment Both Plants	T&D	Fire	Meters	Billing	
Capital Spending Restricted Account	$ 1,146,918	23%	32%	7%	4%	28%	1%	4%	1%	100%
Debt Service	$ 2,010,823	23%	32%	7%	4%	28%	1%	4%	1%	100%
	$ 3,157,741									

		Supply	Treatment Station 1	Treatment Lawton Valley	Treatment Both Plants	T&D	Fire	Meters	Billing	Total
Capital Spending Restricted Account	$ 1,146,918	$ 264,824	$ 361,542	$ 85,927	$ 43,774	$ 323,208	$ 8,199	$ 47,795	$ 11,649	$ 1,146,918
Debt Service	$ 2,010,823	464,300	633,870	150,651	76,747	566,661	14,375	83,796	20,423	$ 2,010,823
	$ 3,157,741	$ 729,124	$ 995,412	$ 236,578	$ 120,521	$ 889,869	$ 22,574	$ 131,591	$ 32,072	$ 3,157,741

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-6
Water Demand History

Docket No. XXXX

	Annual Demand in 1000s Gallons										Baseline	Rate Year
	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	3-Year Average	**Docket 4025**
Annual Demand by Class												
Residential	682,937	698,765	773,872	780,666	736,577	716,037	749,409	734,137	780,264	690,544	734,982	**753,416**
Commercial	724,094	640,379	580,798	583,184	663,766	573,711	493,539	456,486	505,014	519,521	493,674	**486,983**
Navy	466,167	450,247	307,051	348,222	511,299	417,869	373,306	278,441	247,728	225,392	250,520	**278,289**
Portsmouth	438,179	442,582	455,142	451,723	422,944	429,465	463,253	445,232	473,338	444,777	454,449	**451,640**
Total (in 1000's Gallons)	2,311,377	2,231,973	2,116,863	2,163,795	2,334,586	2,137,082	2,079,508	1,914,297	2,006,344	1,880,234	1,933,625	**1,970,329**
		-3.4%	*-5.2%*	*2.2%*	*7.9%*	*-8.5%*	*-2.7%*	*-7.9%*	*4.8%*	*-6.3%*		

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-7
Water Production Peaking Analysis

Docket No. XXXX

	Combined Station #1 and LV WTP *Production Volumes in 1,000 gals*			Peaking Comparison		
	FY 2007	FY 2008	FY 2009	3 Year Average Production Peaks	System Peaks Estimated from Monthly Data	System Diversity Ratio (1)
Annual Production	2,456,363	2,524,784	2,437,440	2,472,862		
Average Day Production	6,730	6,917	6,678	6,775		
Maximum Month Production	256,796	269,819	280,875	269,163		
Maximum Day Production	10,165	10,724	12,100	10,996		
Max Day Date	*6/28/2007*	*8/4/2007*	*7/18/2008*			
Maximum Day Peaking Factor	1.51	1.55	1.81	**1.62**	**1.97**	1.21
Max-Day to Avg. Day/Max-Month Ratio	1.19	1.19	1.29	**1.23**		
Maximum Hour	13,800	15,200	13,250			
Maximum Hour Peaking Factor	2.05	2.20	1.98	**2.08**	**2.47**	1.19
				Coincident	Noncoincident	
				Excluding Fire Protection		

(1) Calculated according to AWWA M-1 Guidelines

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-8
Docket No. XXXX
Billed Demand Peaking Analysis: Determination of Customer Class Peaking Factors

Enter "A" to use all data or "B" to use monthly only data	A
Enter "B" to use billing data or "D" to use daily demand study data	B

Estimation of Each Customer Class' Peaking Factors

		Max Month Water Demand (1000's gallons)						Max Month Avg. Day to Avg. Day			Max Day Peaking			Max Hour Peaking	
Customer Class		**2007**	**2008**	**2009**	Typical Max Month (1,000 gals.)	Average Daily Demand in Max Month (1,000 gals.)	Average Daily Demand (1,000 gals.)	All Meters (QRT + Monthly)	Monthly Meters Only	Ratios Used in Rate Calculations	Monthly to Daily Peaking Multiplier	System Max Day/ Avg. Day Max Month Ratio	**Max Day Ratio**	Daily to Hourly Peaking Multiplier	**Max Hour Ratio**
Residential		79,586	103,115	83,630	88,777	2,959	2,014	1.47	N/A	1.47	1.06	1.23	**1.91**	1.20	**2.29**
Commercial		51,545	66,684	61,978	60,069	2,002	1,353	1.48	N/A	1.48	1.15	1.23	**2.09**	1.33	**2.78**
Navy		29,771	30,475	24,640	28,295	943	686	1.37	1.37	1.37	1.09	1.23	**1.84**	1.27	**2.33**
Portsmouth		51,270	58,023	61,048	56,780	1,893	1,245	1.52	1.52	1.52	1.08	1.23	**2.01**	1.25	**2.52**
Fire	(5)														
Estimated Systemwide Peaks													**1.97**		**2.47**
									(1)		(2)	(3)			(4)

(1) These monthly peaking ratios was calculated using demand records from only those customers metered on a monthly basis.
(2) Daily Peaking Multipliers developed using data daily data collected during the simmer of 2009.
(3) Max Day / Avg. Day Max Month water production ratios are from RFC Schedule B-7, 'Water Production Peaking Analysis'.
(4) Navy and Portsmouth demand peaking behavior is assumed to have both residential and nonresidential characteristics that resemble demand in the rest of the system.
As such, the following assumptions are used to weight residential and nonresidential peaking for Portsmouth and the Navy.

	% Residential Demand	% NonResidential Demand	
Navy	*50%*	*50%*	Used in Max Day and Max Hour calculations
Portsmouth	*60%*	*40%*	Used in Max Hour calculations only.

(5) Fire peaking behavior is estimated using a separate methodology demonstrated in RFC Schedule B-11, Fire Protection Demand Analysis'.

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-9
Docket No. XXXX
System Demands Imposed by Each Customer Class' Peaking Behavior

	Rate Year Demand (1,000 gallons)					
Customer Class	Annual Demand	Average Daily Demand	Lost Water Adjustment	Adjusted Average Daily Demand	% Average Demand by Class	% Average Demand by Class excl. PWFD
Residential	753,416	2,064	*265*	2,329	**43.1%**	**53%**
Commercial	486,983	1,334	*171*	1,505	**27.9%**	**34%**
Navy	278,289	762	*(166)*	596	**11.0%**	**13%**
Portsmouth	451,640	1,237	*(270)*	968	**17.9%**	**0%**
Fire					**N/A**	**N/A**
Total, w Fire Prot.	**1,970,329**	5,398	22%	**5,398**	**100%**	**100%**
			(1)			

		Max Day Calculations				% of Daily Peaks		Max Hour Calculations			% of Hourly Peaks	
Customer Class		Max Day Peaking Factor	Demand x Peaking Factor (3)	Incremental Peak Demand	**% of Daily Peaks**	**With Portsmouth**	**Without Portsmouth**	Max Hour Peaking Factor	Demand x Peaking Factor (3)	Incremental Peak Demand	**With Portsmouth**	**Without Portsmouth**
Residential		1.91	4,447	2,118	**31.7%**	**31.7%**	**37.2%**	2.29	5,336	3,007	**36.7%**	**44.7%**
Commercial		2.09	3,141	1,636	**24.5%**	**24.5%**	**28.7%**	2.78	4,188	2,683	**32.7%**	**39.9%**
Navy		1.84	1,094	498	**7.5%**	**7.5%**	**8.8%**	2.33	1,386	790	**9.6%**	**11.8%**
Portsmouth		2.01	1,947	979	**14.7%**	**14.7%**		2.52	2,440	1,472	**18.0%**	
Fire	(2)		1,440	1,440	**21.6%**	**21.6%**	**25.3%**		240	240	**2.9%**	**3.6%**
Total, w Fire Prot.			12,069	6,671	100.0%	100.0%	100.0%		13,590	8,192	100.0%	100.0%
Total, without Fire Protection			**10,629**	**5,231**					**13,350**	**7,952**		

(demand is in thousands of gallons)

(1) From RFC Schedule D-4. The lost water adjustment is made to the peaking analysis so that Portsmouth and the Navy will not share in that portion of certain operating costs.
(2) From RFC Schedule B-11, Fire Protection Demand Analysis'.

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-10
Summary of Peak Load Distributions (by Rate Class and Base/Extra-Capacity Categories)

Docket No. XXXX

EACH RATE CLASS' SHARE OF SYSTEM PEAKS

Rate Class	Average Demand	Daily Peaks	Hourly Peaks
Retail			
Residential	43%	32%	37%
Commercial	28%	25%	33%
Navy	11%	7%	10%
Portsmouth	18%	15%	18%
Fire	N/A	22%	3%
	100%	**100%**	**100%**

Percentages are from RFC Schedule B-9, 'System Demands Imposed by Each Customer Class' Peaking Behavior '.

BASE/EXTRA-CAPACITY DISTRIBUTION OF SYSTEM PEAKS

	Incremental Demand	% Distribution for Max Day	% Distribution for Max Hour
Base	5,398	**44.7%**	**26.6%**
Extra Capacity			
Max Day	5,231	**43.3%**	**25.8%**
Max Hour	7,952		**39.2%**
Private Fire Protection			
Max Day	1,440	**11.9%**	**7.1%**
Max Hour	240		**1.2%**
Total%		**100.0%**	**100.0%**
Total 1000's Gallons		**12,069**	**20,261**

Incremental demand data is from RFC Schedule B-11, Fire Protection Demand Analysis'.
and from RFC Schedule B-9, 'System Demands Imposed by Each Customer Class' Peaking Behavior '.

Newport Water Division
Cost Of Service Analysis
RFC Schedule B-11
Fire Protection Demand Analysis

Docket No. XXXX

FIRE PROTECTION ASSUMPTIONS

Fire Protection Flow	(gals per minute)	4,000
Hourly Fire Protection Flow (1000's of gallons)		240
Length of Fire Event (in hours)		6

Newport Water Division
Cost Of Service Analysis
RFC Schedule D-1
Water Accounts, by Size and Class

Connection Size		Retail Accounts			Wholesale		
		Commercial	Government	Residential	Navy	Portsmouth	
5/8		656		10,221			
3/4		231		2,243	1		
1		186		381			
1.5		164		167			
2		210		104			
3		73		28			
4	(1)	14		2		1	
5		2	-	-			
6		12	-	1	8		
8				2			
10					1		
Total	**14,708**	**1,548**	**-**	**13,149**	**10**	**1**	
							Total Bills
Billed Monthly	**818**	707	0	100	10	1	9,816
Billed Quarterly	**13,890**	841	-	13,049			55,560
							65,376

Newport Water Division
Cost Of Service Analysis
RFC Schedule D-2
Fire Protection Accounts

			Docket 4025		
	Connection Size	Existing Differential	Number of Connections	Equivalent Connections (2)	
Public Hydrants					
Newport	6	111.31	583	64,894	
Middletown	6	111.31	408	45,414	% of Equiv
Portsmouth	6	111.31	8	890	Connections
Subtotal: Public Hydrants			**999**	**111,199**	**71%**
Private Fire Connections					
	2	6.19	1	6	
	4	38.32	57	2,184	
	6	111.31	246	27,382	
	8	237.21	62	14,707	
	10	426.58	0	-	% of Equiv
	12	689.04	2	1,378	Connections
Subtotal: Private Fire Connections			**368**	**45,658**	**29%**
Total Public and Private Fire Connections			**1,367**	**156,856**	**100%**

(1) Demand factors are based on the principles of the Hazen- Williams equation for flow through pressure conduits. For more information, see the AWWA M1 rate manual chapter on fire protection charges.
(2) Equivalent connections are arrived at by multiplying the number of connections by the demand factor.

Newport Water Division
Cost Of Service Analysis
RFC Schedule D-3
Production Summary

		Station #1			Lawton Valley			Combined	
		In Gallons	in 1000's		In Gallons	in 1000's		In Gallons	in 1000's
FY 07 JULY 2006 - JUNE 2007		1,176,356,210	**1,176,356**		1,280,006,852	**1,280,007**		2,456,363,062	**2,456,363**
	Max. Month June	116,724,700	**116,725**	August	140,288,300	**140,288**	August	256,795,580	**256,796**
FY 08 JULY 2007 - JUNE 2008		1,268,356,660	**1,268,357**		1,256,427,700	**1,256,428**		2,524,784,360	**2,524,784**
	Max. Month August	141,803,530	**141,804**	July	144,557,900	**144,558**	July	269,819,450	**269,819**
FY 09 JULY 2008 - JUNE 2009		1,152,697,400	**1,152,697**		1,284,742,500	**1,284,743**		2,437,439,900	**2,437,440**
	Max. Month March	110,288,000	**110,288**	July	177,163,200	**177,163**	July	280,874,500	**280,875**

MAX DAY PRODUCTION AVAILABLE FOR SALE

	Station #1			Lawton Valley			Combined		
		Max Day Production			Max Day Production			Max Day Production	
	Date	In Gallons	in 1000's	Date	In Gallons	in 1000's	Date	In Gallons	in 1000's
FY 07 JULY 2006 - JUNE 2007	8/2/2006	5,114,940	**5,115**	8/14/2006	5,958,100	**5,958**	6/28/2007	10,165,100	**10,165**
		includes booster to LV at 1,256,000 Gallons							
FY 08 JULY 2007 - JUNE 2008	8/25/2007	6,179,670	**6,180**	6/10/2008	6,805,400	**6,805**	8/4/2007	10,723,620	**10,724**
		includes booster to LV at 2,251,000 Gallons							
FY 09 JULY 2008 - JUNE 2009	7/20/2008	4,341,000	**4,341**	7/18/2008	7,845,700	**7,846**	7/18/2008	12,100,100	**12,100**
		includes booster to LV at 324,000 Gallons							

PEAK HOURLY FLOW

	Date	Station #1		Date	Lawton Valley	
FY 07 JULY 2006 - JUNE 2007	7/6/2006	5.8	MGD	7/1/2006	8.0	MGD
FY 08 JULY 2007 - JUNE 2008	8/26/2007	7.2	MGD	6/18/2008	8.0	MGD
FY 09 JULY 2008 - JUNE 2009	7/18/2008	5.25	MGD	7/18/2008	8.0	MGD

Newport Water Division
Cost Of Service Analysis
RFC Schedule D-4
Demand Summary

	FY 2006	FY 2007	FY 2008	FY 2009
Fiscal Year Annual Demand				
Residential	718,022	734,137	780,264	690,544
Commercial (includes governmental)	505,804	456,486	505,014	519,521
Navy	373,306	278,441	247,728	225,392
Portsmouth	453,618	445,232	473,338	444,777
Total 1000's Gallons	**2,050,751**	**1,914,297**	**2,006,344**	**1,880,234**
		-6.7%	*4.8%*	*-6.3%*

Max Month Demand	*(1000's of gallons)*	FY 2007	FY 2008	FY 2009
Residential		79,586	103,115	83,630
Commercial		51,545	66,684	61,978
Navy		29,771	30,475	24,640
Portsmouth		51,270	58,023	61,048
NonCoincident Max Month		**212,172**	**258,296**	**231,296**
Coincident Max Month		**196,132**	**221,941**	**201,008**
Production Volume, Max Month		**256,796**	**269,819**	**280,875**

Unaccounted for Water Analysis

	FY 2007	FY 2008	FY 2009	Average
Billed Consumption (1,000 gals.)	1,914,297	2,006,344	1,880,234	1,933,625
Total Water Produced (1,000 gals.)	2,456,363	2,524,784	2,437,440	2,472,862
Unaccounted for Water (1,000 gals.)	542,066	518,440	557,206	539,237
Percent Unaccounted for Water	22%	21%	23%	22%

Newport Water Division
Cost Of Service Analysis
RFC Schedule D-5
Development of Pumping Costs

Pumping Labor and Benefits

Station One		**Lawton Valley**	
Labor hours per day pump	0.5000	Labor hours per day pump	0.1667
Days per year	365	Days per year	365
Total Hours	182.5000	Total Hours	60.8455
Average per hour pay	$21.78	Average per hour pay	$22.10
Average per hour benefits	$4.69	Average per hour benefits	$4.82
Pumping Salaries	$3,974.85	Pumping Salaries	$1,344.69
Pumping Benefits	$855.01	Pumping Benefits	$293.15

Pumping Repairs and Supplies

Station One			**Lawton Valley**	
50275	Repair & Maintenance - Equipment		Repair & Maintenance - Equipment	
	None	$0.00	Vendor	amount
Total Repair & Maintenance Pumping		$0.00	Bristol County Machine	$125.00
			Broadway Electric	$160.00
			Bristol County Machine	$128.00
50311	Operating Supplies		Broadway Electric	$85.10
	Vendor	amount	Bristol County Machine	$60.00
	National Electric Testing	$300.00	Ralco Electric	$306.00
			Delta Electric Motor	$496.00
Total - Operating Supplies - Pumping		$300.00	Industrial Pump Sales & Service	$5,521.56
			Industrial Pump Sales & Service	$1,152.00
			Total Repair & Maintenance Pumping	$8,033.66
			Operating Supplies	
			Vendor	amount
			National Electric Testing	$300.00
			Ralco Electric	$499.00
			Total Operating Supplies Pumping	$799.00

Pumping Electricity

Station One		**Lawton Valley**	
Annual Pumping Power	$7,193	Annual Pumping Power	$21,712

Total Pumping Costs

Station One		**Lawton Valley**	
Pumping Salaries	$3,975	Pumping Salaries	$1,345
Pumping Benefits	$855	Pumping Benefits	$293
Total Repair & Maintenance Pumping	$0	Total Repair & Maintenance Pumping	$8,034
Total - Operating Supplies - Pumping	$300	Total Operating Supplies Pumping	$306
Annual Pumping Power	$7,193	Annual Pumping Power	$21,712
Total Annual Pumping Costs	**$12,323**	**Total Annual Pumping Costs**	**$31,689**